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Investigating social media users' collaborative information seeking behaviours during group trip planning and the execution of travelling

PhD Thesis

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Declaration

I declare that this thesis presents work carried out by myself and does not incorporate without acknowledgement any material previously submitted for a degree or diploma in any university; to the best of my knowledge it does not contain any material previously published or written by another person except where due reference is made in the text; and all substantive contributions by others to the work presented, including jointly authored publications, is clearly acknowledged.

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Jannatul Fardous

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Abstract

Travellers most often travel in groups with family members or friends on holidays. Travel planning is a complex task because it requires collaboration with other tour members for such purposes as searching, sharing and verifying information, as well as sharing knowledge and experiences with each other (Ho, Lin, & Chen, 2012; Mohammad Arif, Du, & Lee, 2012). It is argued that tourism information searching tends to be more collaborative than a completely individual decision-making exercise. Collaborative information seeking (CIS) deals with collaboration in searching for information, in which members of a group collaborate with each other to seek, synthesise and disseminate relevant information to meet a shared information need or solve a common problem (Reddy & Spence, 2008; Sonnenwald & Pierce, 2000). In recent years, social media have become as an important information source used by tourists who access it frequently through their mobile devices.

Research in tourism has shown that travellers are relying more on the suggestions and reviews provided by experienced tourists for their travel planning. During information seeking and decision-making, tourists on self-organised group trips have also been found to interact with others (out of the tour group) as well as collaborating with members of their group, during which they exploit their social networks/relationships to improve the search process. Social interactions are believed to play a vital role in tourism information searching. However, there has been limited research into social media users' behaviours in CIS for tourism information. For example, what roles the social interactions of tourists on social media play in supporting tourism CIS, including the purposes of social interactions and contributions of such interactions to CIS activities, have remained unknown. The term social interaction has been used in a variety of disciplines, and in this thesis it refers to "social networks" on social media both between strangers and between known persons.

This thesis aims to investigate the CIS behaviours of social media users during both trip planning and trip execution. Social media users are specifically referred to as tourists who frequently use social media for their trip-related purposes. A mixed-methods approach was adopted incorporating a questionnaire survey and group interviews. All participants involved had returned from a recent group trip. A questionnaire survey was conducted with 108 participants to investigate their use of social media, in particular how social media was used during group travel planning and the journey. Another 14 groups of participants (in total 38 individuals) took part in the semi-structured interviews, which aimed to explore how a tourism

group collaboratively seeks, shares and uses the information obtained via social interactions on social media.

Reported in this thesis are triggers and characteristics of tourism CIS behaviours and circumstances of social media usage by tourists during both the group trip planning and the group trip execution phases. The results reveal that the tourists in travel groups interacted with other experienced tourists on social media to find and gather specific information, schedule the trip-related activities and cross-check ideas. In addition, during travel, the tourists utilised social interactions on social media to seek and validate particular information as well as to find information quickly. Social interactions were found to influence CIS behaviours during trip planning through seeking and sharing gathered information and making group decisions. Furthermore, social interactions were also found to influence CIS behaviours during the travelling with regard to speeding up the information seeking process, making collaborative decisions, and to play the role as a tour guide.

This study makes three important contributions to our understanding of CIS research in the tourism domain. First, it expands the knowledge of tourism CIS by exploring the triggers and characteristics of tourism CIS behaviours from longitudinal and dynamic perspectives, from the planning of a trip to its execution. Second, it provides insights into situations of social media usage during the course of a group trip, and the impacts of social interactions on social media on CIS activities. Finally, based on the key findings and theory of empirical study, this thesis builds two frameworks illustrating the social interactions embedded in tourism CIS.

The research also provides guidelines for CIS system developers on how to integrate social media into their systems as a way of providing facilities for information seeking and sharing during the CIS process. Furthermore, it enables existing social media communication tools (e.g., Facebook Messenger, WhatsApp and WeChat) to consider introducing features that support group communication and decision-making to facilitate tourism CIS activities.

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List of publications

The following is a list of publications produced from this thesis (including papers under review and preparation):

Journal

1. **Fardous, J**., Du, J. T., & Hansen, P. (2019). Collaborative information seeking during leisure travelling: triggers and social media usage. *Information Research, 24(3), paper 830.* Retrieved from http://www.informationr.net/ir/24-3/paper830.htm

2. **Fardous, J.**, Du, J. T., Choo, K.-K. R., Huang, S., & Hansen, P. (accepted 04/11/19). Group trip planning and information seeking behaviours by mobile social media users: A study of tourists in Australia, Bangladesh, and China. *Journal of Information Science (JIS).* [In Press]

Conference

3. **Fardous, J**. Du, J. T., Choo, K.-K. R., & Huang, S. (2017). Investigating mobile social media users' behaviors in tourism collaborative information seeking. In *Proceedings of the 2017 ACM SIG Conference on Human Information Interaction and Retrieval (CHIIR)* (pp. 395–397), New York, NY, USA: ACM. https://doi.org/10.1145/3020165.3022167

4. **Fardous, J**. Du, J. T., Choo, K.-K. R., Huang, S., & Hansen, P. (2017). Exploring collaborative information search behavior of mobile social media users in trip planning. In *iConference 2017 Proceedings* (pp. 435–444), Wuhan, China. https://doi.org/10.9776/17214

5. **Fardous, J**. Du, J. T., Choo, K.-K. R., Huang, S., & Hansen, P. (2018). Social media usage during tourism information seeking and group travelling. Paper presented at *the 15th Australasian Conference on Research Applications, Information and Library Studies (RAILS)*, Melbourne, Australia. (accepted referred abstract).

6. **Fardous, J**. & Du, J. T. (2019). Characteristics of collaborative information seeking activities during group trip planning: A preliminary study. In Proceedings of the 82nd *Annual Meeting of the Association for Information Science & Technology (ASIS&T)*, Melbourne, Australia, Vol: 56, Issue: 1.

7. **Fardous, J**. & Du, J. T. (2019). Tourists' social interactions on social media during group trip planning. In Proceedings of the 82nd *Annual Meeting of the Association for Information Science & Technology (ASIS&T)*, Melbourne, Australia, Vol: 56, Issue: 1.

Manuscript under preparation

8. **Fardous, J**.& Du, J. T., Motivations and impacts of employing social media interactions during a group trip planning. To be submitted to *Journal of Documentation (JDoc).*

Definitions of terms used in the thesis

Information seeking

Information seeking refers to the process in which users are involved in acquiring information from various sources of information such as people, paper-based documents, information systems and so on, in response to a need or gap in their knowledge for work or life (Case & Given, 2016; Wilson, 2000; Li, 2009).

Collaboration

Collaboration is a process in which two or more people work together to complete a task or solve a common problem (Gaver, 1991).

Collaborative information seeking (CIS)

Collaborative information seeking refers to an information seeking process in which human beings interact with other humans explicitly or implicitly, via text (e.g., notes, messages, documents), as information sources for solving a specific problem in team settings (Hansen & Järvelin, 2005a; Shah, 2014).

Collaborative information seeking (CIS) behaviours

CIS behaviours include exploration of scenarios, triggers, motivations and methods for doing collaboration, more specifically in the context of information seeking (Reddy, Jansen, & Spence, 2010; Shah, 2010).

Social search

Social search refers to a search process conducted on social data collected from Web 2.0 applications, such as social bookmarking systems, wikis, blogs, forums, social networking sites and many others (Carmel, Zwerdling, Guy, Ofek-Koifman, Har'el, Ronen, & Chernov, 2009). Social searches include different types of data (i.e., documents, persons, communities and tags). In other words, social search refers to the use of social networks to search for information.

Social media

A group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that facilitate interactions among people in which they create, share and exchange information and ideas in virtual communities and networks that allow the

creation and exchange of user-generated contents (Obar & Wildman, 2015; Zeng & Gerritsen, 2014). Examples include Facebook, Twitter, Instagram, WeChat and QQ.

Social interactions

Social interactions and collaboration on social media are terms used interchangeably in this study. Social interactions refers to the "networks" on social media that link strangers and known persons (Boyd & Ellison, 2007; Fardous, Du, Choo, & Huang, 2017; Scheinkman, 2008). Social media are increasingly used to keep up social interactions/relationships with others. Social interactions play an important role in the search process (Evans & Chi, 2008). People serve as valuable information sources during such search processes (Evans, Kairam, & Pirolli, 2010).

Social interactions on social media

Social interactions on social media, or social media interactions, refers to situations in which people seek information through or from other people on social media. Participants in information seeking on social media may have different roles and goals (e.g., information seeker or information provider) (Shah, Capra, & Hansen, 2017). For example, people may ask for advice and opinions on social media (e.g., Facebook pages, blogs, and forums), or someone may look for restaurant suggestions from friends and followers on Facebook or Twitter. Social media interactions can be further subdivided into situations where information is sought from unknown people (that is, the crowd or community, through avenues such as Yahoo! Answers), or from known people (that is, through social networks such as Facebook, WhatsApp and WeChat).

Social media users

Social media users mean the users who join social media platforms like Facebook, WhatsApp and WeChat. After joining social media, social media users identify other users in the system with whom they want to create relationships (Boyd & Ellison, 2007; Obar & Wildman, 2015).

Travel/trip

A trip or travel is a journey in which individuals move or go away from home to somewhere for a short time for a leisure purposes, and then come back home again.

Group trip planning

Group trip planning is a process that occurs before execution of the trip. During trip planning, a group of tourists works together to schedule their upcoming trip by information seeking, sharing, and verifying, solving disagreements and making decisions.

Execution of a group trip/during travelling/during travel

The terms execution of a group trip, during travel or journey are used in this thesis interchangeably to define the period of execution of a group trip, starting from leaving home and ending with returning to home.

Tourism

Tourism is "The sum of the phenomena and relationships arising from the interaction of tourists, business suppliers, host governments and host communities in the process of attracting and hosting tourists and other visitors" (Mclntosh, Goeldner, & Ritchie, 1995). In other words, tourism is a collection of activities, services and industries, which deliver a travel experience comprising transportation, accommodation, eating and drinking establishments, retail shops, entertainment businesses and other hospitality services provided for individuals or groups (a group of tourists) travelling away from home.

Tourism information seeking/searching

Tourism information seeking is a process in which individuals use various amounts and types of information sources in order to gather relevant information to facilitate travel planning (Fodness & Murray, 1997; Gursoy & Terry Umbreit, 2004; Kambele, Li, & Zhou, 2015).

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Dedication

I would like to dedicate this work to my mother Tahmina Akter, my father, MD. Shafiqur Rahman, my husband Mohammad Sharif and my daughter Samarah Sharif.

1. Introduction

1.1 Background and problem statement

Information seeking has been considered a solitary activity for years; however, researchers (Hansen & Järvelin, 2005a; Reddy & Spence, 2008; Twidale & Nichols, 1996) have found that there are many situations in both our personal and our professional lives which demand collaboration for information seeking. For instance, family members might collaboratively seek information on the web to plan a holiday (Morris, 2008), or healthcare providers in a hospital might collaboratively search for information to diagnose and provide treatment to patients (Reddy & Spence, 2008). Prior research has shown that the outcomes of information seeking are more useful and beneficial when collaboration is integrated with information search systems in organisational and group settings (Twidale & Nichols, 1996). In a situation where a group of people works to accomplish a common goal, collaboration helps the group members to achieve it quickly, smoothly and successfully by means of shared information (Hansen & Järvelin, 2005a; Shah, 2010).

In *collaborative information seeking (CIS)*, people interact and share information with each other, either explicitly or implicitly, using textual and other multimedia materials (e.g., notes, messages, documents, pictures and videos) as information sources to solve a shared problem in a team setting (Hansen & Järvelin, 2005; Morris, 2013; Shah, 2014; Shah & Leeder, 2016; Soulier, Tamine, & Shah, 2016; Tamine & Soulier, 2016). Collaboration takes place when an individual has insufficient knowledge to solve a complex problem alone and seeks information from others. It has been found that when there are breakdowns in the flow of information, group members collaborate on information seeking, sharing and using information in order to gain that needed information (Reddy, Jansen, & Spence, 2010). Within the tourism context, travel planning with family or friends is a complex project, because many parts of it require collaboration with other tour members for many reasons, including gathering information, sharing information, verifying information, sharing knowledge and experiences, and updating information (Ho, Lin, & Chen, 2012; Mohammad Arif, Du, & Lee, 2012). In other words, as a result of intra-group collaboration, a group of tourists can gain a range of information from different sources which will eventually help them to complete their complex search task and ease their decision-making process.

In this study, CIS is considered a situation in which group members seek, share, evaluate, and validate travel information together in order to fulfil their tourism information needs and make collaborative decisions about a group trip. The phases of a group trip under study include the trip planning stage and the travelling/execution stage. The use of social interactions on social media during CIS is referred to as the use of information obtained via social interactions on social media by tourists for their group trip-related purposes.

In recent years, tourism has turned into the largest and fastest-growing industry in the world. In Australia, for example, in 2016-2017, tourism contributed more than 6% (approximately $55 billion) to the country's GDP and employed 598,200 Australians (Australian Trade and Investment Commission, 2018). Earnings from the tourism industry help to build infrastructure (e.g., airports, roads and hotels) as well as contributing to economic development in regional Australia. Realising the importance of tourism, in 2014 the Australian government announced a project called 'Tourism 2020', which is a national strategy to boost the country's growth and competitiveness in the tourism industry by attracting more local and international tourists (Minister for Trade and Investment, 2014). Due to increased efforts by the government, Tourism Research Australia recorded strong growth in international tourist arrivals to Australia at the end of June 2014. Tourism Australia is currently working on the six strategies in the project 'Tourism 2020', of which the first is to increase the number of tourists coming from Asia (i.e., China, India and Indonesia), Europe and the USA. To attract tourists, including both domestic and international tourists, it is necessary to provide an easy and robust way for potential visitors to find useful tourism-related information.

Since enhancing their social and interpersonal relationships is one of tourists' key motivations (Hsu & Huang, 2008; Pearce, 2005), they generally travel in groups with family, relatives or friends. According to Tourism Research Australia (2016), those travelling with families were the fastest-growing category of visitors to Australia (up 19% to 942,000), followed by those travelling with friends (up 17% to 822,000). For leisure trips, travelling in groups with friends or family members is relatively common, and in fact more and more tourists nowadays tend to travel in small groups with family, relatives or friends (Schänzel & Yeoman, 2015). For free and independent travellers who organise their trips by themselves, trip planning involves information-intensive activities such as information seeking, sharing, assessing, and sense-making, as well as coordination between tour mates to reach agreements and make collaborative decisions. These information seeking and decision-making behaviours may take place in both the initial trip planning stage and during the leisure travelling itself (Fardous, Du,

Choo, & Huang, 2017; Mammadov, 2012; Morris, 2008). For instance, in the initial phase of planning a group trip, deciding where to go for a holiday has long been considered a joint information seeking and decision-making process involving wife, husband, and children (Mohammad Arif et al., 2012; Shah, 2014). On the other hand, when tourists are travelling, looking for independent sources of information such as suggestions for and reviews of dining experiences from other diners on social media (e.g., blogs) may help them make an informed and quick decision on where to dine (Rezdy, 2016).

Earlier research has shown that tourists utilise both internal (e.g., memory and experience) and external (e.g., family, friends and brochures) sources of information for travel planning (Gursoy & McCleary, 2004; Mohammad Arif, Du, & Lee, 2015). In recent times, social media has played an increasingly important role in tourism due to its ubiquitous use on smart mobile devices and the popularity of sharing travel aspirations and experiences on social media. For example, a report stated that social media such as Facebook are growing rapidly all over the world and that there are 2.32 billion active Facebook users worldwide who access social media every day for various purposes (Statista, 2019). Tourists have been found to turn to user-generated content (UGC, e.g., experiences and reviews posted on social media) shared on social media when researching a new destination or an international destination (Harrigan, Evers, Miles, & Daly, 2017). UGC is perceived as similar to recommendations provided by friends, family members or like-minded people (Wang, Yu, & Fesenmaier, 2002; Xiang, Wang, O'Leary, & Fesenmaier, 2015) and thus has become a trustworthy source of information for prospective tourists.

More specifically, researchers have found that tourists search social media for ideas about where to go and information on accommodation options, transportation and leisure activities during the travel planning stage (Cox, Burgess, Sellitto, & Buultjens, 2009; Fotis, Buhalis, & Rossides, 2012). A recent study by Fardous, Du, Choo, Huang and Hansen (2017) suggested that tourists interact with others on social media by using their mobile devices to seek, gather, obtain, share and validate travel information for trip planning; tourists were also found to change their initial travel plans due to the influence of social interactions on social media. Moreover, people prefer to search for information via social interaction along with web searches (Shah & Sonne, 2015). Thus, the increasing use of social media and smart mobile devices has changed tourists' information seeking and sharing behaviours during the travel planning phase (Dunloe Hotel, 2015; Fotis, Buhalis, & Rossides, 2012; Wang, Xiang, &

Fesenmaier, 2014; Xiang & Gretzel, 2010). Yet there is a limited understanding of how a group of tourists utilises social media, and its influence on their trip planning experiences.

Recent research has suggested that tourists need to use social interactions on social media to fulfil their tourism information needs while executing their travel at the holiday destination. Moreover, it has been determined that social interactions affect information seeking processes (Evans & Chi, 2008; Fardous, Du, Choo, Huang, & Hansen, 2017; Ho, Lin, Yuan, Chen, & Alvares, 2016; Tan & Goh, 2015). For example, Tan and Goh (2015) uncovered that individual tourists use their social interactions to seek information while travelling, and that such interactions affect the information seeking and decision-making processes spontaneously. Social interactions were found to help travellers get to their intended tourist destinations and to enrich their travel experiences (Mammadov, 2012). Social interactions may occur between an individual and their family members, neighbours, friends or peers in both digital and physical worlds (Scheinkman, 2008). Studies have shown that when tourists search for information on holidays, they prefer to search for information shared by peers on social media rather than information obtained from tourism websites, travel agents, and mass media advertising (Fotis,, Buhalis,, & Rossides, 2012; Harrigan, Evers, Miles, & Daly, 2017; Kim, K., & Sin, 2013). Though these findings suggest how social media is used during travelling, little is known about such usage in CIS situations such as during the execution of a group trip.

Social media has become a popular platform for interactions and communication between people, and hence it is increasingly used to keep up social interaction with others. Social relationships on social media are comprised of family members, friends, classmates and other acquaintances, and individuals leverage their social links to share information, organise events and search for shared resources. Tourists turn to UGC on travel experiences because of the trustworthiness, subjectivity, credibility and currency of this information compared to the information provided by the destinations or tourism service providers (Zeng & Gerritsen, 2014). For any needed information and enquiry, people prefer asking questions of their networks by posting messages/status on social media rather than searching on the web (Shah, Capra, & Hansen, 2017). Accordingly, social interactions on social media could be employed in CIS environments for those seeking tourism information during the travel planning phase and the journey. However, this appears to be a topic that has not yet been investigated in the literature (i.e., no research has investigated the use and influences of social interactions on social media during CIS tasks).

The purpose of this mixed-methods study is to explore the CIS behaviours of social media users when they plan for a group trip as well as execute the group travel at the holiday destination. These include triggers of tourism CIS behaviours and factors in choosing group communication tool, the circumstances in which tourists use social media for information seeking, social interactions on social media during CIS, and the influences of such interactions on CIS behaviours. The data collection process incorporated questionnaire surveys and in-depth semi-structured group interviews. The findings will contribute to an enhanced understanding on how a group of tourists (e.g. a tourists group consists of friends or family members) plan and execute a group trip through information seeking, sharing and making collaborative decisions.

1.2 Rationales for considering two phases of a trip

Prior studies of CIS in tourism have mainly investigated how and why tourists collaborate and how to develop systems to support such collaboration, either in the trip planning phase or in the travelling phase. For example, research (Ho, Lin, & Chen, 2016; Mohammad Arif et al., 2012; Zhang, Sun, & Wagner, 2018) has shown that travellers collaborate with accompanying tour mates for a variety of reasons (e.g., information seeking, sharing, validating and making decisions) in order to plan their group trips, while other studies (Fardous, Du, Choo, & Huang, 2017; Tan & Goh, 2015a) have discussed how tourists are required to collaborate with others to seek tourism information in order to plan or re-plan some parts of their pre-scheduled trips while travelling at their destinations. However, there are no studies examining how a group of tourists collaborates using social media throughout a group travel experience. Previous studies of CIS in tourism have mainly focused on the reasons for and methods of intra-group collaboration during the trip planning phase and did not investigate the triggers and characteristics of CIS while planning and executing a group trip. Further, tourism information seeking and group decision-making are dynamic processes (Decrop, 2005; Zhang, Sun & Wagner, 2018), but no research has been conducted to identify the resemblances and dynamics across the stages of planning and executing a group trip. Therefore, this study seeks to address these gaps in the current research, and aims to explore the triggers and characteristics of CIS behaviours, factors in selecting the best method for intra-group collaboration, circumstances of social media usage, motivations for utilising social interactions on social media and social interaction's influence on CIS environments in both phases of the trip.

1.3 Research aims and questions

An exploration on CIS behaviours includes studying the scenarios, triggers, motivations and methods for collaboration, more specifically in the context of information seeking (Reddy, Jansen, & Spence, 2010; Shah, 2010). Within the tourism information seeking, the focus of this thesis was to investigate the CIS behaviours during a group trip planning and the execution of the group trip. The goal of this research was to expand and strengthen the understanding of social media users' behaviours in collaboratively seeking tourism information, including triggers of tourism CIS behaviours and factors in choosing group communication tool, the circumstances in which tourists use social media for information seeking, social interactions on social media during CIS, and the influences of such interactions on CIS behaviours. The main research problem is "What are the characteristics of tourism CIS behaviours over social media in the journey of a self-organised group trip from trip planning to execution?" Specifically, the following five research questions were developed to address the main research problem across the stages of travel planning and execution.

RQ1. What are the triggers and characteristics of tourism CIS behaviours?

RQ2. How do tourists within a travel group collaborate with each other for tourism information seeking and sharing?

RQ3. Under what circumstances do tourists use social media for information seeking and sharing regarding their group trip?

RQ4. How and why do tourists collaborate on social media during tourism information seeking?

RQ5. How do social interactions on social media influence tourists' CIS behaviours?

The first research question (RQ1) was developed to determine the triggers and characteristics for tourism CIS (intragroup collaboration) activities. RQ2 was designed to find out the methods of conducting CIS for trip purposes. RQ3 was formed to explore the situations for inter-group collaboration (outside of tour group) on social media, followed by RQ4 and RQ5 which were addressed to identify the ways for and impacts of inter-group collaboration on tourism CIS behaviours in a group trip context. Together, these five research questions guided this research of investigating tourism CIS behaviours.

The thesis presents data collected from tourists who have had recent group travel experiences. Based on the findings, empirical models of how social media users (tourists) conduct tourism CIS activities were developed. The findings of this thesis may contribute to the existing literature on the tourism CIS behaviours of social media users and help tourism marketers and operators to better understand travellers' dynamic and online informational needs so that they can develop better plans and strategies for providing information and related services desired by potential tourists.

1.4 Significance of the research

Collaboration is commonly observed in many situations. CIS refers to activities in which members of a team or group engage in identifying an information need, formulating a query, retrieving information, evaluating it and applying it to resolve the need (Poltrock, Grudin, Dumais, Fidel, Bruce, & Pejtersen, 2003). CIS also involves communication regarding the information need, sharing of the gathered information and coordination of information seeking activities between members of the group. In a CIS environment, collaborators (group members) communicate with each other in order to seek information from multiple sources and share the collected information. Collaboration is a wise choice in the tourism context since tourism information searching is a complex and dynamic process (Imazu, Nakayama, & Joho, 2011; Morris, 2008; Prestipino, 2004). While conducting tourism CIS, members of a tour group collaborate to gather information, share information, check the accuracy of information, verify information, share knowledge and experiences, and update information using phones, e-mail, instant messaging, face-to-face meetings, and web inquiries (Mohammad Arif et al., 2012). However, the triggers and characteristics of tourism CIS behaviours, as well as factors in the selection of communication tools during group trip planning and execution, have not been examined yet.

Research has shown that a tourist relies on and trusts UGC (e.g., personal opinions, thoughts, experiences and stories) more than official sources (Ho, Lin, & Chen, 2016; Milano, Baggio, & Piattelli, 2011). However, there is no research that has considered the use of social interactions on social media for information seeking purposes in CIS. Social interactions could be integrated into the CIS process while a group of tourists plans and executes group travel.

In the era of social media, social interactions play an essential role in various domains of our everyday life, including tourism, as many tourists use social media as their most trusted source of information because this information is shared by people they know. For instance, Facebook

has emerged as a popular and trustworthy source for tourism-related information (Brown & Vaughn, 2011; Cox, Burgess, Sellitto, & Buultjens, 2009; Stankov, Lazic, & Dragicevic, 2010). People tend to seek recommendations for products and services from friends, classmates and other acquaintances on social media whom they perceive as credible and reliable sources of information, and thus they depend more on social media platforms to obtain information before making any purchase decisions (Chu & Kim, 2011; Parra-Lopez, Gutierrez-Tano, Diaz-Armas, & Bulchand-Gidumal, 2016). Ráthonyi (2013) found that nearly half of social media users (i.e., Facebook users) in the United States altered their decisions (e.g., destinations and hotels) in the trip planning phase due to the influence of other social media users. At present, many tourism organisations (e.g., Tourism Australia, https://www.facebook.com/SeeAustralia/info and @TourismAus) have opened tourism pages on Facebook and Twitter to promote tourism and attract tourists to visit Australia for holidays. Furthermore, potential tourists can communicate synchronously and asynchronously with tourism organisations through such social media pages. Nevertheless, the circumstances of social media usage, and the occurrence and influence of social interactions on social media in a group travel context during information seeking have not yet been examined.

Though social interactions on social media during CIS have not been studied, research has shown that social interactions on social media can be an important and influential aspect of such tasks in the tourism domain. A recent study by Tan and Goh (2015) revealed that a tourist interacts with different groups of people, such as intra-group and inter-group individuals, around him/her to seek information while travelling. But this study (Tan & Goh, 2015a) examined the role of such social interactions in individual information seeking, not in CIS (i.e., group travel) contexts. Considering the potential impacts of social interactions on social media in CIS behaviours, this research aims to explore the motivation for employing social interactions on social media (i.e., collaboration on social media) and the influence of such interactions on tourism CIS.

The findings of this thesis will add a dimension to CIS from the perspective of social interaction on social media. Specifically, the results of this research will present an in-depth understanding of tourism CIS behaviours, as well as how tourists employ social interactions on social media for collaboration during both trip planning and travelling. In addition, the results will be useful to researchers designing and studying the effectiveness of collaborative search tools, and to tourism service providers developing strategies to provide customised rich information to

potential groups of tourists as well as individual tourists. The implications of the study are reported in Chapter 5 (Discussion).

1.5 Contributions of the research

Prior research in different domains has shown that collaborative activities make information seeking and sharing a better experience, including education, industry, healthcare, and military. For example, Paul and Morris (2009) studied CIS behaviours to examine how groups of people collaboratively find, understand, and use information in a highly collaborative and information-intensive environment – an emergency department in a hospital. The authors found sense-making during CIS activities plays an important role in improving the quality of service to patients by providing the right information during emergencies. Another study by Mohammad Arif et al. (2015) proposed a model of tourists' collaborative search behaviours during trip planning which presents collaborative search stages, search strategies, and information flow breakdown. Based on empirical findings, a CIS system was developed to offer a channel through which tourists would be able to communicate and exchange their ideas and views during the collaborative search (Mohammad Arif & Du, 2018).

To advance research in this field, this thesis contributes to the understanding of tourism CIS behaviours incorporating social interactions on social media. This study is an attempt to understand the nature of tourism CIS behaviours and an exploration of the benefits of using social media interactions to support a group of tourists' travel information seeking during trip planning and execution.

This research focuses on two important issues: i) investigating tourism CIS behaviours in both the group travel planning and the execution phases, and ii) leveraging social interactions on social media in tourism CIS to support trip planning and travel at the destination. The critical part of this study explores the interrelations between tourism CIS behaviours and social interactions on social media. Understanding how social media influences a group of tourists' information seeking and decision-making throughout the travel will help to inform the (re)design of effective tourism campaigns.

In summary, the main contributions of this research are:

1. This thesis provides insights into tourism CIS behaviours from group trip planning through to travelling at the destination. Based on the results of its mixed-methods approach, this study presents a set of triggers that initiate collaborative activities during

the planning and execution of a group trip. Further, it identifies and demonstrates two distinct sets of CIS characteristics in group trip planning and group travelling. Since communication is a core component of CIS behaviours, this study also identifies collaborative methods of tourism information seeking and sharing, as well as factors in deciding on the right communication tool during CIS.

2. This thesis explores and provides understanding of the circumstances of social media usage in both phases of a group trip. It also shows the different types of collaboration that occurred on social media during the search for tourism information. Moreover, the reasons for and influences of such collaborations on social media (outside of the tour group) on the group travel were revealed.

3. This thesis presents tourism CIS models which show the relationship between social interactions on social media and tourism CIS behaviours when social media users (tourists) seek trip-related information during the planning and execution of a trip. Exploiting social interactions in CIS expands the collaborators' (tour members) networks for seeking authentic and reliable tourism information. These models may lay the foundation for developing a tourism-specific CIS system integrating the feature of social interactions on social media.

4. Finally, this thesis delivers some guidelines for the CIS system developers as well as existing social media communication app developers to add extra features with their system or app. A common communication platform plays a critical role in CIS context in that collaborators are needed to seek, share and discuss with each other through a common platform so that they can keep eyes on everyone's activities when they are not co-located. Also, shared tourism information in the group help collaborators to synthesise information to make informed collaborative decisions.

1.6 Structure of the thesis

The thesis comprises six chapters. Chapter 1 introduces the thesis research topic. Chapter 2 presents a review of the literature, with a focus on CIS behaviours, social media, social interactions and information seeking, and tourism information seeking behaviours. Chapter 3 describes the research design of a mixed-methods approach, including a questionnaire survey and semi-structured group interviews.

Chapter 4 presents the results of the research, with Sections 4.1 and 4.2 presenting results based on the group trip planning and the execution of the group trip respectively. The research questions guide the terms of these findings. Chapter 5 contains a discussion of the key findings and implications of this research. Finally, in Chapter 6, key findings of this thesis, recommendations for future work, the limitations of the thesis and a conclusion are presented, outlining how this research improves our knowledge of tourism CIS.

2. Literature review

To achieve its research purposes, this study is mainly grounded on three theoretical foundations, namely collaborative information seeking (CIS), social media and social interactions on social media, and tourism information seeking. The review of relevant literature below will lead to a greater understanding of social interactions on social media in tourism CIS.

2.1 Collaborative information seeking

There is growing evidence that collaboration is necessary and an effective way of solving complex projects involving information seeking, such as planning a family holiday or collaborating on a research project. Moreover, it is human nature to collaborate with others when a problem or task is difficult or impossible to resolve alone (Shah, 2010). Collaboration is required when people work as a group or a team and the goal of the team is to seek information together to satisfy a common information need (Reddy & Spence, 2008; Shah, 2008). Research suggests that when people work together on information seeking tasks, they perform better than a person who works individually on the same task in terms of finding more unique and useful information (Mohammad Arif et al., 2012; Shah & González-Ibáñez, 2011).

2.1.1 CIS models

collaborative information seeking (CIS) is a growing and important area of information searching, and this section provides an overview of the research on CIS. It focuses on CIS behaviours and related models.

Information searching behaviour depicts the ways in which people seek information and use it. Wilson (2000, p. 552) defined information searching behaviour as:

> the 'micro-level' of behaviour employed by a searcher in interacting with information systems of all kinds. It consists of all the interactions with the system, whether at the level of human computer interaction (for example, use of the mouse and clicks on links) or at the intellectual level (for example, adopting a Boolean search strategy or determining the criteria for deciding which of two books selected from adjacent places on a library shelf is most useful), which will also involve mental acts, such as judging the relevance of data or information retrieved.

For a fairly long time, information searching behaviour has been studied as a solitary activity. Representative individual information search models include Wilson's information need model

(Wilson, 1981), Dervin's sense-making model (Dervin, 1983), Kuhlthau's information search process model (Kuhlthau, 1994) and Knight and Spink's web search information behaviour model (Knight & Spink, 2008). Furthermore, many information searching systems were designed to support the interactions between a single user and search systems.

However, over the last decade, there has been increasing interest in group information search behaviours. For example, Reddy, Jansen, and Spence (2010) identified several situations that require collaboration in information seeking, including:

i) Complexity of information need: Complex information problems with multiple components require collaboration for resolution. For example, tourists need to collaborate on obtaining, sharing, and verifying information, as well as sharing knowledge and experiences, and updating information during travel planning tasks (Mohammad Arif, Du, & Lee, 2015).

ii) Lack of immediately accessible information: This occurs when information is not easily accessible and people need to collaborate to gather information.

iii) Lack of domain expertise: In this situation, an individual does not have enough knowledge and needs to seek information from other individuals to gain needed knowledge.

iv) Fragmented information resources: This occurs when information resources reside in multiple and dispersed systems, which lead to the need for collaboration.

Individual information seeking models are not able to illustrate the provisions that occur when people work in a team. In addition, current available search tools do not support CIS tasks. Consequently, recent studies (e.g., Fidel, Bruce, Pejtersen, Dumais, Grudin, & Poltrock, 2000; Foster, 2006) have started exploring information seeking behaviour in collaborative settings to understand CIS and design CIS-based systems. In this regard, Fidel, Bruce, Pejtersen, Dumais, Grudin, and Poltrock (2000) stated that "Collaborative Information Seeking (CIS) focuses on situations where team members collaborate during various processes of information seeking and retrieval", and defined CIS as "an activity that collectively resolves an information problem taken by the members of a work team, regardless of the nature of the actual retrieval information" (p. 236). Talja and Hansen (2006) explained the impacts of CIS on our everyday life. Research has shown that CIS is an important aspect in several domains, including command and control in the military (Sonnenwald & Pierce, 2000), academic research (Talja,

2002), design work (Bruce, Fidel, Pejtersen, 2003), group-based educational setting (Hyldegard, 2006), medical care (Reddy & Spence, 2008) and tourism (Mohammad Arif, Du, & Lee, 2012).

Attention has been paid to building CIS models and frameworks to understand CIS behaviours occurring in various contexts. For example, Hansen and Järvelin (2005) presented one of the first CIS models by observing workers' CIS behaviours in a patent office, a model which is adapted from a general information seeking and retrieval (IS&R) model. Their model divides the patent task process into three levels: Work Task level, Information Seeking Task level and Information Retrieval Task level. Each level consists of a set of sub-processes. Later on, Hyldegard (2006) explored collaborative information retrieval behaviour by adapting Kuhlthau's (1994) Information Search Process (ISP) model. The ISP model consists of six stages, including Initiation (identify information need), Selection (determine general topic), Exploration (investigate information on general), Formulation (formulate focus), Collection (gather information pertaining to focus) and Presentation (complete). Hyldegard (2006) suggested that the ISP model required modification to support collaboration; for example, environmental constraints (e.g., prior experience, knowledge and interest, information available, requirements of the problem and time allotted for resolution) have been added accordingly.

Reddy, Jansen and Spence (2010) developed a preliminary collaborative information behaviour (CIB) model. They compared the CIB with an individual information behaviour (IIB) model, along a behaviour axis (ranging from information searching to seeking and use) and a context axis (ranging from the IIB to CIB). They showed that in IIB the complexity of the problem, number of agents (sources of information) and nature of interactions are simple; a single agent is associated and interaction is direct. On the other hand, in CIB, the problem is more complex, several agents interact for information need and interactions with collaborators are much more conversational (e.g., query/question and refinement of query/question).

Shah (2010) presented a model of collaboration based on the concepts of coordination, cooperation and contribution for general information seeking. His model consisted of five components, including communication (information exchange), contribution, coordination, cooperation and collaboration. According to Shah's (2010) model, collaborators communicate with each other to undertake their collaboration. Each collaborator needs to contribute to achieving their common goal; coordination helps them to connect with each other; cooperation

helps people with similar interests to take part in planning activities and share resources to achieve their goal; and collaboration assists the collaborators to see the different aspects of the problem.

More recently, Mohammad Arif, Du, and Lee (2015) developed a tourism CIS model. The authors investigated tourists' collaborative search behaviours as illustrated in their CIS processes (from the initial stage of trip planning to the final decision-making). Their CIS model portrays group travellers' collaborative search patterns, process stages and search strategies. They also found that tourists seek information from other group members in addition to internal sources (self-experience) and external sources (web search) of information. These studies have shown that there are a variety of relevant definitions and models of CIS, which can be broadly characterised as an activity for solving a complex problem or completing a work task by two or more people. In other words, members of a group work together to accomplish a difficult and complex task through information access, sharing and flow.

2.1.2 Triggers of CIS

A trigger is a particular action, process or situation that causes or initiates a particular event or action. In CIS, a trigger is an action or situation that initiates a CIS activity associated with a group's shared problem. There is growing evidence that collaboration frequently occurs during information seeking activities, and research has paid attention to the triggers that initiate intra-group collaboration in different contexts. In the earlier CIS studies, Sonnenwald and Pierce (2000) explored human information seeking behaviour in the command and control level of the military. They identified three triggers for collaboration: sharing understanding about situations within the group; sharing domain-specific information and work processes; and lastly, sharing an outward stance of cooperation.

Talja (2002) conducted a study to understand the types and levels of information sharing that can cause collaboration in a group setting in an academic context. The author found four types of triggers based on information sharing that cause collaboration with others: strategic information sharing; paradigmatic information sharing; directive information sharing; and social information sharing. For example, specifically, strategic information sharing about research-related documents triggered collaboration within the research team to improve the efficiency of the research group. Later, Spence, Reddy, and Hall (2005a) conducted a survey of academic researchers on CIS. They identified lack of expertise as the primary reason for collaboration while seeking information. Specifically, the academic projects studied were

multidisciplinary and required the expertise of others from different backgrounds to complete successfully.

Reddy and Spence (2008) studied the CIS activities of healthcare providers in the emergency department of a hospital. Within the emergency department, they identified three factors that triggered collaboration within the multidisciplinary patient care team, which were: lack of expertise; lack of immediately accessible information; and complex information needs. Paul (2010) conducted a study to specifically identify the triggers for collaborative sense-making activities among healthcare providers in an emergency department. He found three triggers, including ambiguity of available information, role-based distribution of information and lack of expertise, that initiated collaborative sense-making to perform CIS activities.

Mohammad Arif et al. (2012) studied the collaborative nature of trip planning. They found that tourists worked together for various reasons to plan their trips, including gathering, sharing, and verifying information, and sharing knowledge and experiences when planning a group trip. Thus, collaboration with accompanying tour mates played an important role in the process of information seeking and decision-making.

Recently, Tan and Goh (2015) described triggers as moments when information seekers (tourists) initiated the move from individual information seeking to CIS when they were unable to satisfy information needs on their own and had to turn to others for help. The authors presented a set of ten triggers leading to information seeking collaborations between intra-group and inter-group people. They are: i) lack of information seeking skill, ii) lack of subject knowledge, iii) tapping on team's experiences and background knowledge, iv) tapping on external parties' experience and background knowledge, v) requiring confirmation with others, vi) requiring help in complex tasks, vii) finalising on one decision among multiple choices/opinions, viii) resolving conflicts found in direct sources of information, ix) individual's interest to know more about a topic, and x) change in context. Joint decision-making was also found to act as a trigger for tourism activities in group vacation planning, since tourism activities are intensively group-based (Decrop, 2005). However, with limited CIS research in the tourism domain, there has been little investigation into the triggers for tourists' collaborative activities during trip planning and while travelling at the destination. We are therefore unclear about what situations or factors prompt collaboration between tour mates to fulfil the group's information needs.

2.1.3 Characteristics of CIS behaviours

Gray (1989) defined collaboration as a process of joint decision-making among key stakeholders of a problem domain (p. 11). CIS is found useful and necessary when people work together in a group setting on a task that is complicated and difficult for an individual to solve (Hansen & Järvelin, 2005; Hertzum, 2008; Ringel Morris & Teevan, 2009; Shah, 2014). It seems that collaboration usually takes place when solving complex problems (Imazu, Nakayama, & Joho, 2011). Tasks like planning a trip with family or friends often require collaboration and involve information seeking for multiple aspects, such as accommodation, food and culture. In addition, CIS is not only about seeking information together, but also involves information sharing, synthesising and decision-making. Collaborative search tasks may need several sessions to complete and every member associated with the task participates to contribute and for mutual benefit (Morris, 2008; Shah, 2010).

However, such a process may not be always effective. For example, London (1995, pp. 4-5) believed that: i) collaboration is a time-consuming process and does not work when the problems require quick and decisive action; ii) if power is not divided equally among the group members, the process can lose its focus and consequently the collaboration will fail; iii) the norms of consensus and joint decision-making sometimes require that the common good takes precedence over the interests of a few; iv) collaboration works best in a small group setting and collapses when the group is too large; and v) collaboration does not work when the power to implement the final decision is not given to the group members.

Two hallmarks of CIS behaviours, including its associated complex nature and information flow breakdowns, are reviewed in the following sections.

i) Complex nature

Working on a CIS task is typically a complex process due to its exploratory nature, and it may take several sessions to complete the task (Shah, 2014, 2010). During CIS, users collaborate on information seeking, searching and retrieval to fulfil shared goals across multiple search sessions. A complex search task also requires them to consult multiple sources of information and take notes during the search (Aula & Russell, 2008).

Prior research has highlighted the situations of complex search task in CIS in different domains. For instance, Sonnenwald and Pierce (2000) explored the necessity of collaboration in the context of command and control (C2) in the military as the diversity and complexity of the

battlefield is rapidly increasing. On the battlefield, the C2 team must seek information from various sources, and explore and integrate that information with their knowledge to create and execute plans. In such situations, individuals need to work together to seek, synthesise and disseminate different types of information, including information about the current battle situation, information about the C2 process (e.g., who needs what information and when) and specialised domain or technical information related to C2 (e.g., weapon system capabilities). Medical care is another highly information-intensive environment which always requires information from different sources. Reddy, Dourish and Pratt (2001) presented the complexity of information needs and information fragmentation in the medical care domain. They considered the patient care teams in two very different hospital settings, including the surgical intensive care unit (SICU) of a large urban teaching hospital and the emergency department (ED) of a small rural non-teaching hospital. In such information-intensive environments, information is available from a variety of different sources, which leads to a problem called information fragmentation (Reddy, Dourish & Pratt, 2001). In other words, digital images may be in one resource and lab results in another resource, meaning that team members from both environments need to collect information from dispersed sources to make an appropriate patient care decision (Reddy & Jansen, 2008). Therefore, the complexity of medical care requires medical workers to collaborate with each other to ensure flawless service for patients.

Bruce et al. (2003) showed the complex nature of a collaborative task among people working in a design team at Microsoft. They found that information needs involved the contents of the website, the design of the website, management, scheduling and users. In order to collaborate with others to obtain needed information, each team member communicated with other members of the team or people outside of the team using questions/conversations, personal networks linking them with colleagues and formal and informal meetings (the most common method). Patent work is another highly information-intensive and time-consuming activity; it can take nearly two years to finish one patent application (Hansen & Järvelin, 2005). Patent task performance requires collaboration at every stage of the information seeking and retrieval process. During a patent application task, a patent engineer identifies the information needed to solve the task. The engineer communicates with others to verify the sources used in the application and to conduct a search process to fulfil the information need through iterative query formulation and reformulation.

Personal preferences in CIS should be handled with great care in order to preserve team harmony. Planning a vacation involves finding information about multiple aspects of the trip,

such as accommodation, food, culture, activities and costs. Individuals may have distinct preferences for a variety of these aspects. Conflicts in preferences about particular information affects collaborative decision-making, significantly impacting on the effectiveness of collaboration (Mohammad Arif et al., 2015). Conflicts may originate from differences in collaborators' personal interests and values (e.g., choices of flights). Due to the nature of collaboration, during which multiple tourists' demands and preferences need to be satisfied simultaneously, the progression of tourism CIS is in essence non-linear, with more occurrences of switching back and forth between the information seeking and decision-making processes than in an individual information seeking scenario (Du & Spink, 2011; Mohammad Arif et al., 2015).

ii) Information flow breakdowns

One of the most challenging components of CIS is handling the information flow breakdowns that occur during information seeking (Hertzum, 2010; Reddy & Spence, 2008). Information flow breakdown is generally an adverse situation in which the normal flow of information breaks down, delaying the process of information sharing and decision-making. Reddy and Spence (2008) identified three occurrences of information flow breakdowns in an ED's multidisciplinary patient care team, which were represented as, firstly, information not being available when it was expected; secondly, information being either incorrect or incomplete; and finally, information being delivered incorrectly or to the wrong person. Such breakdowns in obtaining information triggered an individual information seeker (i.e., health care provider) to collaborate with others in the ED to search for the needed information.

In the study by Karunakaran and Reddy (2012), the researchers identified a variety of barriers that arise in CIS in organisational settings. They categorised these barriers into four broad categories: organisational barriers, technical barriers, individual-level barriers and team-level barriers. The organisational-level characteristics (e.g., structure, culture, values, rewards, incentives and practices) are the main reason that organisational barriers arise. Technical barriers arise due to issues with tools and technologies, for example lack of a particular technology or missing functionality in the latest technology. Individual-level barriers are important, as individual personalities, attitudes, perceptions and cognitive frames can prevent the individual from collaborating and hinder the CIS task performance. Team-level barriers occur when team members are unable to communicate with or contact each other about particular information needs. Mohammad Arif et al. (2015) identified occurrences of

information flow breakdowns in the tourism context. They found that missing information, incomplete information, unavailable information and conflicting preferences were four types of information flow breakdown that took place during the tourists' CIS. They pointed out that travel planning and decision-making may become ineffective due to the effects of these breakdowns. For instance, missing information in the search process may result in irrelevant information being provided, and thus create a delay in decision-making or lead to poor decisions. In addition, tourists were not able to finalise their trip plans due to having incomplete information as search results.

2.1.4 Methods of intra-group collaboration

Communication is a subset of collaboration because group members communicate with others to coordinate the search process (Morris, 2008; Shah, 2014). Furthermore, communication helps the group to process information at a group level as well as improve the group's performance (Hwang, 2018; Saleh, 2011). In order to understand how people work in a collaborative search task in a large technology company, Morris (2008) conducted a survey with 204 participants and identified that people used three primary means including email, IM (Instant Messaging), and phone calls to coordinate the search process and products with other collaborators. The author also found that e-mail, IM and phone calls were used almost equally for collaboration in technology-based companies. In an academic context, collaboration is a common practice since students often need to work in groups (e.g., on group assignments) and faculty members also need to work with colleagues or peers from different backgrounds on their projects. Shah (2010) interviewed people at a large university to learn about their methods of collaboration. He identified that email, face-to-face meetings, IM, and phone or conference calls were the most used media for collaborative work. A recent study (Shah & Leeder, 2016) also investigated how postgraduate students collaborate on their group projects and found that they used three main methods, including face-to-face meetings, online chat and email for intra-group communication.

Group trip planning is a growing interest in the CIS domain due to the complex information seeking involved in such a process (Imazu et al., 2011). Communication plays an essential role while conducting a complex search process since it enhances the quality of information seeking process by establishing common ground among the group members (Reddy, Bernard, & Rashmi et al., 2009). Also, research found that intra-group communication is one of the core means by which collaborators share or exchange information (González-Ibáñez, Haseki, &

Shah, 2013; Shah, 2010). Mohammad Arif & Du (2012) explored the communication means used by tourists during trip planning and found that phone calls, email, IM, face-to-face meetings and web inquiries were the media used for their collaboration. Of these means, recently, Zhang, Sun, and Wagner (2018) showed that a group of tourists predominantly utilised different IM applications, such as WhatsApp and WeChat, along with phone calls, e-mail, social media such as Facebook and Weibo, and online word processors such as Google Docs for sharing travel information, transferring knowledge, and making decisions within a group of tourists. These studies revealed the means of collaboration in different contexts of CIS; however, they did not study situations in which a group of people select a preferred communication tool for communicating with each other while seeking and sharing information and making-decisions.

2.1.5 CIS tools and systems

A number of collaborative search systems have been developed to support collaborative activities during the information seeking and sharing processes. A few representative ones are reviewed in this subsection.

i) C-TORI (Cooperative Task-Oriented Database Retrieval Interface) (Hoppe & Zhao, 1994)

In order to make the information search process in databases highly interactive, Hoppe and Zhao (1994) designed C-TORI as a cooperative version of TORI (Task-Oriented Database Retrieval Interface). There are three basic operations (i.e., copying, merging and coupling) in this cooperative environment for three types of TORI objects (i.e., query forms, result forms and query history windows). C-TORI allows a group of users to specify the query jointly at the same time.

C-TORI uses a centralised cooperation control, where a coordinator distributes retrieval tasks to a group of information searchers who may work remotely. In this process, each searcher uses his/her knowledge and tools to complete their assigned tasks individually. When a task is finished, the coordinator collects and integrates the results by opening multiple query (and result) forms into which the participants' query specifications or query results are copied, or with which the participants' query (result) windows are coupled. Each participant is allowed to communicate with the coordinator for suggestions and discussions, or to ask the coordinator to establish direct couple links with other participants during the individual tasks. In the C-

TORI system tool, a coordinator is required to initiate and control the collaboration, and hence participants are not independently about to collaborate with each other.

ii) MUSE (Multi-User Search Engine) **and MUST** (Krishnappa, 2005; Reddy, Bernard, & Rashmi, 2009)

Based on the rationale that retrieving and seeking required information may not always be an easy task for a single user, in particular in today's information-rich environments, Krishnappa (2005) developed a prototype called Multi-User Search Engine (MUSE) to support collaborative information seeking and retrieval activities in a group setting. The MUSE prototype facilitates several features for members during the information retrieval process, such as chatting with each other, searching for information, saving relevant results for future use, and retrieving and sharing the saved results. The prototype was developed using JAVA and JAVA Swing, which helped it to connect with the World Wide Web and become an independent platform. There are two main components to this prototype: Interface (the graphical user interface) and Backend. The Interface component consists of three specific features (search, chat and share) and the Backend has three main components: search database, chat server and share server. The MUSE prototype was evaluated through a user study, in which some issues were identified, such as that MUSE was not able to support the feature of sharing search results completely. The search feature was not truly integrated with the communication option either.

In order to mitigate MUSE's issues, Reddy et al. (2009) developed another prototype called MUST (Multi-User Search and Talk) which supports multiple group members' engagement in CIS. The MUST prototype system was developed using off-the-shelf software (COTS) and VisualBasic.Net to connect the chat and search features. The chat feature of MUST can work across multiple networks and provide a commercially robust chat feature like Yahoo Messenger. In this system, group members can share search results among everybody within the group who is engaged in the chat function. Moreover, members can view the users' entire search history during their conversations. But this tool was not able to show search results according to a ranked list.

iii) TeamSearch (Morris, Paepcke, & Winograd, 2006)

Small group activity is very common in our daily life, and encompasses different types of work, learning processes and recreation activities. For co-located collaboration among groups of users, a computationally enhanced table offers software designers the option of developing

applications, such as collaborative information searches (Morris, Paepcke, & Winograd, 2006). Morris and colleagues (2006) developed a tabletop application called TeamSearch to support co-present collaborative searches of metadata-tagged digital content on an interactive table. TeamSearch is a multi-user application which allows groups of four to undertake collaborative searches of digital content collections, such as photos that have already been associated with relevant metadata. The users of TeamSearch sit around an 85.6 cm * 64.2 cm DiamondTouch table. The table is run by a 3.2 GHz PC, and a display is top-projected onto the table's surface via an SXGA projector. The DiamondTouch (Dietz & Leigh, 2001) is a touch-sensitive surface, which can receive simultaneous touch input from each user of the group and identify the position of each touch on the table and the associated user of that touch. The TeamSearch software was written using the DiamondSpin tabletop interface toolkit (Shen, Vernier, Forlines, & Ringel, 2004).

In the TeamSearch application, there is a rectangular area in front of each user in the group, which is initially blank, and the query results appear here. A query token is a circular token marked with "?" which is located to the left of each user. There is an infinite pile of query tokens for each user and when a token is moved from its original location a new token takes its place. There are several circular widgets near the centre of the table, which are subdivided into wedges. Each circle represents a category of metadata (e.g., location) and each wedge within that circle represents a specific possible value for that category (e.g., Italy, Israel and Sri Lanka). One condition of the TeamSearch system is that users need to be co-located for collaborative information retrieval.

iv) SearchTogether (Morris & Horvitz, 2007)

Developed by Morris and Horvitz (2007), SearchTogether allows groups of remote users to collaborate synchronously and asynchronously when searching on the Internet. It is designed based on client/server architecture. This system provides support to small groups of people by enabling them to collaborate on both the processes (i.e., formulating queries, choosing which results to discover) and products (i.e., commenting on and rating found items, creating a shared summary) of a search. In addition, SearchTogether enables collaboration by supporting awareness, division of labour and persistence (e.g., by storing a shared search session to enable asynchronous collaboration).

Retaining each user's query histories is one of SearchTogether's awareness mechanisms. In the Query Awareness region, each user's screen name and photo are shown and the query terms

used by a user each time they search are added to a list under their screen name. After that the query history is synchronised across all members of the group. The goal of providing query awareness to all members is to show awareness of the various aspects of a shared search task, avoid unnecessary query duplication and reduce the wasted effort of query repetition. Instant Messaging is added to SearchTogether to facilitate group members chatting/a discussion window for communicating with each other to discuss and coordinate their efforts. In order to divide the labour among group members, another feature has been introduced to SearchTogether, which is a recommendation mechanism for division of labour.

For asynchronous collaboration, it is necessary to store all shared search sessions. In SearchTogether, all aspects of search sessions are persistent, including IM conversations, query histories, recommendation queues and page-specific metadata. In this feature, when a user logs in, the user can view all of the search sessions with search results that are already stored on the server. However, SearchTogether is not able to execute a single query by combining multiple queries generated by multiple users to solve the shared goal.

v) Coagmento (Shah & Marchionini, 2010)

Shah and Marchionini (2010) developed a CIS system named Coagmento which provides support for communication and awareness of personal and group histories when collaborators work on CIS tasks. The authors investigated the impact, cost and implementation related issues of awareness support in CIS systems. Coagmento is a Firefox plug-in that helps multiple people to work together by communicating with each other, searching, sharing and organising information. Users can collaborate with other users synchronously or asynchronously using this tool whether they are co-located or remote. The system has a toolbar and a sidebar. The toolbar features several buttons that help a user to collect information and be aware of the progress of a given collaboration, while the sidebar consists of a chat window that has three history tabs for search engine queries, saved pages and snippets.

Coagmento offers different kinds of awareness, such as group awareness, workspace awareness, contextual awareness and peripheral awareness. The authors noted that group awareness provides substantial advantages in collaborative searching without adding any new burden or load to users. This system offers collaborative search options whether users are remote or co-located but it was developed for general information search purposes. This tool is not appropriate for users who need to search for information for specific purposes, such as, in the tourism context, tourists needing to seek information about finding suitable

accommodation, flights, and likeable and affordable foods and activities at the destination. Hence, only a specially designed tool for particular purposes can deliver the expected facilities in more effective and appropriate way.

vi) ColTIS (Mohammad Arif et al., 2015; Mohammad Arif & Du, 2018)

Mohammad Arif et al. (2015) and Mohammad Arif and Du (2018) developed a system called ColTIS for tourism collaborative information retrieval. The system facilitates several attributes for collaborators, including: i) a flexible message-passing facility for supporting communications, sharing similar interests and showing the online/offline status of members; ii) providing features that facilitate the composing of a collaborative query using several queries provided by the collaborators; iii) displaying both query results and search results obtained by individuals so that each collaborator can see and check other collaborators' queries and results and avoid information flow breakdowns; and iv) storing and displaying valid queries and URLs. ColTIS supports tourists as they pass through several stages of tourism information searching, such as collaborative planning, collaborative information searching, sharing of information and collaborative decision-making.

However, ColTIS does not support the use of social media (e.g., Facebook, Twitter and WeChat) for collaborative tour planning and decision-making. Social media play an important role in tourism information searching. We will review related literature in the following sections. A summary of the existing CIS tools and applications, and their contexts is provided in Table 1.1.

Table 1.1: Summary of the existing CIS tools

Name of CIS Tools	Functionalities	Application Domains	Limitations
C-TORI (Hoppe and Zhao, 1994)	To specify the query jointly by copying, merging and coupling the multiple queries.	For relational database. The goal is to make the information search highly interactive.	A coordinator is required to initiate and control the collaborative activities. Therefore, users are not independent to collaborate with each other.
MUSE (Krishnappa, 2005)	To support collaborative information seeking and retrieval activities.	General information search.	It does not support to share the search results among collaborators.

MUST (Reddy et al., 2009)	To support collaborative information seeking and retrieval activities.	General information search.	It does not provide the ranked list of search results.
TeamSearch (Morris, Paepcke, and Winograd, 2006)	To support co-located collaborative search on an interactive table.	Digital content (photos associated with relevant metadata) search.	It does not support the collaboration when users are not co-located.
SearchTogether (Morris and Horvitz, 2007)	To support collaborative information search on the web.	General information search on the web.	It cannot execute a single query for information search when multiple users work together by providing queries.
Coagmento (Shah and Marchionini, 2010)	Provide collaborative information search.	General online information search.	It is not able to facilitate the collaborative search for specific purposes or contexts. In addition, this tool does not provide information regarding the ranked list of retrieved search results.
ColTIS (Mohammad Arif et al., 2015; Mohammad Arif and Du, 2018)	Provide collaborative information search.	Tourism information search on the web.	It does not show or consider the impacts of social networking sites in CIS environment.

2.2 Social media, social interactions and information seeking

2.2.1 The role of social media in information seeking

Information seeking is a purposive seeking process for information as a consequence of a need to satisfy some goal, during which a seeker may interact with manual information systems (e.g., a newspaper or a library) or with computer-based systems (e.g., the World Wide Web) (Wilson, 2000). Due to the widespread use of social media on smart mobile devices and the popularity of sharing information among users, the impacts of social media on the everyday lives of individuals are becoming more pervasive. Social media are web-based services which allow people to build a public or semi-public profile, and a group of people with common interests or like minds to make connections and share their information and experiences with each other. Garton, Haythornthwaite, and Wellman (1997) defined social networking on social media as

"a set of people (organisations or other social entities) connected by a set of social relationships, such as friendship, co-working, or information exchange on social media".

A main motivation for using social media is to communicate and maintain relationships with others (Dwyer, Hiltz, Passerini, 2007). As these sites are built around social software, it is easy for people to communicate and to build virtual communities via the Internet. Social media include Facebook, Instagram, YouTube, LinkedIn, Twitter, QQ, WeChat etc. Morris, Teevan, and Panovich (2010) identified that people prefer asking questions of their networks on Facebook in order to validate the search results acquired by using search engines. They also found that validating search results via social networks improves users' confidence in their ability to make decisions. The reasons for using social media as an information seeking tool include social interaction, information seeking, passing the time, entertainment, relaxation, expression of opinion, information sharing and surveillance and knowledge about others (Osatuyi, 2012; Whiting & Williams, 2013).

Social media have evolved as a new way in which people connect socially, by integrating information and communication technology (such as mobile and web-based technologies), social interaction, and the construction of texts, words, images, audio and video. In other words, social media is a group of Internet-based applications (e.g., social networking sites, consumer review sites, content community sites, wikis, Internet forums and location-based social media) wherein people can interact, create, share and exchange information and ideas with others in virtual communities and networks (Zeng & Gerritsen, 2014). Thus, it has changed peoples' minds and emerged as a new way of searching for information, by utilising social interactions or relationships between people to locate needed information on the web (Kim, Sin & He, 2013; Morris, Teevan, & Panovich, 2010).

In recent years, the reliance on social media to seek information in everyday life has increased significantly due to the high level of interactions between users and its true information sharing nature. For example, a study by Gauducheau (2015) found that forums were a form of social media widely used by teenagers for seeking their peers' opinions and valid information on personal matters because they provide specialised knowledge and overcome difficulties in information seeking. Patients who need self-management and care can benefit from using social media regularly. Shaw and Johnson (2011) revealed that people with chronic illnesses (e.g., diabetes) used blogs, YouTube, Twitter, and discussion groups and forums to seek and discuss diabetes-related information. Social media is also significantly used in the academic

context. A recent study (Hamid, Bukhari, Ravana, Norman, & Ijab, 2016) shows that social media have become an increasingly popular platform for international students in Malaysia to obtain a variety of information on educational, financial, sociocultural and health-related topics. Social media is also used by people to gather information relating to crises such as riots, flu outbreaks, earthquakes, and floods. Austin, Fisher, Liu, & Jin (2012) found that people preferred to use social media to gain insider information and check in with family/friends during crises because of its convenience, involvement, and personal recommendations.

There is also a growing trend for using social interactions or relationships on social media to gain needed information (Carmel et al., 2009). Social interactions are described as particular forms of externalities and non-market interactions, in which the actions of a reference group affect an individual's preferences (Scheinkman, 2008). Therefore, information seeking on social media can be defined as an information seeking process that makes use of social interactions between social media users, which may be explicit or implicit, co-located or remote, synchronous or asynchronous (Evans & Chi, 2008).

Recent years have seen a transformation in types of information seeking. A study by Chung and Buhalis (2008) reported that information seeking is shifting to online social media where people can interact and exchange information freely. It has been observed that reliance on the content available on social media when seeking any sort of information has increased significantly due to the high level of interaction and connectivity between users, as well as social media's true information sharing nature (Agichtein, Castillo, Donato, Gionis, & Mishne, 2008). In addition, people prefer to interact with experienced persons when they seek information and make decisions, since social interactions with experienced people serve as cognitive aids during search and sense-making tasks (Dörk, Carpendale, & Williamson, 2011; Evans, Kairam, & Pirolli, 2010). Information acquisition via social interactions plays a key role in the tourism domain, in particular in information seeking and decision-making. For example, both Murray (1991) and Tan and Goh (2015) found that tourists depend more on personal sources of information for decision-making process and they utilise social interactions while travelling to fulfil their information needs and make decisions.

To the best of knowledge, there is no study which has examined the usage of social media during collaborative information seeking (CIS) in a group trip context. Further, only a little research has studied the seeking of travel information through social interactions by individual tourists, and there are no studies that have investigated CIS through social interactions on social

media while planning and executing a group trip in the context of CIS in the tourism domain, specifically, why and how a group of tourists employs social interactions on social media to satisfy their tourism information needs, and how such social interactions on social media influence their tourism CIS behaviours during both phases of a group trip (i.e., planning and travelling).

2.2.2 Leveraging social interactions to support CIS

As reviewed in the above section, due to the widespread use of social media in recent years, ways of seeking information seeking have changed from keyword-based queries and document retrieval via a typical web search engine to more meaningful and customised information (Shah, Oh, & Oh, 2009). Information seeking via social media was defined as a new way of seeking a wide range of information in the form of electronic word of mouth, text, symbols, images and videos (Shah, Capra, & Hansen, 2017; Shah, Oh, & Oh, 2009). Information seeking through this means of communication and interactions between people in the online environment also influence human information seeking behaviours (Akehurst, 2008; Khan, 2018). When seeking information on social media, individuals ask for advice and opinions or look for recommendations from friends, peers and followers on social media like Facebook, Twitter or WeChat (Shah et al., 2017). In such cases, an individual looks for information from or consults with known or unknown people to receive answers or advice.

Information seeking on social media has been found to contribute in various ways to the information seeking process. For example, Turcotte, York, Irving, Scholl, & Pingree (2015) ran a survey with university students to understand news story seekers' behaviours on social media and found that news content or stories shared by friends on Facebook were perceived as more trustworthy than stories received directly from news organisations or outlets, due to the relationships between users. Consequently, social media are widely popular among different age groups, including young generations. Younger users (including university students) also used social media such as wikis, blogs, forums, user reviews, social networking sites and microblogs to solve academic and everyday problems (Kim & Sin, 2015). Recently, Khan (2018) conducted a study with information science research students in Pakistan and found that students made the most use of social spaces for information seeking specifically for research and academic purposes. He also found that an increased number of social ties (i.e., social interactions) increased research students' confidence in seeking information on social media,

and such information seeking practices helped to clarify directions in the research students' information seeking strategies.

Within the context of tourism information seeking, tourism researchers (Xiang & Gretzel, 2010) claim that social media have become an essential part of travel information searches and the tourism domain. Over the past few years, there has been a burgeoning interest in the use of social media by tourism professionals; this has been demonstrated by the Symposium for the Use of Social Media in the Tourism Industry (SoMeT), which is the premier conference for tourism professionals looking to share ideas, network and discover opportunities for destination marketing in social media. Studies have shown that today people prefer to travel in groups, and hence, collaboration between tour mates is necessary and beneficial for their trip planning as well as for ensuring a trouble-free execution of the trip (Fardous, Du, Choo, & Huang, 2017; Mohammad Arif et al., 2015; Shah, 2014). Furthermore, tourists are more interested in getting tips from or seeing reviews of tourism products and services by experienced tourists via online resources, rather than physically visiting travel agencies and visitor information centres (Sotiriadis, 2017; Virtue, 2014). Thus, information seeking on social media has become a functional source of information that helps groups of tourists to make low-risk, effective and useful decisions on destination choices and tour planning.

Nowadays, it is increasingly common for people to collaborate with others and use communication technologies to satisfy their information needs in both their personal and their professional lives (Shah, Capra, & Hansen, 2017). There are also many situations or cases in everyday life in which people need to utilise both collaboration with group members and social interactions to seek and use information. For example, planning a group holiday trip with family or friends usually involves information seeking and decision-making with family members or friends (i.e., accompanying tour mates). Thus, people tend to use intra-group collaboration as well as social interactions to fulfil their need for information in the context of their professional and personal lives (e.g., related to health concerns and leisure activities). In a group setting, CIS is a complex process because collaborators (group members) need to work together to solve a common problem by exchanging information, and sharing opinions and findings (Shah, 2014; Talja, 2002). Social interactions are a particular form of externality wherein the actions of a reference group affect an individual's preferences (Scheinkman, 2008). In this study, social interactions on social media are defined as information seeking processes wherein social media users ask for recommendations from other social media users or look for information by going through the shared content of other social media users.

Previous research has revealed that information seeking through social interactions assists people in reducing their cognitive efforts during the complex and exploratory search task (Evans, Kairam, & Pirolli, 2010). Accordingly, social interactions on social media can be exploited to seek, gather and verify information for collaborators during CIS activities. For instance, in the trip planning phase, tourists in a group may communicate and consult with other experienced tourists (outside of the tour group) through social media to obtain and verify relevant information while conducting CIS activities like information seeking. Further, they may dig into UGCs (e.g., news, experiences, thoughts and opinions on a particular topic, photos and videos) or ask questions on the social media pages of various tour groups and tourism operators and service providers in order to seek and find particular information during CIS. Thus, the information obtained via social interactions on social media can be a useful and key resource for collaborators (a group of tourists) to gather a variety of information, share opinions, synthesise collected information, verify information, and make decisions in a group travel context. More specifically, during execution of a group trip, a group of tourists may utilise social media including social interactions to seek information in order to make on-site decisions or alter pre-scheduled trip plans due to circumstances such as local weather, tourists' health issues or safety and security issues at on-site activities.

2.3 Tourism information seeking

Tourism includes the activities people undertake when they travel to and stay in places that are away from their homes for a short period for recreation, leisure, religious, family or business purposes. Since tourism is a highly dynamic and competitive industry, it needs to adapt constantly according to its customers' changing needs and expectations (Banday & Sheihk, 2008). In 1994, the United Nations categorised tourism into three different forms: i) domestic tourism, ii) inbound tourism and iii) outbound tourism (United Nations, 1994). Tourism has become the world's largest industry, with a global economic contribution (direct, indirect and induced) of over 7.6 trillion USD in 2016 (Statista, 2017). Tourism is one of Australia's five super-growth sectors and its contribution to national GDP grew by more than 6 per cent in 2016–17 (Australian Trade and Investment Commission, 2018).

Searching online plays an important role in tourism information seeking, in particular when tourists seek information to make decisions on purchasing various tourism products and services. The following section reviews studies of tourism information seeking.

2.3.1 Characteristics of tourism information seeking

In the following sections, the characteristics of tourism information seeking have been discussed from two perspectives: (1) individual tourist information seeking (the single tourist context) and (2) collaborative information seeking (CIS) (the group travel context).

2.3.1.1 Individual search for tourism information

Potential tourists search for travel information to enhance the quality of their trip by reducing the level of associated uncertainty in the decision-making process (Goeldner & Ritchie, 2006; Ho, Lin, Yuan, Chen, & Alvares, 2016; Ranjbarian, Ghasemi, & Shekarchizadeh, 2018). Information seeking from both internal and external sources is necessary for selecting destinations and making on-site decisions such as choosing accommodation, transportation, activities and restaurants (Filiatrault & Ritchie, 1980; Snepenger, Meged, Snelling, & Worrall, 1990). Internal sources of information incorporate personal experiences that could include a specific destination experience and knowledge of previous visits (Schul & Crompton, 1983; Vogt & Fesenmaier, 1998). However, when an internal search becomes insufficient, tourists use external sources of information. External sources include family and friends, destination-specific literature, media, travel agencies, and travel consultants (Gursoy & McCleary, 2004). Considering these two sources, Fodness and Murray (1997) defined tourism information searching as "a dynamic process wherein individuals use various amounts and types of information sources in response to internal and external contingencies to facilitate travel planning" (p. 506).

With the advent of information technology and provisions for accessing information on the Internet, the Internet has become an extremely popular way for tourists to conduct travel information searches and purchase tourism-related products (Buhalis & Law, 2008; Werthner & Klein, 1999). To understand the representation of tourism information on the Internet, Xiang, Wober, and Fesenmaier (2008) conducted a study based on the Google search engine. In their analysis, they found that Google presented a huge amount of information to searchers in the form of search results, but tourists could access only a small amount of it due to the thin interface effect (i.e., filtering/presenting of links based on the amount and originality of their content). Hence, it was difficult for tourists to get direct interactions with tourism organisations merely by depending on one search engine. Björk and Kauppinen-Räisänen (2014) found that

tourists' most used information sources included the Internet, tourism brochures, friends and newspapers. They called these pre-trip search behaviours.

Research has shown that Internet technology and online travel communities have changed tourists' information seeking behaviours. For example, Schwabe and Prestipino (2005) examined how online communities helped to improve the quality of tourism information through an empirical study. They presented timeliness, completeness, structure and personalisation as quality of information attributes and found that traditional, discussion-based online tourism communities provided more updated, complete and customised information than commercial handbooks or brochures. This high quality of tourism information was believed to help travellers to obtain high-quality travel experiences throughout their tours (i.e., from planning to execution stages). In this era of social media, tourists also rely more on the suggestions from others, as they can learn about tourism products and services directly from other tourists via the Internet and social media (Li & Wang, 2011). As a result, there is a trend that social media are turning into a popular and useful source for tourism information search due to the realistic, relevant, and up-to-date nature of the information they present.

Tourism information searching is a complex task as it involves various types of information searching activities needed to make a decision. Understanding tourism information seeking behaviours is important as this relates to creating an effective trip plan. Travelling behaviours are defined as what tourists do and why they do it, the destinations they plan to visit and why they make-decisions on them (Pearce, 2005). However, recent research has revealed that tourists are required to collaborate with their tour partners when they intend to travel with family members or friends (Mohammad Arif et al., 2015; Shah, 2014).

2.3.1.2 Collaborative search for tourism information

There are few studies on collaborative searching for tourism information. A tourism collaborative search can be defined as an activity in which a group of people carries out a trip-related information search for planning a trip (Imazu et al., 2011; Morris, 2008). Specifically, finding tourism information (e.g., on accommodation, transportation, and places to visit) and organising it into a single plan is a fairly complex task. Realising that tourists have complex information needs, Prestipino (2004) presented a thread and forum-based communication and collaboration system for supporting CIS for tourists. He conducted a user study on trip planning and found that a tourist was able to fulfil his/her information needs more explicitly because the community provided accurate, reliable and up-to-date information in response to individual

information needs. In addition, the shared information on the forum was accessible without interfering with the community. However, the system did not support real-time communication, which is important in the tourism information seeking context. To understand the effects on group members during group trip planning, Imazu et al. (2011) carried out a task-based user study. They explored that an explicit division of roles has a significant effect on a group's knowledge-building during the CIS stage. Particularly, they found that the NR group (those who were given no role instruction) had more conversations to verify a member's opinions and fewer for suggesting ideas. In contrast, the ER groups (those who were given an explicit role instruction) were found to be more aware of the details of a given task due to advanced communication between members.

In another study by Mohammad Arif et al. (2015), a set of information flow breakdowns was identified (i.e., missing information, unavailable information, incomplete information and conflicts of preferences), which occurred at different stages of collaborative searching in the trip planning phase, including collaborative planning, collaborative information searching, and collaborative decision-making. The study also mentioned that tourists collaborated with other tourists in the tour group when information flow breakdowns occurred.

Young tourists (e.g. students) searched for pre-trip or on-site information more thoroughly and with a greater degree of cooperation than other tourists, as young tourists spend more time finding their goals (Chun-Hsin Wu & Pu Hsu, 2015). Collaboration with other people to find tourism information is determined to be one aspect of tourism information seeking behaviours (Ho, Lin, Yuan, Chen & Alvares, 2016). A recent study (Fardous et al, 2017) also explored how a group of tourists collaborated on social media during trip planning to find and obtain trip-related information. Thus, collaboration with tour partners plays a significant role in information seeking and decision-making during the group trip planning and travelling phases.

In conclusion, due to the complex nature of tourism information searching, tourists are needed to search for information from different sources such as internal (personal experiences) and external sources (family and friends, destination-specific literature, media, travel agencies, and travel consultants). With the emerging of social media, tourists are found to employ the Internet and social media sources for tourism information when both the internal and external sources cannot fulfil their information needs. Research shows that the information searching from individual and collaborative perspectives are different. For example, a tourist needs to find a diverse range of travel information during the trip planning phase in order to research and then

to make decisions. At this phase, since the tourism products and services are expensive, they prefer to obtain information from the experienced and known persons (tourists) to lessen the uncertainty related to the products and services. Further, in many cases, people tend to travel with a group of people to socialise, enjoy the company of each other, and better fit into their communities. Also, research suggested that when a group of people (a group of tourists) travel together, they collaboratively plan a trip, divide tasks and make decisions on trip-related products and services. Thus, a better understanding of the characteristics of tourism CIS behaviours may guide tourism operators and service providers to redesign their services according to the demands of tourists.

2.3.2 Challenges faced by tourists in tourism information seeking

Tourism is an extremely information-profound activity of which the online information search has become an integral part, and tourists obtain useful and effective tourism-related information from tourism websites, tourists' personal blogs and the social media pages of tourism service providers, travel groups and tourism marketers through web searches (Choi, Lehto, & Oleary, 2007; Pabel & Prideaux, 2016; Prestipino, 2004). The rapid development of online technologies has made information gathering easier and faster for travellers, who may purchase travel products and alter their decisions at any stage of the decision-making process (Jun, Vogt, & MacKay, 2007; Lu, Gursoy, & Lu, 2016). However, there are still some challenges experienced by tourists while seeking information on the web. These include:

i) Online information overload

Tourists face difficulties in obtaining relevant information and making decisions when they search for information on the Internet due to information overload and the overwhelming quantity of tourism-related websites (Lumfus, Grun, Alzua-Sorzabal, & Werthner, 2010; Lamsfus, Christoph, Alzua-Sorzabal, & Werthner, 2010; Pan & Fesenmaier, 2000; Travel Weekly, 2018). In addition, the abundance of information on social media may lead to information overload and often incorporates misleading or unreliable information (Ayeh, Au, & Law, 2013). Information overload, or an overwhelming quantity of information, is the excess of information that consists of both relevant and irrelevant information and causes confusion not only for tourists but also for tourism-related professionals and researchers when making decisions (Pan & Fesenmaier, 2000).

ii) Online scams

People can be deceived by different types of scams while they search for information on the web and access the Internet. Several types of scams exist but some important ones are, for example, phishing scams, dating/social networking scams, financial advice scams and lottery scams (Consumer Commission, 2015; Cross, Smith, and Richards, 2014; Jorna and Hutchings, 2012). A phishing scam is a process (e.g., email) by which cybercriminals acquire peoples' personal details and banking information, such as usernames, passwords and credit card details. In dating/social networking scams, scammers seek financial support from their victims by establishing trust in the beginning and go away after getting the desired money. Since tourists book their travel-related products (e.g., air tickets, hotels, and car rentals) in advance using credit cards and contact others (e.g., tourism service providers and markers) via social media, there is a high likelihood that tourists will experience phishing scams.

iii) Malware attack during information seeking

Malware is another way in which a person's computer system can be accessed and their private information acquired by attackers during web browsing (Provos, McNamee, Mavrommatis, Wang, Modadugu, & Others, 2007). Malware mainly steals information and spies on computer users for a certain period of time without their knowledge. It includes computer viruses, spyware, worms, Trojan horses and adware. Tourists mostly use the Internet for tourism information seeking and decision-making, which could lead them to encounter malware.

iv) Language barrier

The Asian outbound market is growing fast and becoming the major source of incoming international tourists in any country worldwide. However, Asian tourists, in particular Chinese, Japanese and Indonesian tourists, experience some problems during the trip planning phase. One big issue is low levels of proficiency in English. Copenhagen Research and Development (2013) noted that Chinese tourists as well as other non-English speaking tourists encounter a lack of information in Chinese and regional languages on the web, which makes them unhappy as they do not feel comfortable communicating in English.

v) Lack of information on websites

Non-English speaking tourists have two additional problems when they search for information on the web, which are that information is not thorough (43.88%) and not practical (26.59%) (World Tourism Cities Federation, 2014). When non-English speaking tourists look for tourism

information they find a lack of detailed information on the websites; sometimes they find that the provided information is not accurate or useful.

Though social media provides many opportunities for tourists to share their holiday experiences by posting comments and feedbacks on tourism websites and forums, publishing blogs, and forming and joining tourism communities, tourists are overwhelmed by the huge amount of available online information (Yilmaz, 2016). In addition, a lack of detailed, practical and accurate information on the web can leave tourists confused and frustrated during the travel planning phase, in particular during information searching.

2.3.3 Collaboration in tourism information seeking

Tourism information searching is a complex process and includes internal as well as multiple external information sources. Trip planning activities have also turned into a group activity during which tourists are keen to do search tasks together and make important decisions jointly in order to accomplish such complex tasks effectively (Mohammad Arif & Du, 2012). For successful collaboration in information seeking, collaborators must have a diversity of opinions, independence, decentralisation and aggregation (Surowiecki, 2004). In planning a group trip, tourists need to collaborate with others for various purposes including gathering, sharing, and verifying information, sharing knowledge and experiences and accommodating individual preferences (Fardous, Du, Choo, & Huang, 2017; Ho et al., 2016). Hence, collaboration in tourism information seeking can be very complex as it involves many phases, and various interactions and sub-processes.

Gary (1989) identified three major phases of collaboration, which are the pre-negotiation or problem-setting phase, the direction-setting phase and the implementation phase. In the problem-setting phase, the collaborators make a commitment to collaborate, determine the resources required for collaboration, and most importantly, agree about a common problem that impacts them all. In the tourism context, the groups of tourists have a common goal, they make a commitment, and they identify mediums through which to communicate with each other for required information seeking. In the direction-setting phase, the collaborators identify the interests that brought them together, set directions, explore the pros and cons of various alternatives and establish shared goals. They determine their common interests, set directions to find out required information, detect the advantages and disadvantages of all possible options (e.g., destinations, flights, hotels, and restaurants) and finally decide on the plan of the tour. In the implementation phase of collaboration, collaborators deal with the constituencies, support

the agreement to implement, establish structures for implementation, and lastly, monitor the agreement and compliance. In the tourism context, tourists with similar interests make decisions by considering every tour member's preferences and opinions.

Since tourism is an information-demanding activity and requires collaboration, Mohammad Arif et al. (2015) conducted a user study with ten pairs of participants in order to understand and explore the CIS behaviours in trip planning. They determined that there are four stages in the collaborative search process, including collaborative planning, searching, sharing and decision-making. Four types of information flow breakdown during collaborative tourism information searching were also identified, including missing information, unavailable information, incomplete information and conflicts of preferences.

The development of the Internet and smartphones has changed tourists' approaches to information searching and trip planning (Xiang, Wang, O'Leary & Fesenmaier, 2015). Ho et al. (2016) developed a comprehensive model of the pre-trip tourism information search of smartphone users. They found that a tourist needs to collaborate with others at different stages of the information seeking process to fulfil their travel information needs. However, these studies investigated how tourists collaborate with people for searching tourism information during the trip planning phase only, not in the group travelling phase in a CIS context.

2.3.4 Tourism information seeking through social media

Due to the increasing use and popularity of social media (e.g., TripAdvisor, Lonely Planet and social networking sites such as Facebook, Instagram, YouTube and Snap Chat), ways of searching, finding, reading, processing and evaluating tourism information are changing (Zeng, 2013; Zeng & Gerritsen, 2014). Social media, therefore, play a vital role as an online information source for personal travel stories, reviews, opinions, tips and recommendations, which impacts decision-making about tourism products as well as on pre-trip destination impressions (Munar & Jacobsen, 2013). Travel experiences shared on social media are preferred by potential tourists, who seek updated, complete and customised information to plan their vacations (Li & Wang, 2011). Moreover, as the content on social media is recent and contemporary, search engines (e.g. Google) also direct tourism information seekers to social media pages to acquire information, including consumer-generated contents and many useful hyperlinks (Xiang & Gretzel, 2010). Reading travel reviews and experiences on social media also makes the trip planning process enjoyable, adds fun to planning tasks and makes tourists

feel more excited about their travel (Parra-Lopez, Gutierrez-Tano, Diaz-Armas, & Bulchand-Gidumal, 2016).

Responding to the ubiquitous use of social media via smart mobile devices, Ho et al. (2016) investigated the information search behaviours of tourists using smartphones. The authors noted that tourists utilised different sources and collaborated with others via social networks in order to seek information during trip planning. Social media was also used by travellers for travel purposes at different stages (before travelling, during travelling and after travelling) of information searching and sharing (Amaro, Duarte & Henriques, 2016; Fotis et al., 2012). A recent study by Fardous et al. (2017) explored the CIS behaviours of social media users while they were planning for a group trip. Their findings showed that tourists collaborated on social media to seek, gather, obtain, share and validate information at different stages of a trip planning process. It was found that the majority (73.80%) of the respondents used social media to gather information at the beginning of the trip planning process, 41% of the respondents used social media to validate information at the end of the planning process, and 42.86% of the respondents changed their minds about tourism products due to social media interactions. Existing research on tourism has focused on understanding how an individual tourist uses social media throughout a tour. However, there is still a lack of understanding of how social interactions on social media can benefit CIS in group trip scenarios, particularly during group trip planning and the execution of the group trip at the destination.

2.3.5 Impact of social interactions on tourism information seeking

In the past few years, social media have evolved to be one of the most popular platforms for sharing individuals' personal experiences on a holiday trip and for marketing and promoting tourism on the Internet (Litvin, S. W., Goldsmith, R. E., & Pan, B., 2008). Tourists can communicate with known and/or unknown fellows through social media communication tools for trip-related purposes, for example maintaining connections, finding tour mates, providing trip-related tips and suggestions and sharing travel associated experiences with each other (Wang, Yu, & Fesenmaier, 2002). Since the number of social media users is rapidly increasing worldwide, it is clear that the level of interaction is high and the content (i.e., travel experiences) shared on social media may influence other social media users to decide on destination places and other tourism products and services during the trip planning phase.

Social media is becoming popular in the tourism domain as it is able to provide more realistic information and experiences to potential tourists (Brown & Vaughn, 2011; Cox et al., 2009;

Stankov, Lazic, & Dragicevic, 2010; Vance, Howe, & Dellavalle, 2009). A study by Xiang and Gretzel (2010) revealed that travellers can collect trip-related information on social media not only from friends and relatives within their social networks but also from unknown peers (i.e., tourists) . As tourists' information search behaviour is changing, UGCs provided by experienced tourists through social interactions are becoming important and widely recognised sources of information. For example, Cox, Burgess, Sellitto, and Buultjens (2009) investigated the contributions and roles of UGCs posted on social media (e.g., Facebook, TripAdvisor, etc.) when consumers (tourists) searched for tourism-related information. They found that experiences shared by other travellers influenced the tourists' decision-making processes. Fotis, Buhalis, and Rossides (2012) presented a comprehensive insight into the role and impact of social media on the travel planning process (i.e., before, during and after the trip). They found that there is a strong correlation between the level of social media influence on choice of destination and accommodation, and the changes made to holiday plans before the final decision was taken. Moreover, the findings showed that consumer-generated (tourist) content was more trustworthy than official tourism websites, travel agents and mass media advertising (Virtue, 2014; Volo, 2010). Hudson and Thal (2013) investigated and found that UGCs (e.g., online reviews of hotels or destinations) on social media influenced potential tourists in the evaluation stage, when consumers add or subtract brands (e.g., hotels, restaurants, transports) according to their requirements.

A recent study by Kim, Lee, Shin, and Yang (2017) explored the role of the quality of tourism information on social media in helping potential tourists to form both cognitive and affective destination images. Complete travel information was found to help travellers form the cognitive side of the destination image, including what to do and where to find things. Thus, experienced travellers' information influenced other tourists' decision-making processes in terms of deciding on their destination, hotel, and related products. The trustworthiness of information on social media mainly influenced tourists in their decision-making while they were planning and searching for information (Leung, Law, van Hoof, & Buhalis, 2013). Social media have become a popular platform for tourists to seek information even in the travelling phase when a crisis occurs (Schroeder & Pennington-Gray, 2015).

On the other hand, Boyd and Ellison (2007) found that destination marketing organisations have started using social media due to its growing worldwide acceptance and many users. For example, many hotel and tourism businesses have embedded social media applications into their business websites to enrich customers' information searching experience by integrating

customers' reviews and feedback (Fuchs, Scholochov, & Höpken, 2009; Sanchez-Franco & Rondan-Cataluña, 2010).

Previous research has studied how social media or social interactions influence an individual tourist's information seeking and decision-making processes during the trip planning and travelling phases. However, the current research attempts to examine the tourists' CIS behaviours and the influence of social interactions on social media on tourism CIS while performing planning activities for a group trip as well as executing the group trip at the destination.

2.4 Research gaps

A review of the literature on CIS, information seeking through social media, tourism information seeking, and collaboration in tourism information seeking has been presented in this chapter. The main findings of the review are summarised below.

It is concluded that collaboration is useful and often required when people work as a group, especially when one of the goals of the group is to seek information to satisfy a common information need. Further, when people collaborate, they can accomplish more tasks, benefit from other people's experiences and expertise on the topic and influence one another, and develop a more profound understanding of the subject than when they are isolated.

Based on the literature review, it is found that social media has changed peoples' minds and emerged as a new way of searching for information by utilising social interactions or relationships between people to locate needed information on the web. Social media also provides high level of interactions between users, and trustworthy information. Therefore, the reliance on social media has increased significantly for people seeking information in everyday life. It is also increasingly used in various domains of information seeking such as health and academia, during crises (riots, flu outbreak, earthquake, and flood) and in tourism.

From the last section of the literature review, it can be concluded that tourists have been found to search for ideas about where to go, where to stay (i.e., accommodation options), which mode of transportation to use (i.e., bus/train/flight/cruise), which places to visit (local tourist places) and what to do (activities) on social media or through social interactions on social media, during the travel planning phase and also while travelling at the destination.

Since this research aims to advance our understanding of the CIS behaviours of social media users in tourism domain, it is essential to look at CIS behaviours, including triggers, characteristics, and methods of tourism collaborative searching, as well as use of social media interactions to support CIS behaviours. From the review of literature, some gaps emerge and serve as the key motivation for this thesis.

Gap 1:

The first section of the literature review is about CIS, the triggers and characteristics of CIS, methods for collaboration during CIS, and existing CIS tools to support CIS activities. It is to be noted that there is a lack of conceptual understanding about why and how a group of people (tourists) might collaborate with each other to find information, share information and make decisions during group trip planning and the execution of a group trip. Further, limited research has been conducted to study tourism CIS behaviours across the phases (i.e., during trip planning and the trip itself) of a group trip.

Gap 2:

It is also noted that social media plays a significant role in information seeking. As social media allows people to engage in sharing their opinions and thoughts interactively online, it is highly likely that people can be affected by the content shared on social media. Moreover, information seekers also seek information from social media as a trustworthy entity. Consequently, social interactions or relationships on social media can be an important part of CIS activities. However, no previous works have considered how social interactions on social media may satisfy a group's information needs during the CIS process.

Gap 3:

It has been found that limited research has been done on the connection between CIS and social information seeking on social media. More specifically, no research has investigated how social media can be employed by a group of tourists while planning or executing a trip, or how such social interactions via social media can contribute to the CIS performance during the information seeking phase.

Therefore, this thesis will address these gaps by exploring the understanding of CIS behaviours in a tourism environment, and the relationship of social interactions on social media to tourism CIS activities in both phases of a group trip.

3. Research design

As discussed in the literature review, trip planning is a complex issue that usually involves finding, seeking and verifying information and making purchase decisions. As part of self-organised group trip planning, tourists often collaborate with accompanying tour mates to gather information and coordinate discrepancies between group members. Potential tourists are also noted to interact with other experienced tourists on social media to collect information not only during the trip planning stage but also when they are at their destination (Fardous, Du, Choo, & Huang, 2017). This chapter presents details of the research methodology which was employed to achieve the research aims, i.e., identifying the triggers and characteristics of tourism CIS behaviours and collaboration on social media during both the group trip planning and the travelling phase. The justification for the mixed-methods research design, the procedures for data collection, recruitment of participants and analysis of collected data and the ethics approval for the research, are reported.

3.1 A mixed-methods approach

The term research design refers to the overall strategy used to address research problems, including methods and procedures used in collecting data from a cohort and analysing it logically (Creswell, 2009). This study used a combination of quantitative and qualitative methods, including questionnaire surveys and group interviews, as a mixed-methods approach to explore groups of tourists' collaborative information seeking (CIS) behaviours and examine the influences of social interactions on social media on those CIS behaviours. Mixed-methods research allows for the inclusion of both quantitative and qualitative methods of data collection and/or analysis in order to gain a better understanding of and range of outcomes for the same underlying phenomenon (Creswell, 2009; Wisdom & Creswell, 2013).

This mixed-methods approach consists of two research paradigms: the positivist paradigm and interpretive paradigm. From the quantitative perspective, this thesis was guided by a positivist paradigm based on "rigid rules of logic and measurement, truth, absolute principles and prediction" (Weaver & Olson, 2006, p. 460). From a qualitative perspective, an interpretive paradigm was used to provide a concept for understanding a particular phenomenon (Klein & Myers, 1999). This research followed the qualitative paradigm to understanding a group of tourists' CIS behaviours on social media when planning and executing a group trip. Using mixed methods in research improves the quality of a study since the biases, limitations, and

weaknesses of a single method following one approach are counterbalanced, or compensated for, by mixing it with a method belonging to another approach (Fidel, 2008). In addition, the mixed-methods approach offers greater insight into a phenomenon, as it can leverage the complementary strengths and non-overlapping weaknesses of quantitative and qualitative methods (Johnson & Turner, 2003). Hence, this study aimed to harness the strengths of both paradigms (quantitative and qualitative methods) to obtain a synergy of understanding and rich insights into tourism CIS behaviours on social media in the planning and execution of a group trip (Rocco, Bliss, Gallagher, & Perez-Prado, 2003).

The rationale for using a mixed-methods approach in this research was to both allow for the initial generation of data through a questionnaire survey study relating to the relatively unexplored area of tourism CIS behaviours and the use of social interaction on social media while conducting CIS activities. The findings will then allow extending (complementing) the obtained knowledge with added benefits gained from an in-depth interview study to explore more detailed explanations and illustrations (Table 3.1). Specifically, the quantitative method (questionnaire survey) aimed to provide a general overview of tourists' CIS behaviours and social media use for information seeking and sharing associated with their group travel, while the qualitative method (group interviews) aimed to provide deep insights from rich narratives such as the details of experience recounted by the participants. The following sections present the explanations for each method/study employed in this research project.

Table 3.1: Summary of data collection techniques to address the RQs

Research question (RQ)	Research methodology (Survey + interviews)	Data analysis
RQ1	Survey (108 participants) on both phases of group travel to explore the triggers of CIS behaviours.	Open coding and descriptive analysis
	Group interviews (38 participants) on both phases of group travel to identify the characteristics of CIS behaviours.	Content analysis
RQ2	Survey (108 participants) about trip planning and execution of group trip to determine the methods of intra-group collaboration.	Open coding and descriptive analysis
	Group interviews (38 participants) to identify factors in selecting collaborative method.	Content analysis

RQ3	Survey (108 participants) on both phases of group travel to explore the circumstances of social media use during information seeking and sharing.	Open coding and descriptive analysis
	Group interviews (38 interview participants) to investigate more details and nuances about the circumstances of social media usage in group trip planning and group travelling.	Content analysis
RQ4	Survey (108 participants) to examine types of collaboration occur during information seeking of both phases of a group trip.	Open coding and descriptive analysis
	Group interviews (38 interview participants) to reveal more on collaboration on social media including motivations for such collaboration during information seeking.	Content analysis
RQ5	Survey (108 participants) to identify the influence of social interactions (collaboration outside of the tour group) on information seeking of both phases of a group trip.	Open coding and descriptive analysis
	Group interviews (38 interview participants) to investigate the influences of different types of social interactions on CIS behaviours.	Content analysis

3.2 Data collection approaches

3.2.1 Quantitative method (questionnaire survey)

A questionnaire survey is a type of data-gathering method which is used to collect, analyse and interpret different views within a distinct population. It is the most widely used social sciences data-gathering technique, in which phone interview surveys, Internet opinion polls, and various types of questionnaire are used to conduct data collection (Krathwohl, 2009; Neuman, 2013). In addition, questionnaire surveys can bring breadth to a study by collecting data about different aspects of a phenomenon from many participants (Lazar, Feng, & Hochheiser, 2017).

The information collected in a survey involves data that is subjected to quantitative analysis using both descriptive statistical and multivariate statistical analysis and modelling. The instrument of a questionnaire survey has been employed in prior limited works to uncover collaborative behaviours in tourism information searching (e.g., Aldosari, Sanderson, & Uitdenbogerd, 2015; Morris, 2008; Teevan, Morris, & Azenkot, 2014).

A structured questionnaire model including open-ended questions (Singer & Couper, 2017) was therefore followed to design a questionnaire addressing both trip planning and trip execution. The survey questionnaires for the two stages of a trip (see Appendix C and Appendix D) were the first phase of this PhD study, and were used to obtain an overview of tourism CIS and social interactions therein, by approaching a large number of social media users who had experience of travelling on self-organised group trips. The survey findings served as a basis for designing questions for the in-depth interviews which formed the second phase of the PhD study.

The SurveyGizmo online tool (https://www.surveygizmo.com/) was used to design and administer the questionnaires. The questionnaires were developed and refined based on a pilot study conducted in January 2016. Feedback from the pilot study was used to improve the wording of questions and the structure of the questionnaires. For example, a question was rephrased from "what was the source of information on social media to how did you find/search trip-related information on social media during your trip planning stage?" in the main survey study, which was conducted from February to March 2016.

3.2.1.1 Group trip planning and information seeking survey (Appendix C)

The objective of the group trip planning questionnaire was to gain knowledge of the triggers for a group of tourists taking part in an intra-group collaboration – how they collaborated on tourism information seeking and sharing, under what circumstances they used social media, and how information seeking on social media influenced them to make group decisions before departure. Both online (44.44%) and printed (55.56%) versions of the questionnaire were used to collect data. There was no difference in content between the two versions. The link to the online questionnaire was sent to staff and postgraduate students via email within the School of Information Technology and Mathematical Sciences, University of South Australia, as well as to friends via Facebook Messenger. Staff members and postgraduate students were chosen as participants because they were likely to have had varied experiences of travelling for conferences and seminars and to visit family and friends. Printed versions of the questionnaire were also distributed to undergraduate students and local residents at various venues, including the university library and a local community centre. Data collected via the printed questionnaire were manually entered into the SurveyGizmo system. The questionnaire contained both multiple-choice and open-ended questions and was divided into four sections:

i) Demographics and devices used for trip planning

ii) Ways of collaboration with tour mates
iii) Use of social media for searching and sharing information
iv) Impacts on trip planning through social interactions on social media.

A total of twelve open-ended questions and five close-ended (multiple-choice) questions were included in the questionnaire survey.

3.2.1.2 Group trip execution and information seeking survey (Appendix D)

In order to obtain an understanding of tourists' social media usage and collaborative activities during the execution of group travel, a separate questionnaire (Appendix D) was designed. As with the trip planning survey, both online (51.11%) and printed (48.89%) versions of the questionnaire were used to collect travel data from participants. There were no differences in content between the two versions. The link to the online questionnaire was sent to staff and postgraduate students of the School of Information Technology and Mathematical Sciences, University of South Australia, and shared with friends on Facebook. The printed version was distributed among undergraduate students and others at different locations, including the university library, a local community centre and personal networks. Data collected from the printed questionnaire were manually entered into the SurveyGizmo system.

The questionnaire comprised both multiple-choice questions and open-ended questions, and was structured into the following five sections:

i) Demographics and devices used during the trip
ii) Methods of collaboration in CIS during the trip
iii) Usage of social media during the trip
iv) Employment of social interactions on social media in seeking and sharing information during the trip
v) Contributions of social media including social interactions during the group trip.

The travelling questionnaire consisted of thirteen open-ended questions and three close-ended (multiple-choice) questions. Links to both questionnaires (trip planning and travelling) were provided in the same email and message on Facebook and participants were asked to take part in either one questionnaire on group travel or both by fulfilling the participant requirements.

3.2.1.3 Study participants of questionnaire surveys

3.2.1.3.1 During group trip planning

Only individuals who were social media users and were planning a group trip or had returned from a recent group trip (i.e., within three months of participating in the survey) were eligible to take part in the study. The latter group of participants was asked to recall their recent trip planning experiences. Participation in the questionnaire survey was voluntary and completing the survey took 15 to 20 minutes.

Among 108 survey participants, 63 respondents completed the trip planning survey; they consisted of postgraduate students (24; 38.10%), undergraduate students (19; 30.16%), engineers (7; 11.11%), academics (3, 4.76%), and others including a salesperson, teacher, nurse and customer service assistant (10; 15.87%), with 58.73% males and 41.27% females. The dominant age groups of participants were 18–25 (38.10%) and 26–33 (42.86%), followed by 34–41 (14.29%), 42–49 (3.17%) and 50–above (1.59%). The majority (77.77%) of participants used mobile phones, and the rest (22.23%) used tablets to complete the trip planning activities. In this study, it should be noted that as the context of this study is social media users, most of the participants were young people (with 92% between 18–33 years old) who regularly use social media on smart mobile devices. However, the youth and student travel market has become one of the fastest-growing sectors in international tourism. For example, the World Tourism Organization (World Tourism Organization, 2016) reported that nearly 23% of international tourists were young people (aged 15–29 years), and it is estimated that the number of total young tourists will reach 370 million by 2020, and these will spend over USD 400 billion on travel. The average number of participants per travel group was 4.33. A summary of the participants is presented in Table 3.2.

Table 3.2: Demographic information of participants in survey during trip planning

	No of participants	**Percentage (%)**
Gender: Male	37	58.73
Female	26	41.27
Age: 18-25	27	42.86
26-33	24	38.10
34-41	9	14.29
42-49	2	3.17
50 & above	1	1.59

Profession:	UG student	19	30.16
	PG student	24	38.10
	Engineer	7	11.11
	Academic	3	4.76
	Others	10	15.87
Device:	Smartphone	49	77.77
	Tablet	14	22.23
Participants per group			4.33
Total participants			63

3.2.1.3.2 During group travel

In this phase of the questionnaire survey, nearly 60 individuals were approached to participate, but a total of only 45 individuals (55.56% males and 44.44% females) participated in the survey. The respondents came from different backgrounds: undergraduate students (20; 44.45%), postgraduate students (12; 26.67%), IT professionals (5; 11.11%) and others (8; 17.78%). Most of the respondents were young adults: 18–25 (55.56%) years, 26–33 (28.89%) years, 34–41 (8.89%) years, 42–49 (4.45%) years and 50 years and older (2.23%). The majority of the respondents (71.11%) used mobile phones, and the rest (28.89%) used tablets to access social media while travelling. The average number of members in each group was 4.22. Table 3.3 presents the demographic information of participants who took part in the survey on travelling or execution of the group travel.

Table 3.3: Demographic information of survey participants during travel execution

		Survey participants	
		No of participants	**Percentage (%)**
Gender:	Male	25	55.56
	Female	20	44.44
Age:	18-25	25	55.56
	26-33	13	28.89
	34-41	4	8.89
	42-49	2	4.45
	50 & above	1	2.22

Profession:	UG student	20	44.45
	PG student	12	26.67
	Engineer	5	11.11
	Other	8	17.78
Device:	Smartphone	32	71.11
	Tablet	13	28.89
Participants per group			4.22
Total participants			45

3.2.2 Qualitative method (group interviews)

3.2.2.1 Semi-structured group interviews

The purpose of conducting interviews is to explore the views, experiences, beliefs and/or motivations of individuals on a specific matter (e.g., factors that drive tourists to use social media) (May, 1991). Interviews are also able to provide an in-depth understanding of the study phenomenon from participants (Gill, Stewart, Treasure, & Chadwick, 2008). In this research, semi-structured group interviews were conducted with groups of real tourists living in Australia to gain in-depth data and rich insights into participants' thoughts and behaviours, types of information needs, triggers, the circumstances of their collaborative activities during trip planning and travelling, and their use of social media during tourism CIS activities (Appendices C: interview guides for group trip planning and travelling). Moreover, group interviews with participants were chosen over individual interviews because while an individual interview can provide a point of view for one particular person, it cannot provide a perspective on group information seeking behaviours and decision-making processes (Decrop, 2005; Zhang, Sun, & Wagner, 2018). For example, why and how a group of participants seeks relevant information from other members and how the group members make decisions together while deciding on the destination, time and length of trip and method of transportation cannot be explored in an individual interview. Similarly, since the goal of this research was to investigate CIS behaviours of a group of tourists who planned a group trip and executed that trip together, the focus group technique was not appropriate for this study. In other words, the participants of this study were groups of family members and friends who planned and travelled together for their holiday and hence, the group interview was conducted with the members of a tour group (family or friends group) to know their group travel experiences. In focus group, participants

are chosen who are within the age-range, have similar socio-characteristics and would be comfortable talking to the interviewer and each other (Richardson & Rabiee, 2001). Thus the group interviews aimed to uncover both facts and the meanings of stories underlying the experiences of participants (Kvale & Brinkmann, 2009). In this study, particularly, in-depth interviews helped to obtain detailed descriptions of the interactions between tourists within each group that travelled together, along with the reasons and thoughts behind these interactions and their social media use for trip-related purposes. The group interview method was chosen over other methods because it would be difficult to empirically observe a group of tourists' behaviour while using social media and interacting with other tour members while holidaying at their destination due to privacy concerns. Furthermore, a quantitative method such as a survey is able to show a statistical inference of data but cannot provide in-depth data based on certain phenomena such as the information seeking behaviours of a group of tourists and their associated interactions in complex group processes (Decrop, 2005; Lazar, Feng, & Hochheiser, 2017).

The group interviews lasted between 50 and 70 minutes on average and were digitally recorded. The interviews were undertaken considering each group's convenience; some were undertaken face to face (ten groups), and some were in online form (four groups). The form of the interview was chosen by the participants based on their time and geographical location; for example, participants selected an online interview process when the members of the tour group were unable to meet physically. The face-to-face group interviews were undertaken in public and academic libraries, cafés, offices, and university campuses. Online interviews were conducted through either Skype, WeChat, or Facebook Messenger on personal laptops. An invitation email was sent to the interview participants stating the time and day of the interview and providing an interview guide and consent form. The interview guide was sent to the participants to inform them about the topic beforehand. Both face-to-face and online group interviews were recorded digitally and transcribed later.

The interview method has been widely used in previous CIS studies investigating information searching behaviours in group collaborations (McNeese & Reddy, 2015; Morris & Amershi, 2008; Sonnenwald & Pierce, 2000). Semi-structured group interviews were considered appropriate in this study because they can collect data from the participants of a group to identify the edges and practical issues of using social media, including social interactions/relationships, while performing travel-related CIS activities both at the group trip planning stage and during group travelling.

3.2.2.2 Study participants of group interviews

The participants in the group interviews were holidaymakers who had travelled with a group of people in the previous three months and organised their holiday trips on their own (free and independent travellers).

To recruit the required groups of participants, undergraduate students, postgraduate students and researchers working in the School of Information Technology and Mathematical Sciences in the University of South Australia were approached via email lists. In addition, an advertisement for participants was posted on noticeboards on the university campus, and in the library and community centres. An invitation to participate was also sent to friends of the researcher who had recently completed a group trip via social media (Facebook Messenger). The participants included students, teachers, sales representatives and IT professionals. A snowball technique (Neuman, 2006) was also adopted; participants were encouraged to propose other eligible people to participate in the interviews. During the interviews, the participants were asked to talk about their experiences of recent group travel; their experiences of trip-related collaborative activities performed as a group; and the circumstances in which they used social media during the planning and execution of the group trip, as well as the influence of social media (including social interactions) on their group travel experiences. All interviewed groups were independent travellers in terms of the organisation of group trips. Considering the substantial time and effort involved in completing the interview, a gift voucher worth AUD10 and a box of chocolates were presented to each participant in the group as compensation.

A total of 38 participants from 14 travel groups took part in the interviews. The group sizes ranged from 2 to 6 participants. The average age of the group was 30 years old. The majority (91%) utilised smart mobile devices (smartphones and tablets). Table 3.4 presents a summary of the interview participants.

Table 3.4: Demographic information of interview participant groups

Travel group	**No. of group members**	**No. of Participants**	**Average age of the group**
Group 1	5	4	27
Group 2	5	3	32
Group 3	3	2	43

Group 4	3	3	32
Group 5	3	3	38
Group 6	4	3	26
Group 7	4	3	33
Group 8	2	2	24
Group 9	5	3	29
Group 10	6	3	25
Group 11	4	3	25
Group 12	3	2	38
Group 13	2	2	28
Group 14	2	2	25
Total: 14 groups	51	38	30 (average)

3.3 Data analysis

3.3.1 Analysis on the survey data

Statistical analysis was applied to analyse the survey data; for example, IBM SPSS statistics 23 software was used to perform various descriptive statistics (i.e., measures of frequency) on the responses to multiple-choice questions and open-ended questions, including demographic information and information seeking and sharing behaviours in CIS contexts. Content analysis (Hsieh & Shannon, 2005) was used to analyse the narrative descriptions from the open-ended questions by identifying themes. Hsieh and Shannon (2005) defined content analysis as a method for subjective interpretation of the content of text data through a systematic classification process of coding and identifying themes or patterns. The data were examined to identify categories and respective explanations, and their relations to CIS and information sharing on social media. Initially, the analysis followed a line-by-line, open coding procedure, followed by comparison, and outcomes were negotiated to derive the code in relation to the main ideas of this research. In the meantime, the coded logs were used to determine the respondents' purposes in using social media, reasons for seeking and sharing information on social media, types of social interactions employed and ways of collaborating in CIS contexts. After the open coding procedure was finished, similar code terms and phrases were grouped together and then regrouped to include all of the identified concepts in categories on similar topics. A thorough analysis was performed by reviewing the original data multiple times to ensure that no data were missed.

In addition, descriptive analyses such as measures of frequency (count, percent, and frequency) were computed after identifying categories and sub-categories from the open-ended questions in order to show trends and summarise data in a meaningful way. The questionnaire survey data later on led the design of group interviews' guidelines. In other words, the questions for semi-structured group interviews were developed based on the data of the questionnaire surveys to gather in-depth experiences of participants to address the research questions.

3.3.2 Analysis of the interview data

In qualitative data analysis, the disentangling, segmenting, and reassembling of data is required to generate meaningful and relevant findings from raw data (Boeije, 2009). Research questions guide the process of dividing the data into segments to the logically recombine them. Eventually, this establishes a basis for translating the raw data into meaningful findings through the interpretations of empirical data (Boeije, 2009). In this study, the open coding procedure was adopted to analyse the interview data.

Transcribing the recorded semi-structured group interviews was the first step in the data analysis process as it enabled the most effective review and analysis of the data. The transcription of the audio recordings was conducted manually, as audio-to-text converters cannot transcribe group interview (i.e., multi-speaker) recordings accurately. The transcribed data were then analysed to discover the tourism CIS behaviours of social media users in a group setting. The data was analysed in a series of steps using open, axial, and selective coding (Berg, 2001). The data were read thoroughly and carefully, and basic practices and concepts were identified. In axial coding, the data were reread and organised according to categories and sub-categories, and finally, in selective coding, all of the concepts and categories were brought together to develop the final theme. The following themes emerged from the discovered concepts and categories in the data:

- Tourism CIS behaviours: Information seeking and sharing activities between members of the tour group relating to their trip.
- Triggers of CIS behaviours: Events or situations causing collaboration with tour mates for travel-related purposes.
- Intra-group information sharing: Members of tour groups sharing tourism information using different kinds of tools, and the factors influencing them to utilise a specific tool.

- Circumstances of social media use: Situations or events causing tourists in a group to use different types of social media during trip planning and travelling.
- Social interactions on social media: Tourists' interacting with others directly or indirectly to seek travel experiences, reviews and opinions (through social media) to fulfil tourism information needs.
- Influences of social interactions: Tourists making decisions or changing their minds about tourism products and services due to interactions on social media.

Using these themes, this study identified triggers and characteristics of tourism CIS, ways and facts of collaboration within the group, circumstances of using social media and social interactions on social media in the data. The instances were then coded on three levels as explained in the next section.

Coding procedure

Qualitative content analysis is most often used to analyse interview transcripts in order to explore or model people's information-related behaviours and thoughts (Zhang & Wildemuth, 2009). In this study, three steps were followed to identify the triggers, methods of intra-group collaborative tourism activities, circumstances of social media usage (including social interactions) and impacts of social interactions on social media on a group trip. Firstly, open coding was used to develop a core set of codes by iteratively examining the data. In open coding, the data were broken down into discrete parts and closely examined to identify the categories, sub-categories, respective explanations and their relations to triggers, characteristics and methods of tourism CIS, circumstances of using social media, and impacts of social interactions with others via social media during tourism CIS activities.

To do that, initially, a line-by-line open coding procedure was followed by comparison, and the outcomes were negotiated to derive the code in relation to the main ideas of this research. Secondly, axial coding was performed to determine the links and relationships between categories and sub-categories. Similar code terms and phrases were grouped together and then regrouped to include all of the identified concepts into categories and sub-categories of related topics. In this study, the coded logs were used to determine the triggers that prompted the CIS activities during the travel planning and travelling phases, the means of collaboration with tour mates, and the circumstances of social media use and effects of social interactions on travel decision-making. Finally, selective coding was performed to answer the research questions,

during which all categories were unified under a core category that represented an important phenomenon/concept. During the data analysis, a thorough analysis was performed by reviewing the original data multiple times to ensure that no data were missed. Table 3.5 outlines the codes developed regarding the research questions, for example, research question (RQ3).

Table 3.5: Codes developed for RQ3

Research question	**Open codes**	**Selective codes**
RQ3. What are the circumstances of using social media during group travelling?	Obtaining information *Seeking and gathering customised information* *Cross-checking of information*	Re-planning of the trip
	Posting information *Sharing experiential travel activities* *Sharing travel-related post to seek information*	Sharing information
	Getting up-to-date information *Getting local news and events related information* *Getting recent updates of activities of family and friends*	Getting recent updates
	Communication *Communicating with their family members and friends* *Collaborating with accompanying tour mates*	Communication tool

A complete coding scheme (Appendix F) consisting of 14 categories and 55 sub-categories, was derived to analyse the triggers and characteristics of CIS behaviours, means of intra-group collaboration, circumstances of social media use for group travel purposes, purposes of social interactions on social media, and impacts of social interactions on the group travel.

3.4 Ethics application and approval

Prior to the conduct of this study, an ethics application was submitted to the University of South Australia (UniSA) Human Research Ethics Committee, and the research project was granted ethics approval with Ethics No. 0000035071 (Appendix F). Therefore, the ethical guidelines provided by UniSA were followed to undertake this research. During the ethics application process, the researcher went through various steps and procedures which required detailed information about the research project and the potential participants involved.

A consent form was attached to the survey in both online and offline forms, wherein the complete contact details of the researcher and the principal supervisor were provided (Appendix A). The consent form declared the aim and significance of the research study, and how participants could contribute to this research via their participation. A consent sheet was also provided to interview participants prior to each group interview (Appendix A). The consent form was sent to participants via email when they took part in online interviews, e.g., through Skype or Facebook Messenger. The consent form also addressed privacy-related issues by guaranteeing the right to privacy and assuring that participants' name would not be disclosed under any circumstances. In addition, the researcher explained to the participants that the outcomes of the questionnaire surveys and group interviews would only be used for research-related purposes and all personal information would be kept confidential.

3.5 Chapter summary

This chapter has discussed the research design including data collection procedures and data analysis. A mixed-methods approach, including a questionnaire survey and semi-structured group interviews, was used in this study. Qualitative data analysis such as content analysis and statistical analysis software SPSS were used to examine the CIS behaviours of social media users. The following chapter will present the findings from both methods used in the study.

4. Results

This chapter presents the research findings on social media users' tourism collaborative information seeking (CIS) behaviours. Triggers and characteristics of tourism CIS behaviours, methods of intra-group collaboration, circumstances of social media use during trip planning, collaboration on social media while conducting CIS, and influences of social interactions via social media on CIS are reported. The chapter is divided into two sections to present the findings for two stages of a trip: first, results based on the group trip planning phase (i.e., pre-trip) are presented, and secondly, results based on information seeking during the execution of the group trip (i.e., during the trip) are presented.

4.1 Results: During the group trip planning phase

4.1.1 Overview of experiences of tourism and social media use

This section reports findings about experiences of tourism and social media use during group trip planning based on the questionnaire survey data.

4.1.1.1 Purposes and stages of using social media during trip planning

To understand situations where participants are likely to seek trip-related information on social media, we asked them an open-ended question: "During the trip planning, did you search for information on social media, and if yes, when and why?" Our findings suggested that social media was used by participants during trip planning for obtaining and verifying travel-related information (see Figure 4.1).

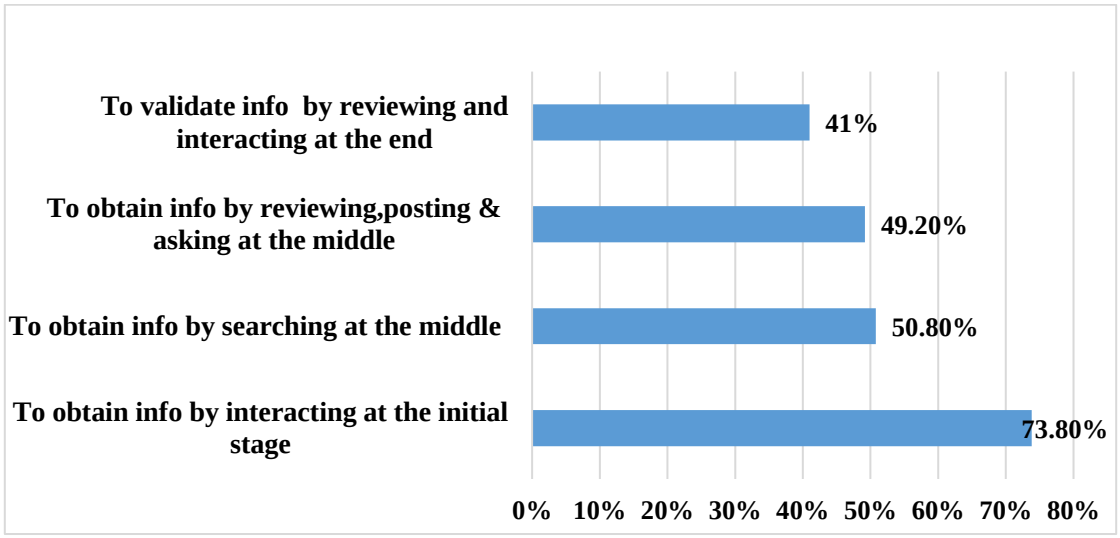


Figure 4.1: Purposes and stages of using social media during trip planning

As shown in figure 4.1, the majority (73.8%) of the participants used social media at the beginning of the trip planning process to obtain general information (e.g., hotels, local attractions and activities, safety issues, weather and length of the trip, etc.) related to the trip by interacting with other social media users who had been there before. As one participant said:

> Participant 2: I just talked about the places to visit to get an idea at the beginning.

Nearly half (50.8%)of the participants used social media searches in the middle of the planning process to obtain information from other social media users, as well as reviewing blogs, forums and the social media pages of tourism websites, and asking questions (49.2%) by posting about the tourism products. In the middle of the planning process, participants gathered information mostly by searching and reviewing certain products and activities via social media, which helped to increase their confidence about the forthcoming trip. For example, they sought and reviewed information about details such as microwave oven usage, refrigerator facilities, breakfasts, and transportation available near to the hotel.

Close to half (41%) of the participants used social media to validate information by reviewing and interacting with other social media users before making decisions at the end of the trip planning phase. For example, one participant stated:

> Participant 5: After researching myself, I discussed with my friend about airline services before I book tickets.

4.1.1.2 Types of information social media users seek from social media

Diverse information needs (e.g., due to unfamiliarity and having no one in their network to turn to), a reduced level of uncertainty in the planning stage and collaborative decision-making on travel products are reported as the main motivations for travellers to collaborate in planning trips (Mohammad Arif et al., 2012; Mohammad Arif, Du, & Lee, 2013; Prestipino, 2004). In order to explore the types of information that participants researched extensively via social media, we asked participants an open-ended question: “What type of information did you discuss and/or search on social media?”

As shown in Figure 4.2, attractions at the destination (60.32%) were the most frequently searched items, followed by accommodation (44.44%), time and length of the trip (31.75%), restaurants (30.16%), weather and safety (15.87%), budget (9.52%) and transportation (9.52%).

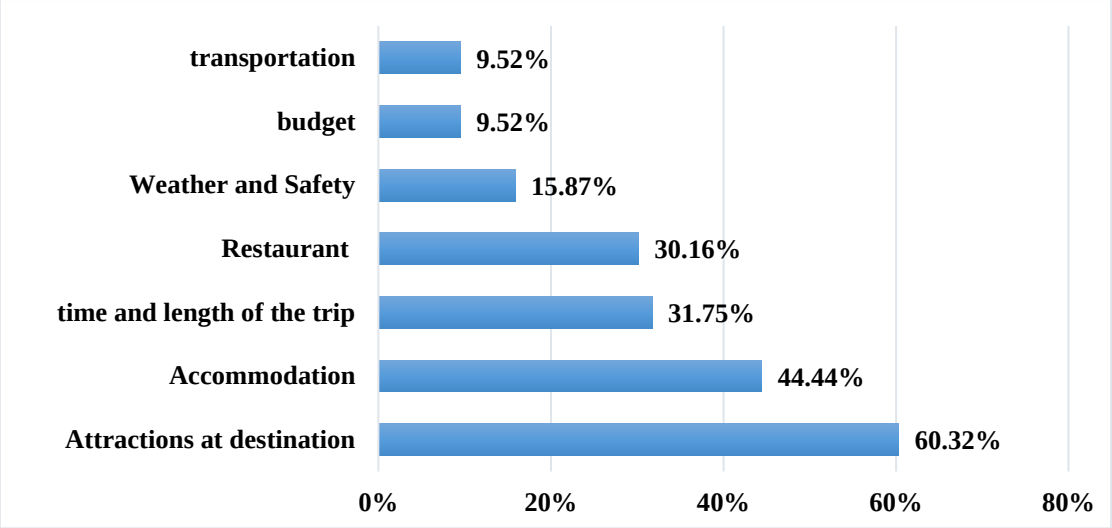


Figure 4.2: Types of tourism information searched for by participants on social media during the group trip planning

Since most participants (60.32%) searched for attractions at the destination via social media, it is reasonable to argue that participants preferred to gather information about local activities from recommendations by experienced tourists prior to the trip (i.e., during trip planning phase) so that they can avoid those places that had bad reviews.

4.1.1.3 Social media features used in information seeking

Participants who reported the experience of using social media during trip planning to search were asked a closed-ended question with multiple options – "Which feature of social media influenced you to make decisions during your group trip planning?" – in order to figure out which influential feature of social media helped them to make decisions on trip-related products.

The results presented in Figure 4.3 showed that the majority of participants (73.80%) looked at photos and videos of tourism products and services (e.g., hotels, tourist attractions) to seek and validate information. Of the participants, 63.30% reported that they went through the experiences and opinions shared by tourists to gather relevant information. Interestingly, 37.70% participants considered the information obtained from social media to be credible and authentic, and thus, the credibility and authenticity of information on social media turned into an influential feature. In addition, 27.90% of participants mentioned that communication through social media also played an important and impactful role during the group trip planning. One possible reason for using social media as a communication tool was that it provided group communication facilities to enable collaboration between tour mates.

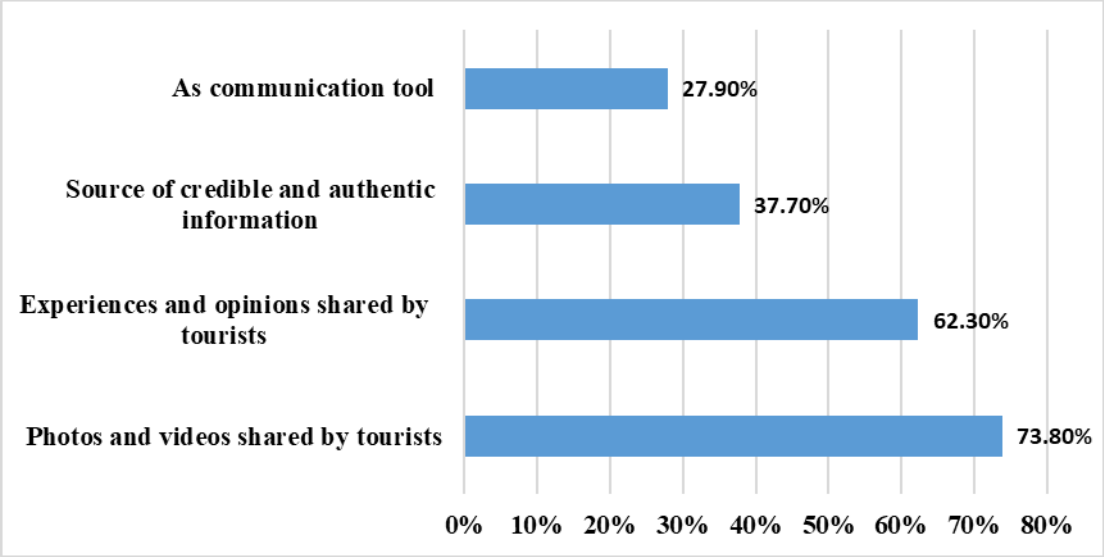


Figure 4.3: Features of social media used by participants during trip planning

4.1.2 RQ 1: Triggers and characteristics of tourism CIS behaviours during trip planning

This section presents findings for the group trip planning phase from both the questionnaire survey and the group interviews to statistically analyse the quantitative data whilst also exploring the particular stories or experiences when a group of tourists deal with tourism information during their travel planning.

4.1.2.1 Triggers of tourism CIS behaviours during group trip planning

Since travelling with friends or family is common, collaboration plays an important role and is often required in such a scenario. This study aimed to examine the situations which influence tourists to collaborate to find tourism information when planning group trips through a questionnaire survey. To explore the triggers that initiate collaborative activities when a group of tourists plan for a trip, an open-ended question was asked: "What were the situations that made you communicate or collaborate with your tour mates during the trip planning stage?" In this study, a trigger is defined as an event that causes or initiates a particular action, process, or situation involving CIS activities associated with trip planning. Figure 4.4 based on the questionnaire, shows that a majority of participants (87.30%) identified the necessity of decision-making as a trigger, while the requirement for preliminary discussion (82.54%) and a lack of knowledge (74.60%) were also chosen as significant. The need to share opinions or preferences during group trip planning was also identified (52.38%) as a trigger for intra-group collaboration. Participants mentioned that:

Participant 1: I contacted with my friends [group member] to know their opinions.

Participant 24: We had chat to fix place [destination] and time [date of the trip], share ideas and make decisions.

Participant 3: We shared whatever we found [search results] [with tour partners] to keep updated everyone.

We discussed everything (hotel, flight, places to visit, foods, and local culture) before the trip to ensure everyone [was] agreed and happy on the decisions.

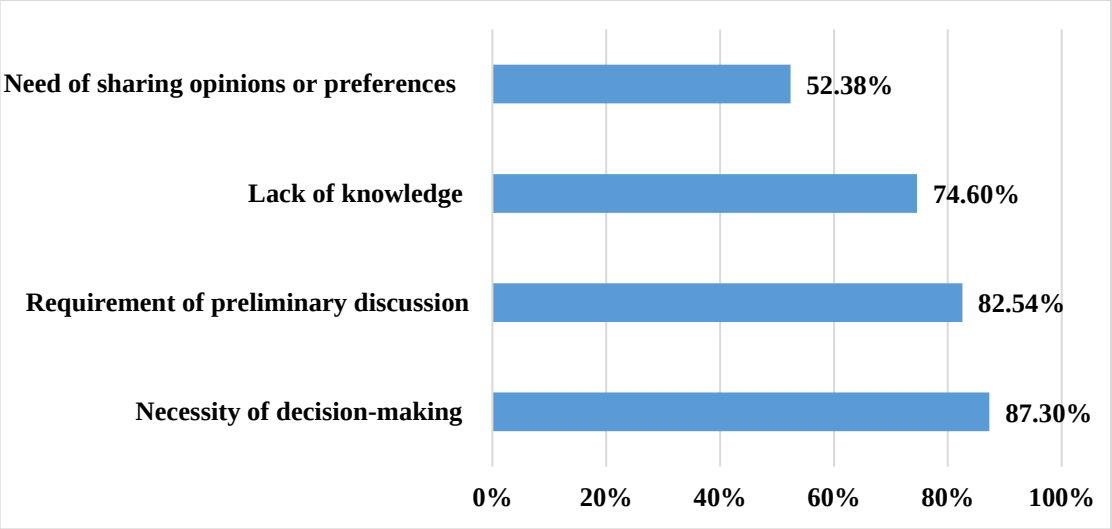


Figure 4.4: Triggers for intra-group collaboration during group trip planning

For further details on tourism CIS behaviours, the following section reports findings on characteristics based on the in-depth interviews conducted with groups of tourists. During group interviews, the question "How do collaborative activities take place during group trip planning?" was asked in order to identify the characteristics of tourism CIS activities in trip planning.

4.1.2.2 Characteristics of tourism CIS behaviours during group trip planning

Collaboration took place in the group trip planning phase due to the requirement for preliminary discussion, lack of knowledge, need to share opinions or preferences, and need to make decisions. It had four important characteristics: initial co-planning, seeking and sharing of information, prioritisation of choices, and making collaborative decisions related to the trip. A summary of the characteristics of tourism CIS behaviours is presented in Table 4.1.

Table 4.1: Characteristics of tourism CIS behaviours in trip planning

Characteristics of tourism CIS behaviours during trip planning		**Description**	**No. of groups**
Category	**CIS activities**		
Planning of the entire trip	Initial co-planning on the trip	Participants collaborate with each other to do initial planning like destination selection, fix up time and date of the trip, cost of the trip, and assigning tasks across group members.	All groups
	Seeking and sharing of information	During group trip planning, participants collaborate seek reasoning and opinions as well as to share the findings of searches and gathered information.	All groups
	Prioritisation of choices	To respect each members of the group, participants work together to narrow down the choices considering everyone's opinions and preferences.	All groups
	Collaborative decision	During decision-making on tourism products, participants collaborate with others to verify information as choices.	All groups

i) Initial co-planning on the trip

All interviewed groups of participants mentioned that they discussed thinking about going for a holiday, deciding on the destination, and distributing planning tasks between group members at the beginning of group trip planning together. Initial co-planning, therefore, is an important characteristic of collaborative activities in the group trip planning phase, as co-planning leads to the next level of planning activities. During CIS, group members (tour mates) collaborate with others to make a preliminary programme for their travel at the initial stage of trip planning, including the destination, the time, date and length of the trip, the mode of transportation (plane or car), the foods and authentic cuisines (local food) available, the weather and related suitable clothes, and safety issues at the potential destination. For example, one group reported,

> We decided details of the trip by repeated discussions. First, we chose Sydney as the destination because it is a famous international city. We discussed about airlines, hotel, scenic spots, transportation (bus/walk route), dates and days (4 days) to stay in Sydney. (Group 6)

> We discussed and decided to visit Kangaroo Island (destination) because one of our friends proposed us to plan for a trip together (group trip). We also have seen photos and videos of Kangaroo Island using google as well as we discussed with another friend (name: Max) who visited Kangaroo Island before. Then, we planned for date of the trip, hotel (types of hotel, price and facilities) and car rentals (types of car and cost of renting). (Group 14)

In addition, group members split the information searching and gathering tasks about various aspects of the trip between them based on their competence, interest, and consent in order to reduce individual workloads. For example, two groups mentioned,

> At first of our trip planning, I [member #1] took the responsibility of flight and hotel as I talked with airline's people to bargain the ticket price & weight and hotel staff to ensure all services. She [member #2] took the responsibility of finding visiting places and shopping areas because she likes shopping, and they [member # 3 & 4] wanted to find places because they wanted to find places they wanted to go. (Group 1)

> After deciding the location (holiday destination), we did different things such as I searched information about locations to visit there, he [another member] looked after the hotel and foods, and he [another member] looked after the car, budget and route. (Group 14)

Thus, initial co-planning plays a vital role in making a successful trip, while lack of co-planning can lead to an unorganised group trip and create misunderstanding among group members.

ii) Seeking and sharing of information

Tourism is an information-demanding activity in which information seeking and sharing with accompanying tour mates became integral part of the group trip planning. Thus, during group trip planning, group members are required to find a variety of information to resolve their shared information needs.

Due to the lack of domain or search expertise, seeking and sharing information is another key aspect of the tourism CIS process. For example, individual group members collaborated with other members to seek and share different types of tourism information as well as giving updates on the progress of the trip planning. Information shared included search results (reviews, and photos), links to websites, list of flights and hotels, and details of attractions and activities at the holiday destination. To avoid future conflicts of preference, they would notify the entire group about the progress of trip planning by sharing the findings of individual searches. Two groups stated,

> I [member #1] made a list after searching information on hotel and food and shared with the group to decide from the list. I [member #2] also made a list of attractions, transportation and shopping areas and shared with them [group] to know their opinions. (Group 3)

> I [member #1] searched about places to visit in Kangaroo Island and made a list of sightseeing places. I shared this information with my tour mates. I [member #2] shared my opinions like when we were selecting locations to visit [sightseeing places], I told them to plan to visit places that are nearer to hotel and skip locations which are far and remote. In addition, I shred my suggestion with them [group] to visit flinders national park. (Group 14)

Therefore, information seeking from different sources on social media and sharing of the gathered information with group members has a significant impact on the synthesising of information in a team setting; without it, groups might have had difficulties in decision-making due to a lack of sufficient information.

iii) Prioritisation of choices

In a group setting, prioritisation of choices and making group decisions is complicated because choices of tourism products vary between individuals, and every member's preferences need to be considered in the decision-making process. Moreover, the number of choices and options is larger in group trip planning, as choices and opinions are provided by each group member. When group members performed CIS activities, they collaborated within the group to prioritise their choices by narrowing down the shared options (e.g., search results) as well as solving disputes about choices. They also share ideas and opinions about tourism products and services to make group decisions. The reason for such collaboration was to ensure that everyone in the group could provide their opinions and be happy with the decisions made as a group. Another reason for collaborative prioritisation was to show respect to everyone in the group; otherwise, not every member of the group would enjoy the entire trip equally. For example, a member of a group mentioned,

> We first compared our gathered info and made decisions together during group discussion because joint decision means everyone owns it. So, it's important for members to feel that ownership that we made the decision to come here and let's enjoy it. (Group 1)

> Before we make [made] decision, we all sit together to learn everyone's preferences and opinions on everything. We care and respect everyone's choices and opinions because we wanted everyone in our group are happy with the decisions. (Group 9)

iv) Collaborative decision

Making a collaborative decision on every aspect of a group trip is an important feature of tourism CIS activities, as a group is formed of multiple members and each member has his/her own perceptions and experiences on the same subject. At the end of the planning process, the tour group makes decisions as well as changes to prior decisions by verifying every detail of trip planning with all active members of the group. We found that during CIS activities, group

members also negotiated with others by verifying different opinions and choices about tourism products (e.g., indoor or outdoor activities, buses or trams or taxis, and fast food or local cuisines) in order to avoid or resolve conflicts between them. Such coordination aided group members to plan the trip in harmony and avoid conflicts arising during the execution of the trip. The following is an example showing how a member of a group tried to avoid conflicts:

> We used to verify with each other before confirming everything. For example, we shared every step of our planning specially places to visit in Italy and hotel to make sure that we agree with each other's planning and no conflict and arguments happen later. (Group 12)

Following is another example showing how a member of a group solved conflicts during the trip planning:

> My son wanted mostly to go to outdoor activities (e.g., Water Park) and daughters prefer indoor activities. Then, we used voting system (e.g., raising hand on every activity) among all family members and also made a limit of two choices per person. This is how we confirmed and finalised all activities. (Group 2)

> We used to vote for the choices [visiting places or restaurants] when group members gave different opinions and always go [went] with the majority of the votes. This how we solved our so many opinions and conflicts during the trip planning time. [Group 11]

In summary, this study identified a set of triggers and characteristics of tourism CIS activities relating to group trip planning. These characteristics of tourism CIS activities indicate that information seeking and sharing play a significant part in fulfilling the complex tourism information needs that eventually help a group of tourists to plan their trip efficiently. With many studies examining the reasons for collaboration within groups to gain tourism information during trip planning (Mohammad Arif et al., 2015; Zhang et al., 2018), these findings add to the knowledge of certain defining characteristics of tourism CIS behaviours during trip planning that emerged from the study.

4.1.3 RQ 2: Intra-group collaboration during trip planning

During trip planning, information sharing between tour mates plays an important role in informing decisions about tourism products (e.g., destinations, accommodation and tour packages). Communication is one of the most important components of a successful collaboration. Based on the questionnaire, this study identified the methods used by participants for collaborating with tour mates.

4.1.3.1 Methods used for intra-group collaboration during CIS

To determine the methods of collaboration within the travel group, the following open-ended question was asked in the questionnaire: "How did you collaborate with your tour mates during trip planning? And why did you collaborate?" An analysis of the responses is summarised in Table 4.2.

Intra-group collaborations included planning the trip, discussing personal views, sharing search results, and narrowing down and making final decisions. The results revealed that the participants utilised five methods to communicate and share information with their tour mates, namely: social media (Facebook, Instagram, Twitter, WeChat and QQ), phone calls & texting, communication apps, face-to-face meetings, and email. As illustrated in Figure 4.5 social media was the most (75%) utilised platform, and 92.10% of participants used Facebook Messenger for collaboration. Conventional communication means like phone calls and texts were the next most commonly used platforms (35%), followed by face-to-face (16%) and communication apps (14%). Email (6%) was the least used media for such communication.

Table 4.2: Methods of communication

Method	Description	Examples used by participants
Social media	Social media is predominantly used within a group to communicate about travelling.	Facebook, Instagram, and Twitter
Phone call and text messages via phone	Phone calls and text messages via mobile phones are used to talk and share information.	
Communication apps	Communication apps such as WhatsApp, Viber, and WeChat are used to exchange information within the group.	WhatsApp, Viber, and Skype
Face-to-face meetings	Face-to-face meetings with tour mates are used to discuss and make final decisions.	
Email	Email is used to communicate with tour mates and to share detailed information and web links.	

Note: WeChat, QQ, and Weibo are considered both social media and communication apps.

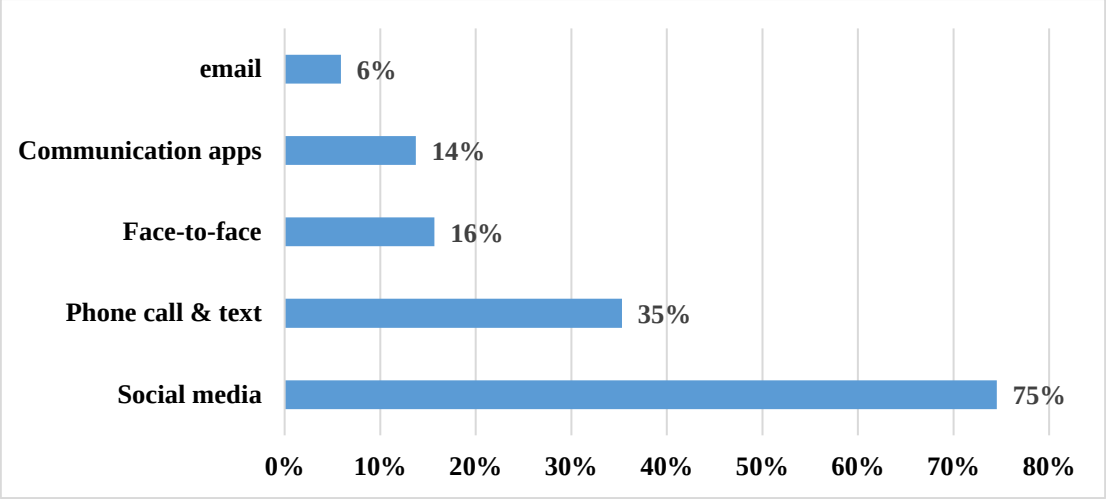


Figure 4.5: Methods of communication with tour mates during CIS

Examples of quotes provided by the participants are as follows:

> Participant 8: We used Facebook Messenger for group communication; because everyone in my group used Facebook, it was easy for us to keep connected. We shared posts, pictures of visiting places and website links in group chat and discussed weather and some safety issues together before the trip.

> Participant 15: We used Facebook Messenger to communicate with my friends [tour mates] and friends [non-tour mates] from social media. It provides live communication feature. We did planning together on the trip and fixed destination, date, and length of stay. We took every decision together by considering everyone's views.

Further details of intra-group collaboration during a group trip planning are reported below based on the data of group interviews.

4.1.3.2 Factors in selecting method for intra-group collaboration during CIS

Communication or information sharing between group members is one of the most critical components of any collaboration, because collaborators (group members) must consult each other before making a final decision (Shah 2014). The interview participants reported that a group of participants shared trip-associated information to explain their reasoning or learn each others' views. In terms of methods of communication within the group, our results identified multiple communication methods, including face-to-face meetings, mobile phone calls, and social media (Facebook Messenger, WhatsApp and WeChat). In general, the means of communication for intra-group collaboration depended on a few factors, which were:

i) Requirements of group communication

Social media facilitates a group communication platform enabling collaborators to conduct the group's conversation synchronously and asynchronously. Due to the asynchronous communication facility, collaborators (group members) could see and go through prior group discussions containing ideas and opinions and search other members' findings at any time if they missed a group session. Therefore, groups of participants utilised social media as their collaborative tool to plan their group trip. A group stated:

> We used Facebook Messenger and WhatsApp when we need to share links of visiting places and hotels and we passed certain thoughts about the places and hotel. (Group 4)

Another group said:

> As we all friends live in different places, we created a WhatsApp group to plan our trip. In this group, every group member shared their ideas, links, image of destination place, video of activities so that everyone can see and share their opinion. (Group 7)

ii) Group members' geographic locations (co-located or remote)

Group participants chose social media such as Facebook Messenger, WhatsApp and WeChat over other communication methods like email as a collaborative tool because it allowed them to conduct group discussions even when they were not co-located. For example, during trip planning, participants (group members) in groups could share trip-related information such as links to blogs, screenshots of search results (e.g., reviews), pictures and videos of routes, places, foods and activities, and personal thoughts and opinions with the tour group when they were remotely located or mobile through Facebook Messenger, WhatsApp and WeChat. Social media communication tools can also store conversations, and thus group members could see all the previous conversations and provide their own perspectives later. The following quotes reflect the importance of social media during group trip planning:

> We had a tour group in Facebook Messenger for sharing our plans, links and images after searching hotel and spots. We also asked the suggestions and opinions of other members. We kept posting and updating everything in this group to inform everyone what is going on about the trip if anyone miss anything. (Group 9)

> We shared information via FB messenger. For example, when we found any picture or information posted by others we just shared that information instead of copying link. FB messenger is very handy. FB messenger helped to keep record of previous searched information. (Group 6)

iii) Speeding up the planning process

Group members had face-to-face meetings in person as well as online meetings (i.e., video conversation) to accelerate the planning process by learning everyone's preferences and ideas, and resolving confusion over choices. The face-to-face meetings also helped them to make the right decisions because they could see each other's faces and expressions when making a decision. Two groups mentioned that:

> We sometimes sit [sat] together to decide on the trip. Because we think communication through FB or phone cannot express feelings but face-to-face meeting help us to see each one's expression. Facial expression helped us to understand the happiness and satisfaction of every member of the group when decision [was] taken. (Group 6)

> We [me, mom and grand-mom] used to have a video call in WhatsApp to make decisions. The reason was to finalise the decisions and confirming the booking quickly by verifying with each other instantly. Otherwise, it took a long to finalsie by passing opinions and thoughts continuously. (Group 3)

iv) Urgency and types of information needs

The urgency of decision-making was an important reason for choosing a method of communication. Participants mentioned that they collaborated using mobile phone calls only when they needed to have a short conversation were remotely located, for instance to learn each other's opinion, in order to make an immediate decision as they could up directly over the phone. Two groups mentioned that:

> I [member #1] [used to] called him [husband] when I need [needed] to know his opinion to take decisions. For example, I called him to know the flight time (morning or afternoon) to book tickets because it was the last day of sale and I had to book it as soon as possible. I [member #2] used phone call to know her opinions (location of room) during booking the hotel because we can take decision quickly on [over] the mobile phone. (Group 4)

> We used phone calls [mobile phone] to know the decisions [about the opinions of members] by confirming with each other like yes/no types when I was in office and she was at home or other places to finalise the tickets [tickets for flight and events] because we already had our discussions on them. [Group 2]

In summary, the research findings showed that social media (Facebook, Instagram, Twitter, WeChat and QQ), phone calls and face-to-face meetings were used significantly by groups of tourists as collaborative tools to seek and share tourism information during trip planning. This finding reflects the results of prior studies (Mohammad Arif et al., 2015; Reddy et al., 2009; Reddy & Spence, 2008; Spence, Reddy, & Hall, 2005) which showed that communication between collaborators is a key component in collaborative work because group members make collaborative decisions through continuous group communication. However, this research also

identified that during travel information seeking and sharing, group members adopted collaborative tools based on their situations, such as the need for group communication, group members' situations, speeding up the planning process and the type and urgency and of information needs. This finding adds information on how groups of tourists determine which collaborative tool to use to plan their group trips to our knowledge of tourism CIS.

4.1.4 RQ 3: Circumstances of social media use during trip planning

Research has shown that social media is used extensively for travel purposes. Specifically, tourists search for a wide range of travel information on various forms of social media. This research aims to reveal the circumstances in which tourists use social media in a tour group setting while planning a trip. In this study, a circumstance is referred to as a situation in which social media was used by a group of tourists.

4.1.4.1 Circumstances of social media use in CIS

To understand the circumstances of social media usage in group trip planning, the following open-ended question was asked of questionnaire survey participants: "During the trip planning, did you use social media for searching your trip-related information, and if yes, what was the situation?" The findings suggested that participants used social media during trip planning when they were required to gather information, get ideas, and make decisions related to their upcoming group trip (see Figure 4.6).

As shown in Figure 4.6, the majority (79.36%) of the participants used social media in the trip planning phase to gather a variety of general information (e.g., hotels, local attractions and activities, safety issues, weather and length of the trip, etc.) relating to the trip by interacting with other social media users who had been there before. As participants said:

> Participant 35: Used social media [blog] to gather information and idea about the destination and places to visit to make decision.
>
> Participant 21: I used Facebook and Instagram to see the photos of places posted by people.

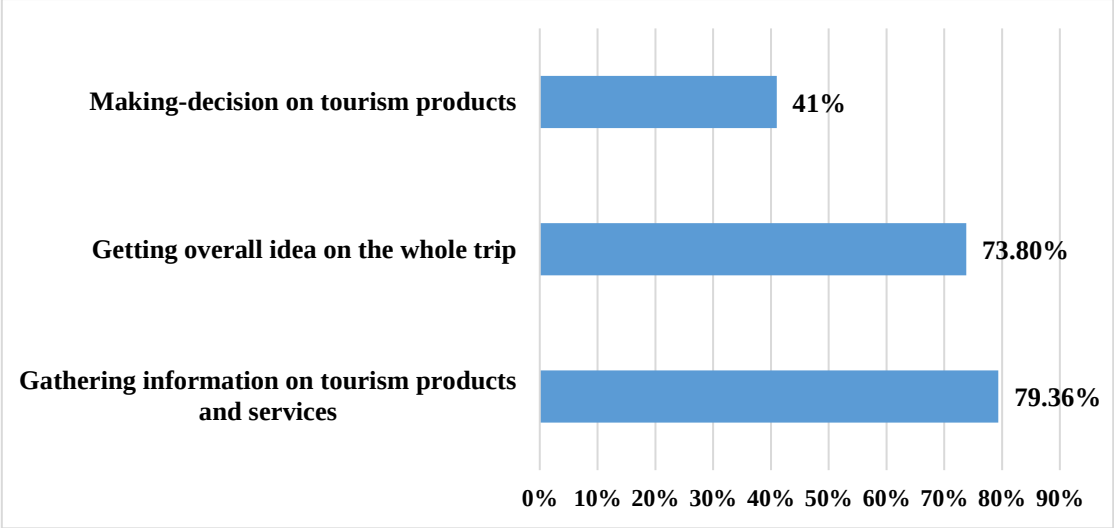


Figure 4.6: Circumstances of social media usage during trip planning

During information searching, participants also gathered information on certain tourism products and services via social media to increase their confidence about the forthcoming trip. For example, they sought and reviewed detailed information about microwave oven usage, refrigerator facilities, breakfast, and transportation available near to the hotel.

Of the participants, 73.80% reported that they used social media significantly during information searching for getting an overall idea of the whole trip, by contacting with other social media users and by reviewing blogs, forums and the social media pages of tourism websites, and asking questions by posting about the tourism products. Close to half (41%) of participants used social media when they needed to validate information by reviewing and interacting with other social media users before making decisions. For example, two participants stated:

> Participant 41: After researching myself, I discussed with my friend [from social media] about airline services before I book tickets.

> Participant 28: I sent message to my friend [via social media like Facebook] to know about the security and opening and closing time of the museum and aquarium.

The questionnaire results suggested that participants in the groups utilised social media throughout the trip planning phase and searched for information individually based on their interests and expertise. Social media usage was also often closely intertwined with information gathering and decision-making while planning a trip.

Further details relating to the circumstances of social media usage in the trip planning phase are discussed in the following section based on the results of the group interviews. During the

interviews, the question “What were the circumstances of using social media during the group trip planning?” was asked of the participants to identify details of their social media usage in the trip planning phase.

4.1.4.2 Further details: Circumstances of social media usage during CIS

Analysis of the interview transcripts revealed five different circumstances of social media usage in the trip planning phase, including gaining a basic understanding of the destination, gathering more information on various tourism products, seeking specific information about tourism products and services, validating specific information related to the destination, and collaborating with group members (Table 4.3).

Table 4.3: Circumstances of social media usage during group trip planning

Circumstances of using social media during group trip planning	**Description**	**No. of participants**	**No. of groups**
Gaining a basic understanding of the destination	Tourists used social media when they wanted to have a basic understanding on the holiday destination through experiences of other tourists via social media.	15 (39.47%)	11 (78.57%)
Gathering more info. on various tourism products	A tourists group accessed various types of social media during trip planning to gather a variety of information on hotel, weather, places to go and things to do, and security and safety.	28 (73.68%)	14 (100%)
Seeking specific info. on tourism products and services	Tourists groups sought specific information about tourism products and services via social media.	24 (63.16%)	14 (100%)
Validating specific info. related to destination	Tourists utilised social media when they were required to verify information about restaurants, places to go and airline services to make decisions.	18 (47.37%)	10 (71.43%)

Collaborating with group members	Groups of tourists used social media communication tools when they needed to communicate and share tourism information with their tour mates.	38 (100%)	14 (100%)

i) Gaining a basic understanding of the destination

Social media has been found to be a key and influential source of trip planning information for independent travellers and this research found that participants were often required to use social media to gain basic ideas at the beginning of group trip planning. The participants started browsing through social media, viewing photos and videos of destination on Facebook, Twitter, Instagram and travel blogs, scanning the comments of other tourists, speaking with known experienced tourists and looking over the costs of the trip to gain an impression of the prospective trip. At this stage, they also had a rough idea about destination-related products and services, including types of accommodation, things to see and do, places to eat and drink and safety and security. Of the participants, 39.47% (15 out of 38) from 11 out of 14 groups revealed that they employed various social media platforms in the beginning stages of planning their trip to get an initial overview and visualisation of the trip (i.e., destination-associated tourism products and services) before they proceeded to the next level of planning. The following quotes represent the use of social media during trip planning:

> When we started planning, I used Facebook and blogs to get basic ideas about the things and places that we can do and visit in Tokyo. I found a whole three days trip experience shared by other tourist on a blog [*travel*] which was useful for my rough planning like estimating total cost and deciding how many days are [were] enough for the trip. (Group 13)

ii) Gathering more information on various tourism products

Research has shown that social media use for information seeking and sharing is an increasingly common practice. Groups of participants were found to go through varied sources on social media, such as the Facebook pages of travel groups, Instagram, Twitter, travel blogs and websites (e.g., Kayak, TripAdvisor, Qyer) and WeChat to gather as much as relevant information as possible to compare and synthesise later. For example, in the middle of trip planning, participants in a group gathered information on various deals on flights, hotels and activities advertised on social media, on-site activities and places to visit, modes of available local transportation recommended by experienced tourists on travel blogs and websites, and options for food suggested and rated by other dinners on Google Maps. An analysis of group

interviews found that 73.68% (28) of participants across all groups (14) reported that they accessed different forms of social media to gather information in order to compare and synthesise information during CIS activities. A group mentioned the purpose of gathering information:

> I [member #1] did research investigating several blogs, forums and Facebook pages of travel companies [kayak] to gather ideas by reading reviews of other tourists. I [member # 2] used Facebook to watch some photos of my friends and sister to get some knowledge about sightseeing places because they visited Dubai before. I [member #3] watched images and videos of theme parks and beaches in YouTube to share and discuss my ideas and opinions with them [group members]. (Group 1)

> We used some person's blog to gather more information [views] during information searching. For example, when we need to learn about other person's experience about the Opera House Fireworks show, we both [husband an wife] search information using these blogs. (Group 4)

iii) Seeking specific information on tourism products and services

Seeking specific information on tourism products and services is another circumstance relating to social media use during trip planning. In the middle of group trip planning, participants were found to seek customised tourism information through social media platforms. The results of this research suggested that 63.16% (24) participants across all groups sought particular information, such as reviews of specific restaurants and bars (e.g., sushi bars, vegetarian restaurants and nightclubs), recommendations and opinions of sightseeing places (e.g., Mt. Baw Baw or Mt. Buller), advice on transportation (flight or road), and highly peer-recommended hotels for girls, via posting queries to friends on Facebook, Instagram, WeChat and WhatsApp to prioritise their choices. In addition, they dug into the ratings of experiences, recommendations, feelings and emotions on travel pages of Facebook, Twitter and Instagram, and the detailed personal experiences and opinions shared on travel blogs by other unknown tourists to find distinct information on tourism products. A group mentioned that

> I [member # 1] was seeking recommendations from my friends on snapchat group and Facebook for "which places I can visit in India" and for "best vegetarian restaurants at the different cities in India". I also asked for some suggestions about car renting, and hotel to gather more information to compare later. (Group 4)

> I [member #1] was looking for other person's opinion and view to know which place good and what time is fine to take photo for the fireworks. I [member #2] used blogs and google map to read reviews to compare with her information and make good decision. (Group 2)

iv) Validating specific information related to destination

Validation of information was an important factor that enabled tourists to use social media while planning a group trip. After analysing the interview transcripts, this study identified that nearly half (47.37%) of the interviewed participants from 10 groups used various types of social media to validate information so that they could make informed and right decisions. During the information validation process, participants employed different methods, such as posting queries to known and unknown experienced tourists and tourism service providers on Facebook and Instagram, as well as sharing questions with people on WhatsApp and WeChat. During this process, participants wanted to verify information on specific tourism products (e.g., price and service of hotels, local attractions, routes, foods, and security) due to their lack of knowledge and experience and the high cost of tourism products and services. A family group mentioned why they validated information during trip planning:

> When we decided to go to Melbourne by car, I [member # 1] contacted with my friend to know more about the driving route, which car is good for 5 people, price of car renting and how to rent a car because he went there few days ago following the same route. I [another member #2] also talked with my friend to ask about car renting and stoppages on the way to Melbourne. We booked our car and made route plan after discussing with them. Their suggestions was [were] very useful for our trip. (Group 10)

v) Collaborating with group members

The most common circumstance relating to the use of social media during group trip planning related to the collaborative tool, which was cited by 100 percent of interviewed participants from all groups. Social media communication tools such as Facebook Messenger, WhatsApp and WeChat were used significantly by participants to seek and share their gathered information, which ranged from links to Facebook travel pages, travel blogs, airlines and hotels to thinking about ideas and shared information. Compared to other methods of communication (e.g., phone calls and email), social media communication tools facilitated both synchronous and synchronous group chatting, including video calls, to share participants' search results, thoughts, ideas, opinions, photos and videos. A group commented:

> We shared everything. We shared photos, website links, information (e.g., reviews) that got from the social media. For example, during information searching, when I got useful comments from social media that looked like a trip guideline to me, immediately I shared with him via WeChat. We used WeChat because it was convenient and easy for us to talk and share information at the same time. (Group 6)

> We used Facebook Messenger and WhatsApp during our travel. They are very handy and easy to share messages [opinions and suggestions], links of webpages, photos and comments of places and foods with the group [tour group]. (Group 11)

In summary, this thesis discovered that a group of tourists used social media in the trip planning phase when they needed information to have a basic understanding of the holiday destination, to gather information on destination-related products, to seek certain suggestions or ideas about specific tourism products, to validate specific information before making decisions, and to communicate with tour mates. These findings are different from those of previous studies (Fotis, Buhalis, & Rossides, 2012; Xiang & Gretzel, 2010) because the current study identifies the circumstances that relate to CIS activities. These results have shifted the focus to groups' information seeking and adds to the knowledge that social media plays a vital role in finding and verifying information in collaborative searches.

4.1.5 RQ 4: Collaboration on social media during group trip planning

4.1.5.1 Social interactions on social media

The questionnaire survey results showed that participants (i.e., tourists) collaborated with other social media users on social media, namely via social interactions over social media (collaboration outside of the group), in order to plan the group trip. Tourists were found to conduct collaboration outside of the tour group to fulfil their information needs. More specifically, social interactions on social media took place when tourists asked or looked for information from others via social media to solve complex problems such as information seeking. Such collaboration or social interactions on social media therefore enriches the existing CIS activities reported in the existing literature, such as information finding, gathering, verifying and updating as well as sharing knowledge and experiences. On the other hand, intra-group collaboration takes place when an individual tourist seeks and shares information with accompanying tour mates for their trip-related purposes (Table 4.4).

Table 4.4: Types of collaboration occurring during group trip planning

Types of collaboration	**Description**
Social interactions on social media (i.e., Collaboration outside of tour group)	A group of tourists collaborate with others (not part of the tour group) via social media to obtain trip-related information during trip planning.
Intra-group collaboration	A group of tourists collaborate within the tour group to accomplish their informational needs during trip planning.

Previous research has suggested that social media such as Facebook can be popular and trustworthy sources of tourism-related information due to information shared by users tourists

know or trust. In the current study, information sources on social media that participants relied on during the trip planning were broadly categorised into direct social interactions and indirect social interactions on social media (Figure 4.7).

'Direct social interactions' refers to instances when other social media users (friends, family members, colleagues, acquaintances, etc.) provided information to the participants (tourists) directly. Studies have suggested that interactions between people on social media play an important role in the sharing and exchanging of various types of information (Li, He, & Hu, 2015). On the other hand, 'indirect social interactions' refers to social media sites (e.g., blogs, forums, social media pages of tourism websites/organisations, travel groups on Facebook, Instagram, WeChat and WhatsApp) used by participants to investigate, review, research and validate information.

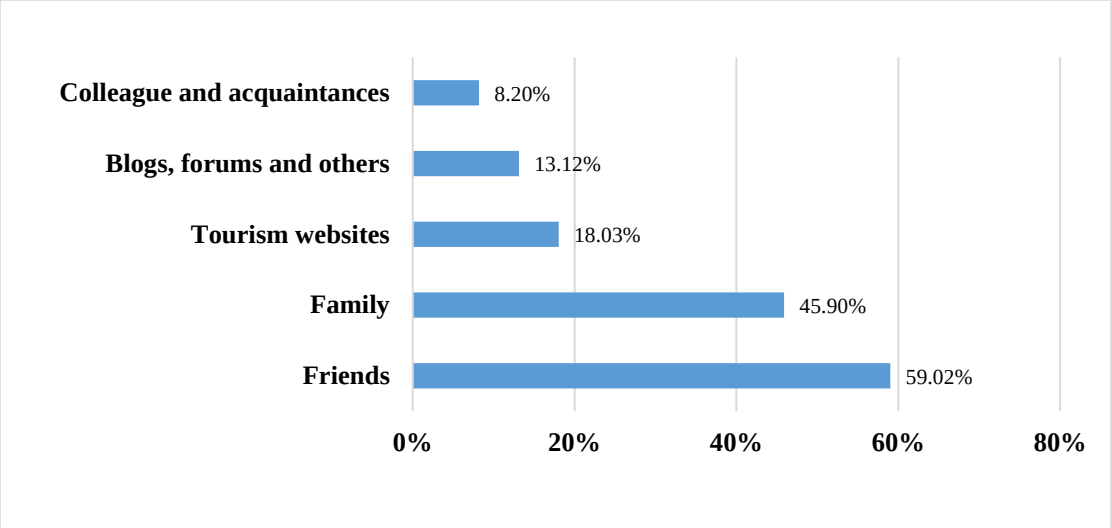


Figure 4.7: Sources of information participants employed via social media

As shown in Figure 4.7, among direct social interactions, friends and family members were identified as the two human sources (59.02% and 45.90% respectively) most utilised in information searching. Social media pages on tourism websites (18.03%), blogs, forums, and others (Facebook groups and pages) (13.12%) were also reported as popular non-human information sources. For example, participants reported that:

> Participant 12: Friends had been there (destination place). They are trustworthy and have the hands-on experience.

> Participant 19: Friends and family as information sources are more up-to-date and can get more in-depth information for my trip.

> Participant 16: Blogs and forums; because they provide multiple opinions from the tourists which are very helpful to make decisions.

Colleagues and acquaintances were mentioned as sources of information but were relatively less utilised. Since the results of the questionnaire survey suggested that groups of tourists also collaborated on social media by interacting with other social media users or accessing tourism information shared by other tourists, this study defined such collaboration as social interactions on social media. More details on social interactions on social media are discussed in the following section, which analyses the group interview data.

4.1.5.2 Types of and reasons for employing social interactions on social media during trip planning

The previous section showed that social interactions (i.e., collaboration outside the tour group) took place during trip planning to facilitate tourists' information gathering and validation. In this study, social interactions occur when tourists collaborate with other social media users via social media for group trip planning purposes.

Based on the data from the group interviews, this research found that participants in groups employed social interactions in two different ways. Firstly, they interacted with other experienced tourists directly via various social media platforms (i.e., Facebook, WhatsApp and WeChat) to fulfil their information needs. Secondly, they used different forms of social media including personal tourism blogs, forums, Google Maps, the social media pages of tourism organisations, and the Facebook and Instagram pages of travel groups to obtain tourism information. The latter is referred as indirect social interaction in that participants in group seek information indirectly from other, unkown tourists by posting queries to the pages of travel groups and service providers, as well as asking questions and looking through reviews, ratings and suggestions shared on travel blogs and forums. More details on direct and indirect social interactions are outlined in the following sections.

4.1.5.2.1 Types of social interactions on social media

i) Direct social interactions

The interview results revealed that participants utilised both strong and weak ties from their connections on social media (people outside of the tour group) to plan their group trips. It is worth noting that during trip planning, 57.89% participants across 12 groups took part in

collaboration with other experinced tourists via social media and the remaining 2 groups did not participate due to a lack of experienced tourists among their social connections.

When conducting social interactions, 59.09% of particpants contacted sources with which they had strong ties, followed by 31.82% of participants who contacted sources with which they had weak ties and 13.64% who contacted sources with which they had ties in between strong and weak. ‘Strong ties’ refers to social media users whom the participants had frequent contacts with and remained in touch (e.g., friends and family members) through social media, while ‘weak ties’ refers to social media users whom they simply followed on social media (e.g., friends via social media with no direct connection). ‘Ties in between strong and weak’ refersto social media users whom participants had occasional contacts with (e.g., colleagues and acquaintances) when necessary.

ii) Indirect social interactions

Of the participants, 73.69% from all 14 groups reported that they sought and obatined necessary tourism information through indirect social interactions during the trip planning phase. While planning a group trip, participants in a group who were expert in using social media took responsibility for information seeking using social meida. In particular, they accessed travel blogs, forums, Google Maps and the social media pages of tourists, travel groups and tourism service organisations to acquire a wide range of information.

Specifically, social interactions occurred on occasions of individual information seeking to gather information that was subsequently used to compare, assess, validate and synthesise in order to facilitate CIS and share tasks with group members. Details on the reasons for employing social interactions in information seeking are reported below.

4.1.5.2.2 Reasons for using social interactions on social media during trip planning

i) Finding and gathering specific information

One motivation for interacting with other social media users was to find out destination-related information including must-see local places to visit, authentic restaurants serving local and traditional foods, appropriate times to visit the holiday destination and the best mode of transportation to use to travel to and roam around the destination, due to lack of destination-related knowledge among the entire group. In addition, participants particularly checked deals on flight fares and hotels on the social media pages of tourism service providers, as the deals

advertised on social media are better than than those promoted on websites or prochures. The following quote by a group exhibited such interactions:

> I [member #1] contacted with my friend who visited Melbourne before to find the best way [by road or flight] to travel to Melbourne. I [member #2] also contacted with my friend [another person] to have more information about best way, car renting and location of hotel so that we can compare our information [gathered by all] for making the right decision. (Group 9)

> I [member # 1] messaged my friend via Facebook messenger to know about a restaurant in Milan. He suggested me a good authentic local restaurant. I [member # 2]didn't contact with anyone but I searched on google map and blogs of tourists to gather more information before we decide anything. (Group 8)

Our finding confirms Tan and Goh's (2015) study that tourists interacted with both strong and weak ties (immediate and extended social circles) who had destination-related experiences to seek a wide range of information during travel planning.

ii) Scheduling trip-related activities

Arranging the trip timeline and scheduling each activity (e.g., how many sightseeing places could be visited per day) was difficult for first time travellers as they had inadequate information on the destination. In such scenarios, participants wanted genuine knowledge about key travel sites and activities from experienced tourists to schedule each trip event, including visiting museums, sightseeing places and shopping areas, and sports including skiing and motorbiking. A group mentioned,

> We talked with two friends to know all details about their trip. For example, I [member #1] asked about the time [taken] from Melbourne to Mount Buller, great ocean drive and Philip Island and things to do there. I [member #2] also asked them how many days are enough to visit Melbourne and what are the main attractions [that] we can cover in this time. (Group 9)

> We used to check some blogs for planning the time of activities like when to leave hotel and how to get there and time to return to the hotel. Because blogs have many tourists' experiences and reviews which helped us to make a proper plan.

iii) Cross-checking of ideas

Cross-checking of ideas in the group trip planning phase was another important reason for collaboration outside of the tour group (with experienced tourists) on social media. In particular, participants interacted with experienced tourists on social media in order to do last-minute cross-checking of their, itineraries such as verifying the location and safety of hotels, frequency of trams and distance of tourist locations from the hotel due to lack of knowledge of

the holiday destination. They also obtained new ideas about local food courts and restaurants at visiting places to include in their trip plans. For example, a group mentioned that:

> I talked with my two friends to cross-check our travel plan like I told them our planned to go to Mount Baw Baw and Great Ocean Drive on the same. Then they (two friends) suggested me to change the places and go to Mount Buller and a temple on the same day. (Group 7)

> I [member # 1] checked with my friends to know about the tram facilities and nearby hotels. I [member #2] talked with my sister to check about restaurants and fun activities for kids because she went there. (Group 1)

In summary, this study presents a new finding in the CIS in tourism domain, which is that not only do groups of tourists conduct intra-group collaboration, they also perform other collaborations on social media to accomplish their trip planning, by finding and gathering specific information, scheduling trip-related activities and cross-checking ideas. The reasons for such collaboration are to carry out information seeking activities to fulfil information needs and to make informed decisions.

4.1.6 RQ 5: Influences of social interactions on trip planning

With the rapid increases in the number of social media users worldwide, the level of interaction between social media users is assumed to be high. These users are likely to share their travel experiences on social media platforms, which may influence others' decisions about destinations, accommodation, restaurants and transportation during trip planning. This also echoes findings from previous research. For example, Hudson and Thal (2013) found that UGC (e.g., experiences and reviews of hotels or destinations shared by tourists) play an important role in the evaluation stage during which consumers include or exclude brands (e.g., hotels, restaurants, transport) according to their requirements. In this research, the influences of social interactions on social media are shown in two different ways which highlight the importance of such social interactions in the group trip context. These are: i) influences of social interactions in CIS behaviours (decision-making), and ii) its contribution to CIS.

4.1.6.1 Influences of social interaction on collaborative decision-making

4.1.6.1.1 Influences of social interactions on tourism products

Trip planning is a complex and dynamic process during which information seeking via social media plays an important role in information searching and decision-making (Fardous, Du, Choo, Huang, & Hansen 2017; Fotis, Buhalis, & Rossides 2012). To determine the influences

of social interaction on social media on CIS behaviours, an open-ended question was asked of survey participants: "At the end of your trip planning, did you change your mind in the selections of tourism products (destination, accommodation, restaurants, and activities at destination) after communicating and/or discussing with other social media users or reviewing information from social media? If yes, what and why?" As shown in Table 4.5, 42.86% of participants reported that they changed their minds about tourism products, such as attractions at the destination (62.96%), accommodation (33.33%), restaurants (14.81%) and the time and length of the trip (11.11%), due to interactions on social media.

Table 4.5: Changes of decisions about tourism products due to social media

Tourism products	**Yes to changing of decision about tourism product (%)**
Attractions at destination	62.96
Accommodation	33.33
Restaurants	14.81
Time and length of the trip	11.11

During the trip planning phase, information acquired via social media was found to facilitate participants' planning and decision-making. Some participants reported that:

> Participant 5: We changed flights and accommodation due to finding cheaper spots suggested by friends who had been there.

> Participant 52: We changed local attractions after discussing with friends who visited the destination before.

Slightly more than half (57.14%) of the participants did not change their decisions on tourism products after obtaining information on social media, but they reported that social media reinforced their plans to visit a place confidently due to the information obtained from social media (e.g., reviews). For example, two participants stated that:

> Participant 48: We didn't change decisions but we are more informed regarding the trip.

> Participant 57: No change but social media helped to communicate with friends and to make a quick decision.

It can be concluded that social interactions on social media impact on making collaborative decisions during the trip planning phase. In addition, it increases tourists' level of confidence about their selected tourism products and services.

4.1.6.1.2 Further details on influences of social interactions

Based on the findings of the group interviews, further details about influences of social interactions on social media in collaborative decision-making are reported in the following section. As group members in tour groups obtained experiential tourism information based on the experiences and reviews of other tourists on social media during the trip planning phase, they were influenced by their experiences of other experienced tourists and found the information acquired via social interactions valuable. It ultimately impacted on their trip planning.

Almost all interviewed groups (85.71%, 12 of 14 groups) revealed that they collaborated with others on social media while planning their group trips. In other words, participants interacted with their friends, relatives/family members, colleagues and acquaintances via Facebook Messenger, WhatsApp and WeChat in order to obtain tourism information because those people already had hands-on experience of visiting the destination. In addition, they obtained tourism information through indirect social interactions on social media. The remaining two groups (14.29%) did not take part in direct social interactions while seeking information but sought tourism information through indirect social interactions. The reason for not interacting with others on social media during trip planning was the lack of experienced tourists visiting the same destination in their networks.

Following are discussions of the influences of both direct and indirect social intercations on social media on decision-making during trip planning.

a) Influences of direct social interactions on tourism products and services

This research identified that a tour group made decisions or changed their minds about three types of tourism products due to the influence of direct social interactions through social media at the trip planning phase. Details of the selection of tourism products and services via social interactions are described below:

i) Deciding on the holiday destination

Among the interviewed participants, the most common use of direct social interactions was as information sources providing input into deciding on a holiday destination. Of the groups, 78.57% (11 of 14) mentioned that they decided on their holiday destination based on discussions with and suggestions from friends, family members/relatives, and colleagues and

acquaintances. More specifically, when a group of participants wanted to have a holiday, they shared this with their friends/family members/colleagues who strongly recommended that they visit the same place they had recently returned from or had experience of visiting. The tourists groups made up their minds on holiday destinations based on the information obtained via direct social interactions on social media, since they knew the tourists very well and trusted and relied on their judgements. Two groups commented:

> I [member #1] was thinking for a holiday and shared it with my friend (who recently had a holiday). He suggested me to visit Kangaroo Island and then I talked with my group. Everyone agreed on my decision. (Group 6)

> We decided to visit U.A.E [holiday destination] because my friend strongly recommended me to visit there with my family. My family agreed with me. (Group 1)

ii) Change in mode of transportation

Of the groups, 28.57% revealed that they selected their mode of transportation based on direct social interactions at the trip planning stage. For example, they consulted with experienced tourists such as friends and family members to decide on the right transportation method to travel to the destination and roam around it while holidaying. The other groups chose modes of transportation based on their situations and the availability of transportation. The following quotes demonstrate how groups decided on transportation,

> His [participant's friend] information was beneficial for our trip. Because of his suggestions, we took the roadway to go to Melbourne and enjoyed the road trip otherwise we would take the flight to go there and would miss the natural beauty of road ways. (Group 8)

> We first decided to go to New Caledonia by flight but my collegue [who visited before] suggested me to go their by cruise. We changed our plan and booked ticket for the cruise because we never ride a cruise before. We find [found] it really enjoyable. (Group 1)

iii) Deciding local attractions and activities

Based on the interview data, 85.71% groups of participants took direct suggestions from known tourists using social media. Since people in the participants' personal networks had hands-on experience of visiting the destination, the groups sought suggestions and reviews of possible places to go and things to do to ensure that they did not miss any key places and activities. In addition, they verified information obtained via indirect social interactions (reviews and ratings on Google Maps and social media pages etc.) to make final decisions. Two groups mentioned that:

> X [participant's friend] suggested me to stay [book hotel] in Brisbane and go to Gold coast [another tourist place] by bus. Because my son wanted water activity and Brisbane has free public swimming pool which he can enjoy every day in holiday time and we can visit Gold coast too. (Group 2)

> I contacted with my friend to know about some places to visit in Bali because she is from Bali and knows well about Bali. She suggested me to go to Birds Park because my daughter will like it. We visited Birds Park because of her suggestion and my daughter really loved the place. (Group 3)

b) Influence of indirect social interactions on tourism products and services

All the interviewed groups of participants reported that they used different forms of social media, such as tourists' personal blogs, the social media pages of travel websites, travel groups and tourism service operators (e.g., TripAdvisor, Airbnb, Qyer, and Kayak) as indirect social interactions to help plan their group trip. We found the following three major influences occurred during group trip planning because of indirect social interactions:

i) Deciding on the holiday destination

Of the groups, 21.43% (3 of 14) groups reported that they decided on their holiday destination based on indirect social interactions on social media. In the process of selecting the destination for their upcoming group trips, they researched travel blogs and the social media pages of travel groups, websites and tourism organisations (e.g., TripAdvisor) in order to gather a wide range of information about holiday destinations. Later, they synthesised the gathered information and asked for opinions from the group members to make a final decision on their destination. To decide on the holiday destination, the groups utilised indirect social interactions on social media in that they considered such interactions their tour guides due to the high quality of information contributed by tourists on social media. Two groups commented that:

> We did lots of research to choose our holiday place because no one [group members] has any idea. We read people's experiences in TripAdvisor and Kayak [Facebook pages] to know about the place whether going there will be worthy or not. All friends [group members] also expressed their opinions and we decided to go to Japan. (Group 10)

> First one of our tour mates proposed to visit Japan. After that, we start searching on google and Facebook to learn about Japan as holiday destination. We all agreed to go to Japan for our holiday. We must say we got many useful information and people's opinions on Facebook. (Group 7)

ii) Deciding on a hotel

All groups mentioned that they went through the comments, reviews, and ratings left by tourists on the social media pages of hotel and tourism websites such as booking.com, Kayak, and Qyer

to make decisions on hotels. In particular, they employed indirect social interactions on social media to gather, compare and verify information about prices, services, safety and the location of accommodation. They also stated that tourism service operators offered better deals on flight fares, hotels and activities on social media than on their official websites. Two groups commented that:

> We booked our hotel in Dubai through Kayak because I found best deal offered on Kayak that time. First, I read people's comments on their page on Facebook to know about the service like Wi-Fi facility, room service, pool time, and location from the tram station. I found mostly good ratings and reviews on that hotel which helped me to book the hotel without any hesitation. It really helped me. (Group 4)

> We used TripAdvisor and deals on Facebook to book hotel. We saw reviews and rating in TripAdvisor and asked for better deal (price) by contacting on Facebook page. Because the hotels offered deals on the Facebook page not in their website. (Group 12)

iii) Deciding on restaurants and local attractions

During the selection of restaurants and local tourism spots, all interviewed participants from all groups revealed that they used Google Maps, TripAdvisor and the Facebook pages of various travel groups and tourism service providers to gather a wide range of information such as reviews, images, and suggestions to evaluate and judge which options were suitable for them. For example, two groups mentioned that:

> We both used TripAdvisor and qyer.com to search most of the information in our trip planning time. For example, we selected a chinses restaurant which was near to our hotel and list of places we will visit reading tourists' experiences from both websites [*TripAdvisor and Qyer.com*]. (Group 1)

> I [member #1] got very useful information from Facebook and google to find the best spot to view Mount Fuji. Mount Fuji is a huge and there are lots of angle you can view it. I found a very good spot like small village next to lake to view it from Facebook. Other members followed my plan. (Group 7)

iv) Reducing uncertainties

There were also cases when group of participants turned to indirect social interactions to reduce uncertainties about destination-related products by cross-checking the suggestions provided by friends, family members, colleagues and acquaintances. As the following quote illustrates, almost all groups of participants employed tourists' personal blogs, the social media pages of travel websites (i.e., ask.qyer.com, TripAdvisor, and Google Maps) to make sure that suggestions acquired via direct social interactions would satisfy their requirements and

personal preferences. Thus, the indirect social interactions on social media lessened the dilemmas of prospective tourists. Two groups mentioned that:

> Social media helped us to cross-check information and make decision easily. For example, though my friend recommended to visit Mall of Emirates, I used TripAdvisor and google map to see what others people said about it. We found many positive experiences suggesting as a must visit place. We took decision to include the Mall of Emirates in our bucket list. (Group 4)

> I [member #1] social media to make rough decisions and get initial basic ideas about the places to visit. I found social media a place by which we get information who already visited the place and reduced our worry. I [member #2] also used WeChat and qyer.com to verify information. For our trip, social media helped us to remove worry. (Group 13)

During trip planning, a group of tourists made decisions based on the knowledge of all group members. However, there are shortcomings when group members lack knowledge, resulting in social interactions on social media by tourists who were regular social media users (discussed in Section 4.1.5). This study found that direct social interactions influenced the groups of tourists when selecting holiday destinations, modes of transportation and local attractions and activities, while indirect social interactions influenced the groups of tourists in choosing accommodation, restaurants and local activities, and reducing uncertainties related to the trip. There is some overlap between the findings of this study and those of Ye, Law, Gu, & Chen (2011), in that they found that review comments have a significant influence on tourists' decision-making processes and specifically on decisions relating to accommodation. These results add to the knowledge of group decision-making in the tourism context, and how experienced known and unknown tourists on social media can influence prospective tourists during their decision-making process.

4.1.6.2 Contributions of social interactions on social media to CIS behaviours

4.1.6.2.1 Contributions of social interactions to information seeking

Due to its increasing use, social media is gaining profound interest from a wide variety of fields including tourism. Tourists use social media to interact and share their views, collaborate and contribute to developing, extending, rating and commenting on tourism experiences because it has become a powerful social tool for online communication (Gretzel & Yoo, 2008; Leung, Law, Van, & Buhalis, 2013; Parra-Lopez, Gutierrez-Tano, Diaz-Armas, & Bulchand-Gidumal, 2016; Sotiriadis, 2017).

To understand the contributions of social interactions on social media to CIS behaviours, an open-ended question was asked of survey participants: "During trip planning, how did

information obtained from others (who are not part of your tour group) via social media or experiences of other tourists shared on social media help you in information seeking? Please explain". The questionnaire survey results found that 65.08% of participants employed both types of social interactions (i.e., direct and indirect) to obtain a wide range of tourism information, and 26.98% of participants verified information they needed to make decisions later (Figure 4.8). The possible reason for seeking and verifying information via social interactions on social media is that the information available on social media indicates tourists' real feelings, emotions, and experiences relating to their trips. Information obtained via social interactions is also reliable and genuine, as tourists share their travel experiences for non-commercial purposes (Munar & Jacobsen, 2014).

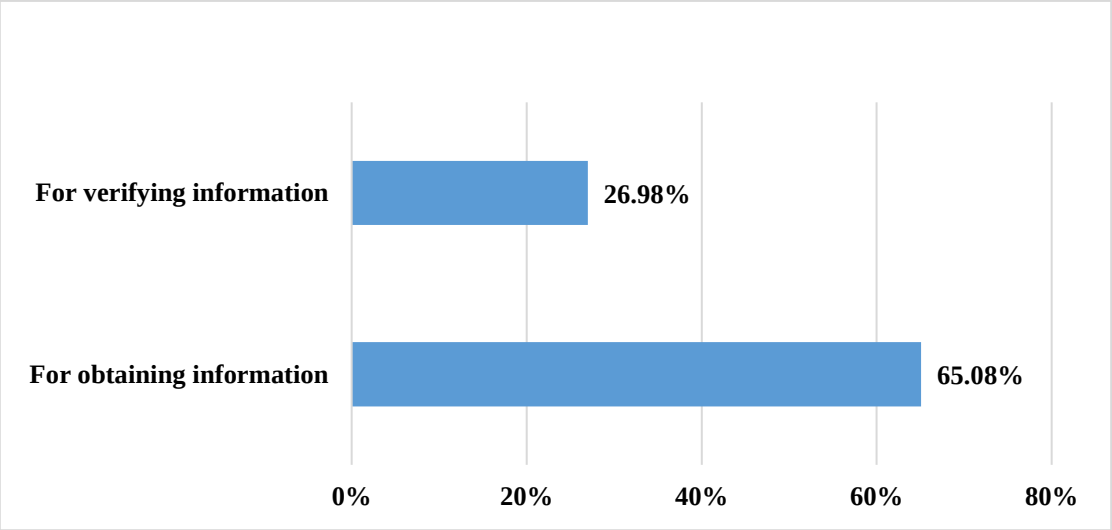


Figure 4.8: Contributions of social interactions on social media to information seeking

In summary, it can be concluded that social interactions over social media make a significant contribution to seeking and verifying information, which leads tourists to make final decisions.

4.1.6.2.2 Further details on contributions of social interactions on CIS behaviours

Based on the group interviews, the more details on the contributions of social interactions on social media to CIS behaviours, particularly when groups of tourists conduct those CIS activities, are presented in Table 4.6.

Table 4.6: Contributions of social interactions to CIS

CIS activities	Contributions of social interactions

Seeking and sharing gathered information	Improve the productivity of collaborative information seeking by sharing rich information gathered via multiple sources of social interactions.
Making collaborative decisions	Make a well-informed trip planning by choosing the right tourism products and services because of the genuine suggestions obtained via social interactions.

i) Improving the productivity of CIS

During information seeking, the individual members of a group used social interactions to find and accumulate different ideas and adventures. For instance, group members contacted experienced people (tourists) in their personal networks via social media (e.g., Facebook Messenger, WhatsApp and WeChat) to find out relevant information by learning about their experiences, suggestions and opinions on the trip. Afterwards, they shared the information obtained from social interactions along with their individual assessments (personal ideas and points of view) for group discussion and decision-making later on. The reason for sharing obtained information with the group was to synthesise the gathered information by comparing, assessing and validating information about travel products which eventually assisted with their decision-making. In fact, during CIS, information seeking via social interactions on social media improved the productivity of group information seeking and sharing, since at least the skilled members in a group interacted with experienced tourists on social media to seek a variety of authentic tourism information. This process also facilitated quicker information seeking for the entire tour group. As one group stated,

> We were looking for a mall which has indoor activities and decided the Mall of Emirates as per friend's suggestion. His suggestion directed us to find mall related information [route, distance from hotel, and business hours to go there] quickly otherwise we had to search for information first and then verify them, which could be a long process to make decision. (Group 4)

A group explained how recommendations received via social interactions helped them to plan things to do and places to go at their destination and made their trip planning task easy:

> Information [*that*] we got from our friends [*multiple*] was very useful for our trip because their information are [were] reliable and we trust them. For example, my friend [*one group member's friend*] told me to go for a helicopter ride at great ocean drive and we went for a scenic helicopter ride for the first time based on his [*friend*] suggestion and we all enjoyed it very much. My friend [*another member's friend*] suggested me to go to Mt. Baw Baw instead of Mt. Buller because Mt. Baw Baw was close to our hotel as well as cheaper which saved our time and money. (Group 9)

ii) Making trip planning better

Trip planning is a complex and dynamic process during which information seeking via social media plays an important role in information searching and decision-making (Fardous et al.2017; Fotis, Buhalis, & Rossides 2012). Having obtained experiential tourism information based on the experiences of other tourists on social media, group members found this information valuable and it often impacted on their travel planning and resulted in changes to the original plan. In particular, social interactions on social media helped a group of participants to plan a better holiday thanks to the practical knowledge and guidelines of real tourists. Otherwise, an unplanned tour can put tourists into very critical circumstances, and their enjoyable trip can become their worst nightmare. For example, one participant in a group mentioned,

> His [participant's friend] information was very useful for our trip. Because of his suggestions, we took the roadway to go to Melbourne and enjoyed the road trip otherwise we would take the flight to go there and would miss the natural beauty of road ways. (Group 8)

In summary, the current study found that social interactions on social media play an important role in CIS, especially when tourists are required to seek ideas, suggestions, and reviews for trip planning and to verify information about tourism products before they make decisions. This result adds to the knowledge of how social interactions on social media contribute to CIS behaviours during group trip planning (discussed in Section 4.1.3).

4.2 Results: During execution of the group trip

At present, 71% of Internet users are social media users and the number of social media users is expected to be 2.77 billion worldwide by 2021 (Statista, 2019). Due to the ubiquitous deployment of mobile Internet, these users can now access social media from any geographical location for various purposes. Therefore, tourists access social media even during their holidays. As the literature review showed, there are few studies which have conducted research on tourism information seeking behaviours while tourists are holidaying at a destination (Fotis et al., 2010; Pan, MacLaurin, & Crotts, 2007). Therefore, this study was interested in examining the collaborative information seeking (CIS) behaviours of a group of tourists while travelling, including triggers and characteristics of tourism CIS behaviours, methods of intra-group collaboration, circumstances of social media usage, collaboration on social media in CIS, and the influence of social interactions on social media on CIS behaviours.

This section discusses the results of our analysis of the questionnaire survey and group interview data to address the research questions in the context of groups of tourists executing their group trips at their holiday destinations. In this section of the chapter, the findings based on the questionnaire survey (45) and semi-structured group interviews (14 groups: 38 interviewed participants out of 51 total group members) are presented.

4.2.1 Overview of experiences of tourism and social media use

Based on the questionnaire data, this section presents the findings about experiences of tourism and social media use when groups of tourists executed their group travel.

4.2.1.1 Reasons for employing social interactions during information seeking

While searching for information on the web, tourists sometimes face difficulties in obtaining relevant information and decision-making due to information overload and an overwhelming number of tourism-related websites. As a result, social media have been adopted by tourists as a way to seek and share information during the trip to assist in confident decision-making (Leung et al., 2013). To identify their reasons for using social interactions in CIS tasks while travelling, an open-ended question was asked: "Why did you search for information on social media during the trip?"

The questionnaire results (Table 4.7) showed that the majority of the participants (66.67%) found social media to be a useful and appropriate way to seek information. Furthermore, two ways of seeking information were identified, including a) viewing photos and videos posted by other tourists to get an overall picture of the destination and b) getting suggestions or tips from blogs, forums or the social media pages of travel groups and websites (indirect social interactions) and other social media users (direct social interactions). Of the participants, 58.33% were found to utilise social media to validate information by contacting others or scanning reviews contributed by other experienced social media users.

Table 4.7: Reasons for social interactions while travelling

CIS through social media	**Percentage (%)**
To seek information	66.67
To validate information	58.33

Seeking and validating information via social media helped tourists to make decisions with their tour mates in a faster and more confident way as the desired information had already been

shared on social media or recommended by many experienced tourists. They also obtained needed information in real time from known persons by means of social media. The participants reported the following:

> Participant 1: I can see photos and experiences of other people on [in] the same place [that] I want to visit.
>
> Participant 20: [I] get information like places to go, what to eat, places to avoid and things to experience.
>
> Participant 34: To can verify information by reading reviews about restaurants which meet my special dietary requirements.
>
> Participant 8: [I] [can] gain many idea [s] about a new place, event and risk factors of the place.
>
> Participant 12: I get reliable info [information] instantly from tourism blogs and friends [,] which helped us to plan the activities at destination.
>
> Participant 18: [I] [can] find information of [about] lower priced day tour packages and validate information about a festival going on at that time.

4.2.1.2 Types of information tourists seek on social media during travelling

The analysis further identified the types of information that tourists sought or validated via social media while travelling. Figure 4.9 highlights five different types of travel information that were sought through direct and indirect social interactions on social media, including attractions at the destination (67.57%), restaurants (54.05%), transportation (40.54%), routes (18.92%) and other types of information, i.e., weather, security and festivals (9.30%). Furthermore, information about attractions at the destination, restaurants, transportation and routes were sought through direct social interactions (90.70%), whereas information about routes and other types of information (i.e., weather, security and festivals) were sought via indirect social interactions (9.30%).

Most participants looked for information with respect to attractions at the destination (e.g., places to visit and events to participate in and things to experience), followed by restaurants, transportation, routes and other types of information (e.g., weather, security and festivals). Even though tourists often plan their trip in advance, one possible reason for seeking out such types of information on social media while travelling may be to ensure that they do not miss any iconic places or events, can experience traditional local foods, and lastly, can have a safe and joyful journey throughout the trip. It might also help them to solve any problems related to the trip by asking for suggestions from known persons on social media while travelling. Participants stated the following:

Participant 3: We got the recent news over the world [around the world] by [via] social media. We also got [an] event information from a blog that we visited.

Participant 4: We were confused about which beach we should visit [;] we didn't have time to visit both. I talked with my friend to get his opinion because he had been there.

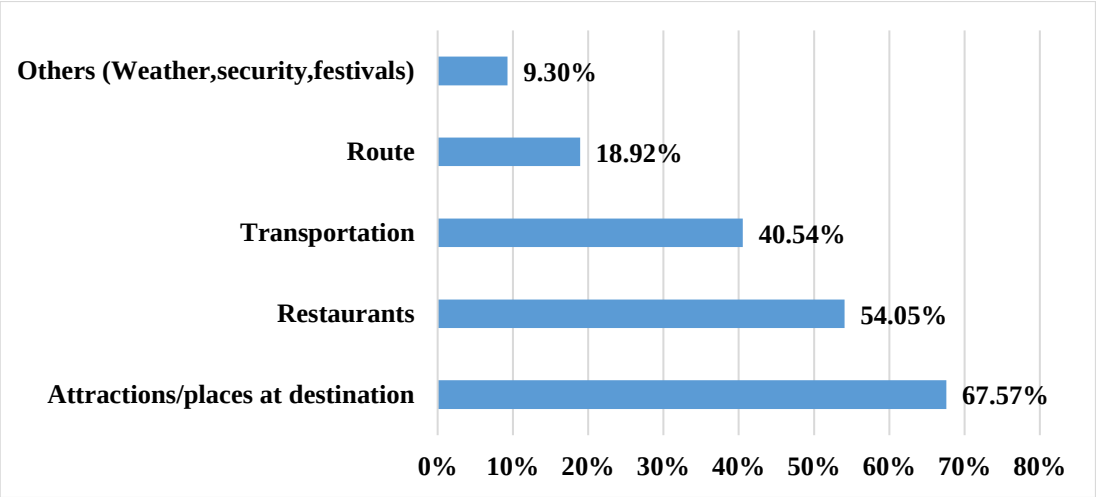


Figure 4.9: Types of information that tourists seek on social media while travelling

4.2.1.3 Frequency of social media use per day during travel

Since the results show that groups of tourists utilised social media during travelling at the holiday destination, a close-ended question was asked of participants to identify their level of social media usage: "During the trip, how many times did you use social media every day?"

The questionnaire results found that the majority of participants (72.93%) used social media more than five times a day during the trip, which indicates that people use social media not only for trip-related purposes also for a variety of reasons such as entertainment, news and communication with others (Figure 4.10). Of the participants, 40.54% accessed social media in between four and five times and 27% used social media two to three times a day. Social media was used only once a day by 18.92% of participants, while 17.88% of participants stated that they did not utilise social media while travelling.

4.2.1.4 Use of social media after the trip

Prior research has shown that social media is predominantly used after the trip for sharing travel experiences and social interactions. An open-ended question was therefore posed to the participants to explore the purpose of social media usage after returning from the group trip: "Did you use social media after returning from the group trip? If so, why did you use social media at this stage?"

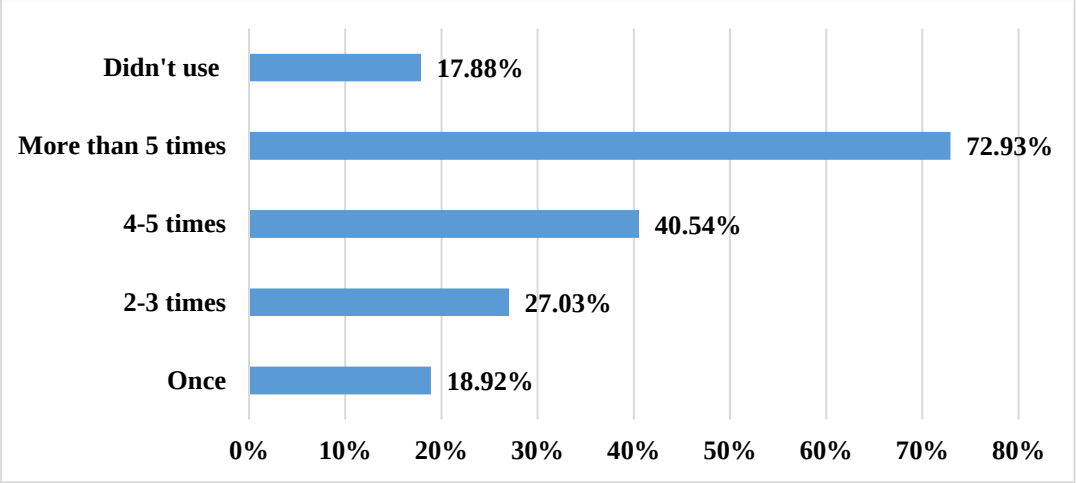


Figure 4.10: Frequency of social media use per day during the trip

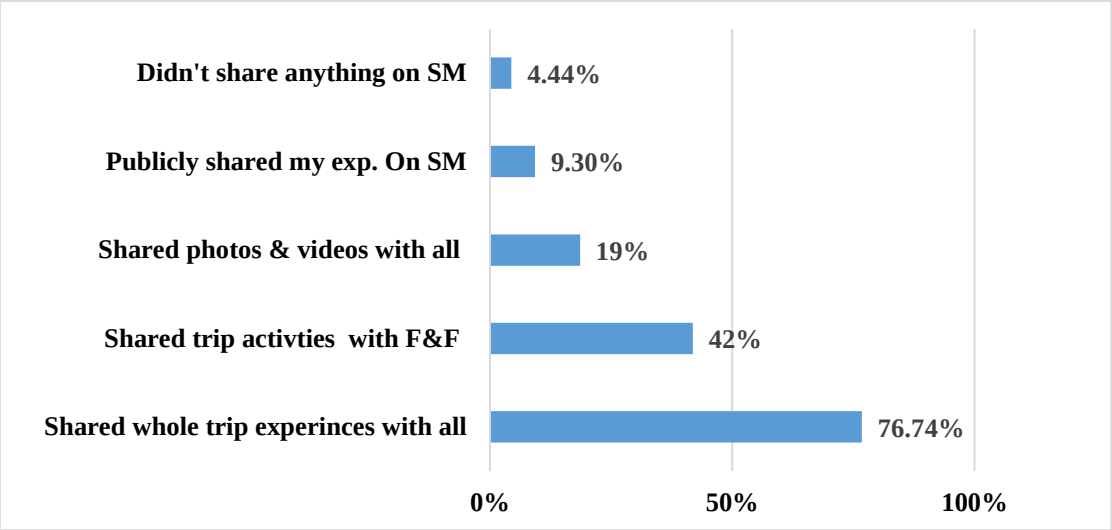


Figure 4.11: Use of social media by participants after the trip

The questionnaire results (Figure 4.11 identified that 95.56% of the participants utilised social media individually to share their travel-related information after returning from the group trip. The majority of the participants (76.74%) used social media to share details about the entire travel experience (i.e., opinions, photos, and videos) with everyone in their networks as a way to get enjoyments by showing off. Nearly half of the participants (42%) shared photos, videos and viewpoints with their family members and friends only, to show their activities and provide useful information to those who might intend to visit the same place in the future. Of the participants, 19% were found to share images and videos of sightseeing places with the intention of promoting the iconic places at the destination to everyone in their networks. A total of 9.3% of respondents were identified as having shared their travel-related experiences publicly as travel reviews on blogs, forums and the social media pages of travel websites for

prospective travellers, with the aim of helping others plan and make decisions regarding their travel. However, 4.44% of participants were identified as having not shared anything related to their trips on social media. The following quotes describe the reasons for social media usage after the trip:

> Participant 22: I posted photos with [the] description on Facebook and Instagram. I love to share photos on Facebook because everyone [contacts in his/her networks] can see how much I enjoyed during my trip.
>
> Participant 23: I shared my experience [s] and photos on WeChat and Telegram if my friends or family would be interested [in them].
>
> Participant 34: I shared photos of scenic places on Facebook because I wanted to show everyone that the places were beautiful.
>
> Participant 35: I posted my trip experience about the hotel on a Facebook page (tourism page) to provide information for future tourist.
>
> Participant 40: [I] expressed my reviews on the place [s] as well as shared photos of the trip.
>
> Participant 43: I usually don't share anything on social media[,] but I always look at other's [others'] posts and images to gather information. I can [would] call myself a passive social media user.

Interestingly, regarding social media usage after the trip, participants were found to use such platforms only for sharing experiences, photos and videos with comments or opinions on their trips. One possible reason for not using social media for other purposes at this stage could be that tourists no longer need to search for information.

4.2.2 RQ 1: Triggers and characteristics of tourism CIS behaviours while travelling

4.2.2.1 Triggers for tourism CIS behaviours during group travel

While travelling at the holiday destination, there were certain situations in which a group of tourists needed to work together to continue the group trip seamlessly. Research has shown that collaboration works well in completing complex problems in group settings (Hansen & Järvelin, 2005a; Hertzum, 2008; Shah, 2010). In the execution of a group trip, one interesting questions is in what situations do tourists collaborate with each other? Hence an open-ended question was put to survey participants: "What were the situations you communicate/collaborate (worked together) with your tour mates when you were holidaying together?" In this study, a trigger is defined as an event within the environment (during the group trip/holiday) that initiates group activities relating to the group holiday at the destination. Two main types of triggers that caused collaboration between group members to solve their

travel-related issues were identified: the necessity of sharing trip-related information and the requirement to organise the tour group.

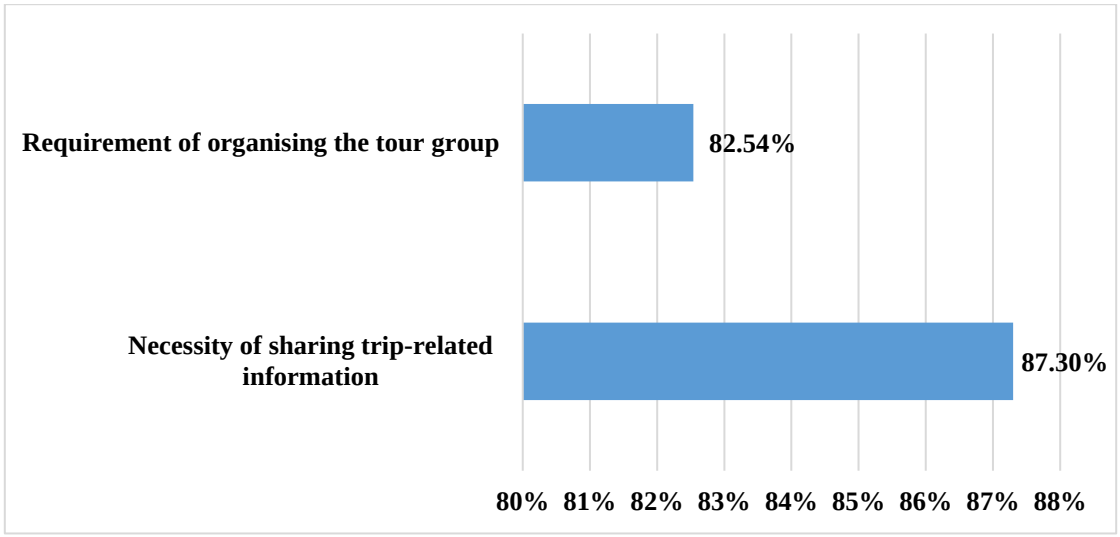


Figure 4.12: Triggers for intra-group collaboration during travelling at the destination

The results (Figure 4.12) from the questionnaire show that while travelling at the destination, most (87.30%) of the participants communicated with their group members to share and discuss destination-related information such as what to do on the next day, places to visit places, transportation, routes, and food in order to re-plan trip activities. Organising the tour group was another trigger that influenced members of a group of tourists to communicate with their accompanying tour partners at this phase of group travel. More specifically, 82.54% of participants mentioned that they contacted their group members to decide on meeting place for a group discussion, and times to visit local attractions and dine. In this regard, two participants commented:

> Participant 6: We mainly messaged to Facebook group to inform when we will leave and which places we will visit tomorrow.

> Participant 8: We sent links of visiting places with others to know the history and background of places.

As the results of the questionnaire survey revealed that tourists in a group had the experience of intra-group collaboration or collaboration within the tour group, this study was interested to further investigate the tourism CIS behaviours they performed while travelling at the destination. Therefore, semi-structured interviews were conducted with groups of tourists regarding their experiences of group activities while holidaying. The results are reported in the following section.

4.2.2.2 Characteristics of tourism CIS behaviours during group travel

Previous findings reported in Section 4.2.2.1 showed that a group of participants collaborated with their tour mates as a result of needing to share trip-related information and organise the tour group during travel at the destination. In the group travelling phase, the triggers of CIS behaviours, such as the necessity of sharing trip-related information and organising the tour group, had six characteristics: seeking and sharing information, synthesising information, making alterations, coordinating the group, making on-site trip-related decisions and solving conflicts of preference between group members (Table 4.8).

Table 4.8: Characteristics of CIS behaviours during travel at the destination

Characteristics of CIS behaviours during the trip		**Description**
Triggers	**CIS activities**	
Re-planning trip activities	Seeking and sharing information	Participants seek and share travel information from other participants in the same group while re-planning their trip.
	Synthesising information	During re-planning of the trip, participants collaborate with other group members to synthesis gathered travel information.
	Making alterations	Participants collaborate within the group to make alternative travel activities.
Organising the tour group	Coordinating the group together	Participants frequently collaborate with the group to coordinate group activities on a daily basis.
	Making on-site trip-related decisions	Group members discuss with each other to make any on-site collaborative decisions.
	Solving conflicts of preferences between group members	Participants meet together to resolve their conflicts of preferences on travel activities.

i) Seeking and sharing information

All interviewed participants reported that they had re-planned trip activities during trip execution because of local weather conditions, disagreements about preferences, participants' health condition, and timing conflicts and lack of time between activities. While re-planning trip activities, they needed to collaborate with tour mates to alter plans and make group decisions about on-site tourism products and activities such as places to visit, restaurants, routes, transportation, bike riding and skiing. To re-plan the trip, they sought and shared

information from other group members to gather more relevant information regarding the potential activities. For instance, information about history and background and reviews of tourists' spots (temple, museum, Taj Mahal, shopping mall, and Fuji Mountain), restaurants (vegetarian cuisine and Italian gourmet pizza), routes (hotel to tourists' spots, and restaurants) and transportation (bus, train, rental cars etc.) were solicited from and shared with other members of the tour group to inform everyone of the possible alternatives. Participants also shared links to Facebook pages operated by various travel groups and tourism service providers, images and videos of attractions, and activities (helicopter rides, tobogganing and theme parks), names and addresses of temples, cities and shopping malls, ideas and thoughts with their group members so that everyone could have detailed knowledge and perceive each member's thinking before making the final decision. As two groups stated:

> We changed our original plan [botanical garden to Sydney aquarium] because one member became sick and he [unwell member] didn't want to walk in the sun. So, we had to search information to plan again and searched information on Facebook pages and blogs. We shared search results and opinions with others [group members] to let them know what we found. (Group 7)

> We had to change our plan [original plan], because when we reached at 12 apostles it was late and all the restaurants were closed. Then we searched information to find a restaurant using our own mobiles [individually] and shared links and photos of foods and reviews to select one. (group 3)

ii) Synthesising information

Another trigger related to re-planning during the trip was the need to synthesise information shared by team members (participants in the same group). The interviewees stated that they gathered necessary travel information (e.g., the names and addresses of tourist spots and restaurants) by searching online or seeking information from others (experienced tourists) independently. After that, the teammates shared the obtained information via their cha group (Facebook Messenger, WhatsApp or WeChat) as well as meeting face to face to discuss and exchange views on the proposal, comparing various factors such as distance and types of transportation from the hotel, cost, and the worth of the visit. The reason for this synthesis of information was to bring up a diversity of ideas and views to assure enjoyable and fruitful travel experiences for all. Two groups commented on this:

> Particularly in the morning, we searched up for what to do as our own and posted it [everyone's proposal] in the Facebook group. After having breakfast, we used to meet in the hotel's lobby to discuss all members' opinions to finalise and starting point of sightseeing places and activities for that day. (Group 1)

> When we travelled, we searched information personally, but we combined all the information so make a right decision. We found we didn't do wrong decision during our trip. (Group 2)

iii) Making alterations

Since participants in a group had to alter their group activities when they were on the trip, they had to re-plan the activities by conducting CIS activities. Making alterations while re-planning tourism products and activities is a key aspect of tourism collaborative activity because participants must make joint decisions by verifying information if the choices of or preferences for visiting places, modes of transportation, routes and restaurants were agreed by all group members. The reason for this verification was that the group wanted to ensure that everyone in the team was happy with and could be part of the decision-making process. For instance, in a group setting, there were often a number of ideas and options for each travel activity as every tour mate provided his/her preferences. Hence, participants were found to collaborate with tour mates to narrow down their choices and to make final decisions by cross-checking with everyone in the team, including children. Moreover, a voting system (i.e., yes/no) was used throughout the process of shortening the list of choices and making final agreements. Thus, verification of information such as preferences in decision-making plays an important role in the re-planning of group travel. Two groups mentioned that:

> When we travelled to India, we didn't take any wrong decisions because we filtered information together and took all decisions if everyone was happy with that. So, everyone in our group was happy and enjoyed every places we visited. We think two minds are better than one. (Group 6)

> We changed our plan like tourists' spot. Because when we planned [for visiting japan], we didn't consider the weather there and had to change few outdoor activities to indoor activities. For example, we didn't visit Kyoto due to rain and went to CBD of Tokyo.

iv) Coordinating the group

Coordinating the group members was the most common reason for organising the tour group. The interview data revealed that participants in a group collaborated more often while travelling at the destination than in the trip planning phase since the group was together most of the time and needed to make changes to trip activties or make instant on-site group decisions. Thus, collaboration with tour partners to coordinate the entire tour group on a regular basis was another important aspect of collaborative activity while holidaying. All participants had experiences of collaborating with group members regularly during execution of the trip, particularly in the morning to fix a time to have breakfast, select the location (e.g., hotel lobby

or room) for a last-minute group discussion, and set a time to leave the hotel to execute the day-to-day travel activities. For example, two groups said:

> We used to send message[s] to our entire group (Facebook group) to coordinate the group. In the morning, we sent time (7:30 am) to come at hotel lobby to discuss and know everyone's opinion for deciding which places we go first, take breaks for refreshments and when come back to hotel. (Group 13)

> We had face-to-face discussion at every night for the next day activities. As we stayed together, we didn't use phone or social media that much, but we sent messages in WhatsApp I was outside of the hotel or not together. (group 1)

v) Making on-site trip-related decisions

Participants reported making on-site trip-related decisions, which included decisions about cuisine and food menus, through in-person group conversations during each meal which bore in mind all tour mates' opinions and recommendations. They also went through the reviews left by other diners on social media (Facebook pages and apps) and suggestions from experienced known tourists while selecting a menu and restaurant. As two groups said,

> One of my friend[s] suggested me an App (e.g. Swiggy) to search for restaurants with reviews, menus, price, opening and closing time, distance from our hotel and map to get there. After researching a few restaurants, we proposed the name and services to the group in order to know their opinions and chose one of them. (Group 7)

> We changed our mind and went to another place [shopping mall] when we reached at the museum because there was a long queue to enter the museum. (Group 9)

vi) Solving conflicts among group members

While holidaying, solving conflicts between tour mates was another reason for face-to-face intra-group collaboration. During decision-making, groups of participants arranged team meetings to work out conflicts of preferences that arose about places to visit (temple, museum, Snowy Mountain, island and park), rest sites and who would drive to each destination, restaurants (KFC, Chinese, pizza and Indian vegetarian), and mode of transportation from airport to hotel and hotel to tourist spots (taxi, train and bus). Further, a voting process (e.g., go with the majority opinion) played a vital role in making group decisions when resolving conflicts became difficult. In a worst-case scenario, participants would split into two groups based on preferences and perform accordingly. For example, two groups commented:

> We had some conflicts when driving from Adelaide to Melbourne. For example, when we were going to Melbourne, two members wanted to take a break at every 200 kilometers, but rest of the members wanted to take a break once or twice on the whole way to reach early in Melbourne. We went with the second option due to the majorities. (Group 8)

> We had arguments during visiting a temple. After visiting a temple, she [member #1] didn't want to go to a lake but we [other 2 members] convinced her to visit by showing reviews from blogs and Facebook. (group 5)

In summary, this research found that tourism CIS behaviours during travelling had a set of characteristics including seeking and sharing information, synthesising information, making alterations, coordinating the group, and solving conflicts of preferences between group members. It is noted that the characteristics of tourism CIS behaviours during the travelling phase are different from those in the trip planning phase. More specifically, the goal of tourism CIS activities during travel was to re-plan some parts of the trip, such as visiting local attractions and activities, as well as coordinating the tour group to execute group activities. In contrast, the aim of CIS behaviours during trip planning was to plan everything regarding the upcoming trip, such as flights, hotels, local transportation, attractions and foods. During travelling, a group of tourists also needed to make decisions instantly or at tourist locations, and hence, the group had to have an in-person group discussion to make decisions more often than in the planning phase, by verifying and resolving their conflicts of preferences.

4.2.3 RQ 2: Intra-group collaboration during travelling

4.2.3.1 Methods used for intra-group collaboration during CIS

Collaboration plays a key role in information searching, sharing and decision-making in group settings (Wang, & Fesenmaier, 2002). Mohammad Arif, Du and Lee (2012) found that a tourist communicates with his/her teammates to obtain information more often than they turn to internal (self-experiences) and external sources (e.g., web information). As noted, participants worked jointly with their teammates while seeking and sharing trip-related information on social media platforms so that they could discuss and make decisions based on the information obtained while travelling at the destination. To identify the ways in which the participants collaborated with each other while travelling, an open-ended question was asked: "Did you share anything (i.e., information) including that you obtained via social media with your tour mates? If yes, how did you communicate/discuss information searching and decision-making with your tour mates during the trip?" The analysis of their means of communication is summarised in Table 4.9.

Table 4.9: Methods for of intra-group communication during travel

Method	Description	Examples

Face-to-face meetings	Face-to-face meetings with tour mates are used to discuss and make final decisions.	
Communication apps	Communication apps such as WhatsApp, Viber, and WeChat are used to exchange information within the group.	WhatsApp, Viber and Skype
Social media	Social media is also predominantly used within a group to communicate about travelling.	Facebook and WeChat
Phone call and text messages via phone	Phone calls and text messages via mobile phones are used to talk and share information.	

As shown in Figure 4.13, four methods of collaboration were employed by the respondents while travelling. All the participants met in person with their group members to discuss their trip-related activities, perhaps because the team members all stayed at the same place (e.g., hotel) during travel. Still, around half of the respondents (51.11%) used communication apps and close to half of the respondents (42.22%) used social media, followed by phone calls and text messaging (11.11%), for sharing information and making collaborative decisions.

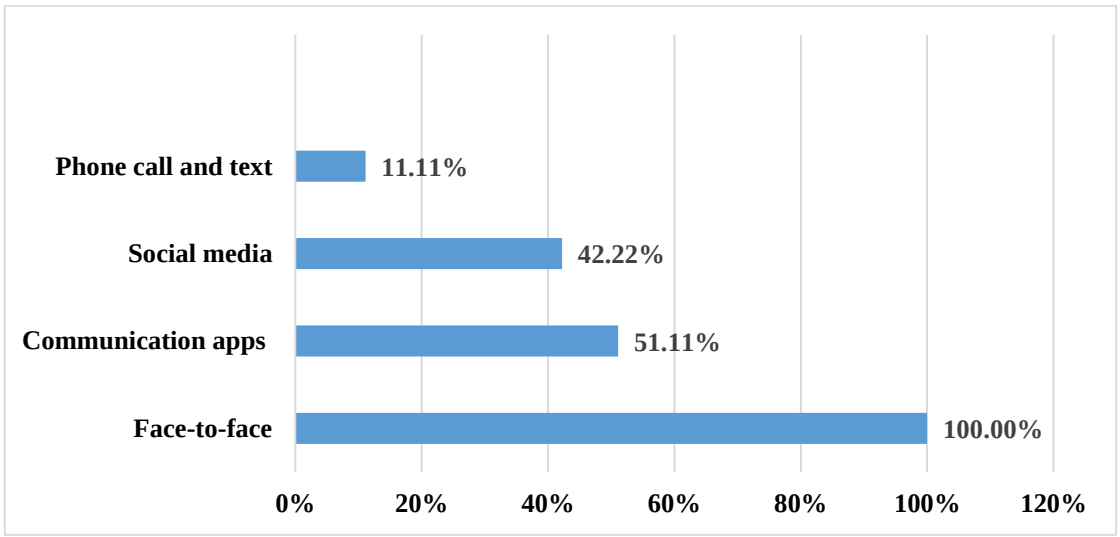


Figure 4.13: Means of intra-group collaboration during travel

It is worth noting that, due to the availability of free Wi-Fi and the instant calling and messaging services of social media, tourists who were on a group trip started to use communication apps (e.g., WhatsApp, Telegram, Viber and WeChat) and social media (e.g., Facebook Messenger,

WeChat and Instagram) as means of communication while travelling. The following quotes illustrate how participants collaborated with their tour mates when they were on holiday:

> Participant 2: Yes, we shared by [talking] in person, [using] Facebook Messenger and [making] phone calls over [our] mobiles. Facebook Messenger helped me to coordinate the tour mates by sending [a] message in our group chat about time to leave [time at which to leave] and location to meet [location at which to meet]. We mostly discussed things in person as we travelled together and used phone calls when we need to talk urgently.
>
> Participant 5: Yes, we shared everything. We always stayed together and discussed everything by face-to-face meeting. We also used Facebook Messenger and Viber to share information (website link) and photos of us.
>
> Participant 13: Yes, shared with group. We discussed everything together (face-to-face) because we stayed in the same hotel.
>
> Participant 14: Yes, we shared and took all decisions together. We used WhatsApp and met in person. We used WhatsApp to share information with rest of the group like sightseeing places after discussing with my friend who visited the place before.

More details on the selection of proper collaborative tools to use for group communication during CIS activities at the destination are discussed in the following section based on the group interview data.

4.2.3.2 Factors in selecting methods for intra-group collaboration during CIS

Collaboration is a process during which collaborators work together, bringing a diverse range of knowledge and expertise to solve a common problem. The analysis of interview data revealed that when participants were on their trips, the modes and tools they used for collaboration completely depended on their convenience (e.g., co-located or remote), types of information needs (e.g., links to websites, names of attractions or visual information), kinds of contribution (e.g., giving opinions by stating yes or no or making proposals), and urgency of information needs (e.g., instant decision-making). During the trip, participants in a group used multiple methods to collaborate with their tour mates. Following are the factors that influenced them in choosing collaborative methods.

i) Situations of participants and urgency of information needs

All of the interviewed participants (38) from all groups (14) mentioned that they met in person with their group mates to seek opinions, share information (e.g., proposals, ideas and advice), solve conflicts about travel-related issues (e.g., on-site visiting places, restaurants and times), and make collaborative/group decisions. The reason for the face-to-face collaboration was the physical presence of participants and the necessity for instant on-site decision-making. For

example, due to local weather and the physical illness of participants, one group had to change their original decisions and select new places to visit, transportation and routes via group discussion. There were also situations when groups of participants made an instant group decision about restaurants and food menus as they had not planned it during the trip planning phase. Moreover, they stated that face-to-face meetings boosted the group decision-making process by letting them watch the facial expressions of others. For example, a group of participants mentioned that:

> When we were at Dubai, I [member #1] mainly searched information online and then proposed several options to the group. For example, when we go for lunch or dinner, I used to look for restaurants through reviews and ratings and then, I provided them multiple options. Everyone in the group gave their opinion and decided the restaurant based on the voting of members. We took most of the decisions in Dubai as a group and by group discussing because we were always stayed together. (Group 1)

Another group mentioned,

> We didn't plan for a restaurant on our way to Melbourne but we checked on Google Map and found some fast food options. We all together discussed in the car and agreed to go to hangry jack because we wanted to reach Melbourne as soon as possible and didn't want to spend time for finding restaurant in that time. (Group 9)

ii) Types of information needs

Participants from all groups reported that they employed social media communication tools such as Facebook Messenger, WhatsApp, and WeChat when they needed to share trip-related information in order to re-plan some parts of the trip or make group decisions about unplanned activities like finding dining places, shopping areas, local events and places to visit. Moreover, they used social media as a collaborative tool when they had enough time to gather, research and assess travel information to re-schedule their travel activities and attractions. Participants shared different types of information, including pictures and videos of tourism activities and spots, details of routes, search results in the form of links to websites (social media pages of tourism service providers, personal tourist blog, and various tour groups), and screenshots of reviews and ratings with their tour mates to gather opinions and reasons to schedule unplanned parts of the trip or alter the original plan. Two groups commented:

> We used WeChat to share our ideas and images of visiting place [botanical garden and shopping areas] to decide [whether] we should go to this place or not. We shared information in WeChat when we had enough time to plan and need to inform other tour mates about our ideas of places because it was Christmas day and everything was closed. So, we had to change our plan for that day. (Group 7)

> We shared our choices of visiting places and discussed everything together (face-to-face) because we stayed together all the time. We also shared images of Mount Fuji by Facebook Messenger to see and select the best lookout point to go. (Group 10)

iii) Coordinating the entire group

The interviewed groups reported that they collaborated with their tour mates more frequently during the execution of the trip than during the trip planning phase in that they were required to manage the tour group in order to perform all the activities together. They communicated with the group members to lead the tour group by notifying them of meeting locations, upcoming activities, and the timing to execute events. For intra-group communication, groups of participants used collaborative methods as Facebook Messenger, WhatsApp and WeChat when they needed to notify everyone in advance to get ready, as well as to give a reminder for the next item on the schedule. The main reason for using social media during intra-group collaboration was the synchronous and asynchronous group chatting facility provided by social media communication tools. Groups also met in person to coordinate the group when there were conflicts of opinion between group members due to different preferences. The following quotes from two group illustrates the reasons for and methods of collaboration during travelling:

> We created a Facebook group in Messenger to update everything related to our trip. We used to send message every morning to the group to let them [group members] know the timing of breakfast, and location to meet like hotel lobby for group discussion to discuss trip activities and others. We also sent message with the group if anybody went for a walk, swimming or gym to update about every member. (Group 11)

> When we were at India [holiday destination], we used WhatsApp and Facebook for our group communication because they [social media] support group communication and we could send messages and any information to the group. (Group 5)

In summary, the primary method of collaboration with tour mates while travelling at the destination was in-person meetings, whereas social media communication tools were the primary method of collaboration based on the situations of collaborators. For instance, when collaborators stayed together during the execution of a group trip, they chose to meet in person to have group discussions. Other than this, the situations or factors that led to adopting a group communication method depended mainly on the time needed to make decisions and types of information. In other words, a group of tourists utilised methods of collaboration other than meeting in person when they had enough time to make a decision. It was also noted that the situations in which they chose the means for group communication were dissimilar too due to the period in between information seeking and decision-making.

4.2.4 RQ 3: Circumstances of social media use during travel

Due to the experiential nature of tourism products (Litvin, Goldsmith, & Pan, 2008), tourists share their experiences, moods, and emotions with others on social media during the trip far more widely than before (Tao & Tombros, 2016). In addition, they gather timely and accurate information related to their travel when they plan for a trip as well as when they are on holiday at the destination.

In this section, we present the circumstances of social media usage while travelling based on the questionnaire findings and later, more details on the circumstances in which tourists employed social media in this context.

4.2.4.1 Circumstances for social media use in CIS

As mentioned previously, a circumstance is referred to as a situation in which social media was used. To have an understanding of the circumstances of social media use by tourists during travel, an open-ended question was put to participants: "Did you use/access social media when you were holidaying at your destination? If yes, what were the situations for using social media?" It was found that 82.22% of respondents accessed social media during the trip to perform collaborative information seeking and sharing activities when they needed to share information with others, obtain information for certain decision-making tasks, get updates and communicate with others.

As shown in Figure 4.14, most of the participants (62.16%) utilised social media (e.g., Facebook) throughout the travelling period to share trip-related activities individually with others in their networks and to collaborate with tour mates in sharing necessary travel information. Of the participants, 32.43% used social media to obtain a variety of travel information (e.g., places to visit, routes, restaurants, events and festivals) by searching on social media. A total of 24% of the participants used social media to get regular updates on local news and keep an eye on the activities of family members and friends in their networks which were not necessarily relevant to their current trip. Finally, 13.51% of the participants used social media to communicate instantly with tour mates and with family members and friends on the other side of the world.

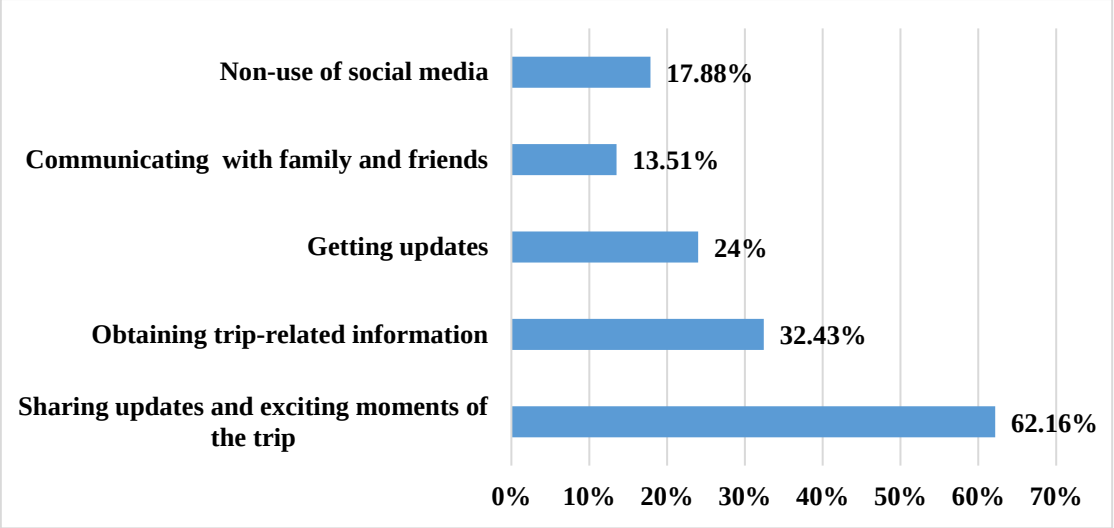


Figure 4.14: Circumstances of social media usage by participants during the trip

The following quotes demonstrate the use of social media by respondents during travel:

> Participant 4: The reason of [for] sharing is [that] [the] services of the restaurant was bad.' [*Sharing information (experiences) with others on social media*]
>
> Participant 6: [I] shared my updates and check-in information during the trip (photos of food, and visiting places) to let my family know about my status.*'* [*Sharing information (updates) with others on social media*]*'*
>
> Participant 16: [I] used telegram to communicate with friends [tour mates] during travelling time to share [determine] time [when] to have breakfast, [when to] leave hotel and [to] plan of next day [day's activities].' [*Sharing information with tour mates to collaborate*]
>
> Participant 25: I used social media to gather information like journey plan [s], admission fees and general ideas about the place.' [*Seeking information via social media*]
>
> Participant 26: To keep updated with carnival events at destination, news and keep connected with friends in my networks.' [*Getting updated news via social media*]
>
> Participant 30: It is the easiest way to communicate from a different country as most places had free Wi-Fi and I did not have [a] global sim card in [on] my phone.' [*Keeping in contact through social media*].
>
> Participant 34: Facebook was the easiest way to communicate with friends and family back home while we were on the trip. Our friends and families could see the places we visited. We also used Viber to update our friends of our whereabouts.' [*Keeping in contact with family and friends*]

It is interesting to note that 17.78% of respondents (Figure 4.14) did not use any social media due to a lack of Internet, security issues related to online browsing and the belief that using social media during travel was a waste of time. Two participants stated the following:

> Participant 43: [I] only accessed Gmail account to communicate. I did not use [my] mobile devices to access social media (Facebook) as I was concerned about the international privacy and safe browsing online.
>
> Participant 45: I did not use social media during my vacation because I wanted to enjoy the valuable surroundings with my partner without wasting time on social media.

Further details relating to the circumstances of social media use during travel are presented below.

4.2.4.2 Circumstances of social media use during CIS

Analysis of the interview transcripts resulted in the identification of four categories of circumstances of social media usage at the destination: a) re-planning of the trip, b) sharing of information, c) getting updates on news and people, and d) communicating with people. We report the complete use of social media in this section. Each category consists of two sub-categories, as shown in Table 4.10.

i) Circumstances related to re-planning of the trip

As mentioned, all groups (14) went through a phase of re-planning the original trip plan to change places to visit and restaurants in particular due to bad weather, conflicts in the timing of multiple events, participants' physical condition and having more or less time available than anticipated after performing the scheduled preferred activities.

Table 4.10: Circumstances of social media use by participants during travel

Circumstances for using social media during the group trip		**Description**	**No. of**	
Category	**Sub-categories**		**Participants**	**Groups**
Re-plan of the trip	Seeking and gathering tailored information	Tourists seek and gather tailored information via social media to re-plan travel activities during the execution of the trip.	29 (76.32%)	14 (100%)
	Cross-checking of information	Cross-check travel-related information during re-planning trip activities during travelling at the destination.	18 (47.37%)	12 (85.71 %)

Sharing information	Sharing experiential travel activities with family and friends	Social media is used predominantly by tourists to share their ongoing travel activities with their family members and friends.	20 (52.63%)	13 (92.86 %)
	Sharing post to seek travel suggestions	Tourists used social media to share or post queries to seek travel suggestions on particular topics during the trip	4 (10.53%)	4 (28.57 %)
Getting updates	Getting updates on local news and events	Tourists used social media to get local news and information on events that are going on and upcoming at the destination	11 (28.94%)	9 (64.29 %)
	Getting updates on family and friends	Social media updates tourists with the recent activities performed by their family members and friends	17 (44.74%)	8 (57.14 %)
Communication	Keeping in touch with family and friends	Tourists used social media as a communication tool to keep in contact with their family members and friends while they were on travel	26 (68.42%)	14 (100%)
	Collaborating with tour mates	Social media is utilised by tourists to collaborate with accompanying tourists during the trip at the holiday destination	28 (73.68%)	10 (71.43 %)

Two specific circumstances related to re-planning of the trip were identified: seeking and gathering customised ideas and information, and cross-checking required information. The most common circumstance relating to re-planning the trip was seeking and gathering tailored information. 29 (76.32%) of 38 participants from 12 groups reported that they sought and gathered specific tourism information using social media. Specifically, they searched for the opening and closing times of museums, the best route to the hotel from the airport, the best transportation for roaming around the city, and show times of movies by browsing tourists' experiences on different blogs and contacting experienced tourists on social media to sort out their next activities immediately. The underlying reason for using travel blogs, forums and the Facebook pages of various travel groups was that social media facilitates and presents the diverse experiences of many tourists. The following quotes exhibit the seeking and gathering of information during the trip:

> When we reached in Dubai airport, I (a member of the group) was running to exchange currency that was near to me and searched information about it (money exchanger). I found bad reviews on that and suggested another money exchanger within 0.5 km distance that was the biggest one and offer best rate among all exchangers in Dubai. (Group 2)

> During our holiday in Italy, I (a member of the group) have read some comments of others from blogs to get information, for example, time when I need to leave hotel to get there (museum) and how many hours I need to visit the museum. (Group 6)

In addition, 19 (47.37%) of 38 participants from 12 groups (85.71%) mentioned that cross-checking of required information via social media made them confident in choosing tourist spots, activities, restaurants and routes. As the holiday destinations and associated activities were new to them, participants wanted to make informed decisions using social media. For example, two groups explained:

> We always checked on the restaurant before we go there. We read reviews and recommendations to decide on the restaurants. In addition, we used to cross-check about the cost of foods (expensive or cheaper) through reviews as we don't know anything about the type of restaurant and price of foods. So, when travelling, we want to make sure second time on every activity via other's experiences as we don't live in the city. (Group 3)

> We used Google Maps to figure out the routes of destination (routes of going to tourist's spots, restaurants, hotels, and shopping) to keep checking whether the route was right or wrong even though the taxi driver knew the destination. Because we wanted to ensure that we didn't lost our way to reach the destination. (Group 8)

ii) Circumstances related to sharing trip information

During the trip, social media was used significantly to share travel-related information. In this study, this refers to sharing experiential travel information, as the posts consisted of opinions and emotions (happiness or sadness) along with photos or videos about tourist places and traditional local food shared on social media. Group members also posted information about safety and awareness, with recommendations (e.g., be careful about theft if you visit this park) for prospective tourists when they encountered to. Of the participants, 20 (52.63%) from 13 (92.86%) groups mentioned that they shared images, videos, location information and experiences about their trip on social media because they wanted to show their travel activities to family and friends, store these good memories on social media for themselves and provide useful travel information for future travellers. Two groups commented:

> I did keep posting on Facebook and Snapchat throughout my trip. I did this to share with my friends about the amazing places I visited, and great food I eat, etc. I tagged my mom so that she doesn't need to post. (Group 4)

> I posted some pictures including The University of Sydney, Sydney Opera House, Darling Harbor, Sydney Harbor Bridge, Bondi beach on WeChat and Facebook. Because the

> scenery in these places is very beautiful and amazing, I want to share it with my friends and family. (Group 12)

It is worth noting that participants also posted queries on social media about specific travel questions due to the lack of domain knowledge within the whole group. Of the participants, 4 (10.53%) from 4 (28.57%) groups posted queries on WeChat and Facebook to query information, as the participants in these groups did not know about a particular topic. For example, two groups stated:

> When we were in Brisbane, I (one of the group members) posted a query on baidu and got many replies. Some of the replies were very useful. For example, I posted "How to get refund of Metro card" and I got a useful reply that I can post the card to certain address even after reaching home. (Group 4)

> I (one of the group members) posted a query on TripAdvisor to know about the price of the hotel and the best offer they can provide me within my budget. (Group 6)

iii) Circumstances related to getting updates

Getting updates on local news and events played an important role in the participants' use of social media during the trip: those who were more concerned about local crises, safety and security on local transportation, and at a nightclub, ongoing local events (e.g., fairs and festivals) and local weather reports at destinations. Of the participants, 11 (28.94%) from 9 (64.29%) groups expressed interest in the local news at the destination and considered it a main reason for utilising social media during the trip. One participant from a group said:

> I checked information about Philip Island (when the island is open and we can see penguins). I found we had to go [starting time] there in the evening and wait until midnight to see penguins. We changed our plan to go to Philip Island after our group discussion due to the bad timing [midnight]. (Group 9)

> We also looked up for local news and weather over there to change our plan if needed.(Group 2)

In addition, some participants kept up to date with other family members and friends on social media while they were away from home. Of the participants, 17 (44.74%) from 6 (57.14%) groups reported that they always used social media like Facebook, Instagram, Snapchat and WeChat whenever they were in the network to check statuses, photos and videos posted by dear ones, and notifications of upcoming events and birthdays. One group mentioned:

> We always see newsfeed on Facebook to check updates on my friends and family back home while we were on the trip. (Group 7)

iv) Circumstances related to communication

The ubiquitous use of smart mobile devices has made social media readily accessible. Social media, therefore, plays a key role in participants' means of communication with other people. During their trips, 26 (68.42%) participants from all 14 groups employed social media (e.g., Facebook Messenger, WhatsApp, and WeChat) to talk with family members and friends to report peace and progress regarding the travel as well as to obtain travel-related suggestions. A participant from one group commented:

> I (one member of the group) often used Facebook messenger to talk with my mom and sister to inform my location and activities and with my friends to catch up and know [learn about] the nearest attractive places and restaurants because he had been there. I used Facebook messenger because phone calls are expensive as I was on roaming whereas it is cost-effective and easy. (Group 6)

Of the groups, 10 (71.43%) out of 12 used social media to collaborate with tour mates, coordinate the group members and share travel-related information. For example, every tour created a tour group to share information, including times and locations to meet for group discussion and leave the hotel as a group, and addresses of places to visit and restaurants to coordinate the group. Two groups commented:

> Facebook messenger was more for a reason we [tour mates] communicated through when we need to share information [name of place/activity] or when we were trying to pass certain thoughts about the place. (Group 14)

> We sent our activities to do, time to meet in the ground floor for finalising which activity we will do first, and time to leave to hotel to our Facebook messenger group. (Group 13)

It is worth knowing that during the group trip, not all group participants were involved in all types of trip-related tasks connected to social media due to being a dependent of other tour mates, responsible for specific tasks, or inexperienced at social media usage.

In summary, the circumstances of social media use in the travelling phase are different from those in the trip planning phase. Specifically, tourists used social media for a variety of reasons including re-planning trip activities, sharing trip-related experiences like activities, getting updates about destinations and family and friends, and communicating with group members and friends and family back home. On the other hand, during the trip planning phase, tourists used social media mainly to seek a wide range of information so that they could make well-informed travel-related decisions. They also employed social media for collaboration purposes. Therefore, it can be argued that social media is used significantly in both phases of a group trip to fulfil tourists' information needs as well as offering a collaborative tool.

4.2.5 RQ 4: Collaboration on social media during group travelling

Section 4.1.4 showed that two types of collaboration occur to fulfil the group's information needs in the group trip planning phase. This study, therefore, was interested in exploring whether a group of tourists also requires collaboration while executing a group trip. First, this section presents the findings of the questionnaire survey about collaboration that took place during the group trip (Table 4.11).

Table 4.11: Types of collaboration occurring during travel at the destination

Types of collaboration	Description
Social interactions on social media	A group of tourists collaborates with others (not part of the tour group) via social media to obtain relevant tourism information.
Intra-group collaboration	A group of tourists collaborate within the tour group to ask for opinions or reasoning and to make joint decisions.

4.2.5.1 Social interactions on social media

The questionnaire results identified two types of collaboration that took place during holidays, such as intra-group collaboration (within the tour group), and collaboration outside of the tour group. As shown in Section 4.2.1, we found that the groups of tourists were required to re-plan their trips while travelling due to individuals' health conditions, changes in the local weather, conflicts in the timing of trip events and the preferences of group members. To re-plan trip activities, tourists in the group collaborated with other social media users (who did not belong to the tour group) who had already visited the location before to satisfy their on-site information needs. On the other hand, intra-group collaboration is defined as collaboration between tour mates to fulfil trip-related informational needs and resolve issues. In this study, collaboration outside of the tour group on social media is referred to as social interactions on social media.

Due to the critical nature of information access and processing, there are many situations which require using both social and collaborative ties to search, retrieve and use information (Shah, Capra, & Hansen, 2017). For instance, it is found that tourists interact with others for various purposes during both trip planning (Mohammad Arif et al., 2015) and the visit (Talja & Hansen, 2006). To identify the social interactions that took place for information seeking on social media during CIS, an open-ended question was asked: "While travelling throughout the

destination, did you communicate with anyone else from social media who was not a part of your trip for trip-related purposes? If yes, who and why?"

The survey results showed that tourists collaborated on social media through social interactions during CIS activities while holidaying at the destination. This collaboration can be divided into two types: direct and indirect social interactions on social media. 'Direct social interactions' refers to the interactions between humans on social media wherein a tourist seeks trip-related information from others who are not part of the trip. In contrast, 'indirect social interactions' refers to the interactions between human (tourist) and non-human sources of information on social media, such as blogs, forums and the social media pages of tourism websites. Figure 4.15 shows the types of social interactions on social media employed by tourists for the purpose of seeking and sharing information during the group travel.

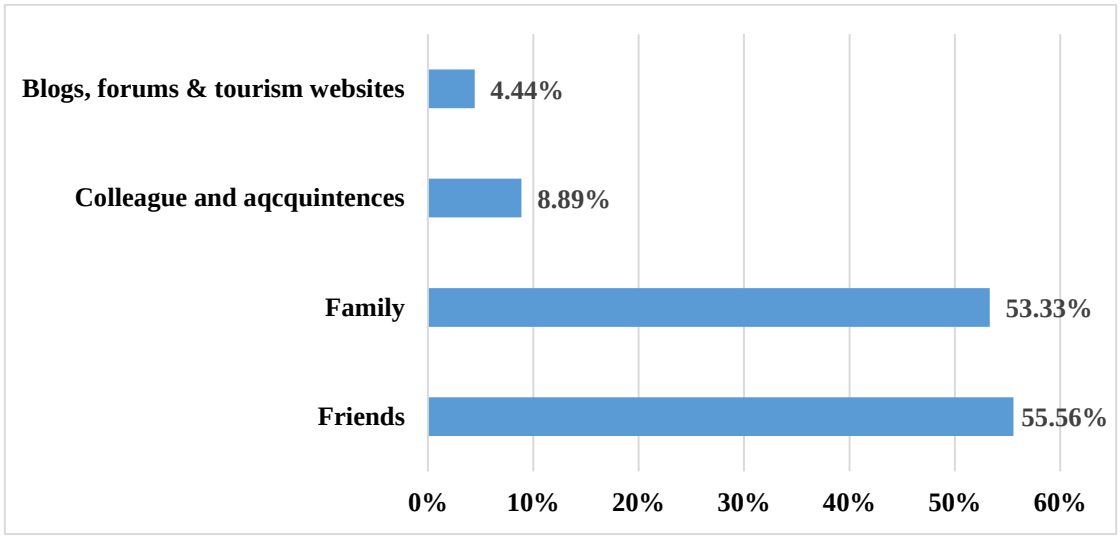


Figure 4.15: Social interactions utilised by tourists during travel

As shown in Figure 4.15, more than half of the respondents communicated with their friends (55.56%) and family members (53.33%), colleagues and acquaintances (8.89%), and blogs, forums and the social media pages of tourism websites (4.44%). It can be argued that while travelling at the destination, tourists preferred direct social interactions, particularly with friends and family members, to indirect social interactions to fulfil their immediate informational needs; this is perhaps due to the more reliable information provided by direct social interactions as well as the IM and real-time communication facilities offered by social media. Quotes from the participants demonstrate the occurrence of social interactions:

> Participant 12: Yes, [I] communicated with my mum [family] and best friend [friend]. Asked for advice as [my] mum had been some of these countries before.

> Participant 18: Yes, I talked with [a] friend to know [learn about] the nearest attractive places and restaurants because he had been there.
>
> Participant 26: Yes, [I] contacted with my brother [family] and also read some blogs to know [learn] about weather, [the] population there and route.
>
> Participant 38: Yes, I messaged my colleague about a carnival event because [as] he was there last year.

Section 4.2.5.1 showed that groups of participants collaborated with other social media users during group travel to satisfy their information needs. In this section, this study focusses on the types of social interactions and motivations employed for such social interactions on social media.

4.2.5.2 Types of and reasons for employing social interactions on social media

During group travel, four types of tourism collaborative activities were performed by groups of participants, including seeking and sharing information, verifying information, coordinating the tour group regularly, and solving conflicts among group members. These mainly prompted participants to carry out social interactions via social media. Specifically, groups of participants conducted information seeking and sharing and validation tasks to re-plan their trips by interacting with others on social media. Based on the interview transcripts, two different types of social interactions were employed: direct social interactions and indirect social interactions. Definitions of direct and indirect social interactions on social media are given in Section 4.2.5.1. Following are details of both types of interactions on social media utilised by the interview participants.

4.2.5.2.1 Types of social interactions on social media

i) Direct social interactions

As previously reported, 8 groups (57.14%) stated that they interacted with others via social media (Facebook Messenger, Instagram, WhatsApp and WeChat) to re-plan their trip activities, routes and modes of transportation. They also made new decisions about selecting restaurant, since they did not plan for this during the trip planning phase.

When information seeking through social media, 75% of participants from 6 groups collaborated with experienced tourists (i.e., close friends and family members) with whom they had strong ties. They used Facebook Messenger, WhatsApp and WeChat to communicate with them because they could talk and exchange web links, photos, address and suggestions as

message simultaneously. Of the participants, 25% from 3 groups utilised weak ties, including friends via Facebook Messenger, Facebook travel groups, WhatsApp and WeChat, to seek destination-related information.

ii) Indirect social interactions

All interviewed participants from all groups mentioned that they used indirect social interactions while seeking tourism information at the destination. Specifically, they accessed different forms of social media including personal travel blogs, the Facebook pages of various travel groups and travel websites, personal experiences shared on Facebook, WhatsApp and WeChat groups to seek needed information.

4.2.5.2.2 Reasons for employing social interactions on social media

As information seeking via social interactions on social media was performed by individual tourists, the reasons for conducting such individual information seeking activities during travelling are discussed below.

i) Seeking and validating particular information

In the execution of the group trip, seeking and validating particular destination-related information due to alterations to trip activities such as attractions, restaurants, transportation and routes was one reason for collaborating with other social media users who had experience of visiting the same holiday destination. Groups of participants were found to interact with others via social media if they had experienced tourists in their connections or to go through experiences and suggestions to seek and validate their ideas about the prospective places to visit, local cuisines and events when they needed to re-plan their group trip due to physical illness, bad weather, public holidays at the destination, and differences in choices. The following quote demonstrate the necessity of information seeking:

> We changed our travel plan after reaching Tokyo because of weather. First we planned to go to botanical garden but we got rain and changed our plan to visit shopping centre instead of going to outside. I searched about shopping centres on Facebook because I can see some pictures and opinions of other tourists. But for restaurant, I also checked some Chinese blogs to find experience of Chinese people as I am from Chinese background. (Group 8)

Participants in groups also used social interactions at the last minutes when executing activities to validate their plans and changed their plans later on. For example, a group mentioned:

> We have changed the arrangements in Noumea and Lifou Island. At first, we plan [ned] to take group tours in these two places despite high costs for that. However, as we read some travelling blogs from other tourists, we find [found] it convenient and interesting to travel by ourselves. Finally, we spent the time in these two places by ourselves. (Group 4)

ii) Finding information instantly

Another reason for utilising social interactions via social media during travel was to find and obtain needed information faster and more confidently. Due to the availability of information from real tourists on social media, participants made informed decisions instantly or on the spot, based on the opinions of known tourists and reviews from many tourists. A family group commented that:

> I never found any reviews and suggestions are wrong so far. So, I always look at the people's experiences [unknown] and friends and relatives opinions [known if anyone is available] when I travel to make any decision. (Group 1)

Participants in groups also made on-the-spot decisions by contacting experienced friends (social interactions) whose advice was trustworthy and dependable with regard to performing adventurous activities. They also obtained the needed information in real time from known persons by means of social media. A group of participants said:

> When we were at great ocean drive, we saw a helicopter ride but we were confused whether we should go for it or not because nobody in our groups had any idea about this and it was expensive. One of our friends [group member] called his friend [via WhatsApp] for his opinion and he suggested us to have the experience. We together took decision and went for the ride. It was really a lifetime experience for us. (Group 7)

In summary, it was found that groups of tourists interacted with other social media users on social media even in the travelling phase because they sometimes needed to obtain information instantly regarding tourism products and services. However, social interactions motivated a group of tourists more in the trip planning phase than in the travelling phase since tourists had to plan for the entire trip by purchasing a series of tourism products such as flight tickets, hotel bookings and local transportation and sightseeing tickets during the trip planning phase. Thus, the trip planning phase involved more information seeking activities (as discussed in Section 4.2.4).

4.2.6 RQ 5: Influence of social interactions on group travel

In this study, the influences of social interactions on social media are referred as the influence of obtained information via social interactions on the decision-making process regarding tourism products and services, as well as the contributions of such interactions to CIS.

4.2.6.1 Influence of social interactions on collaborative decision-making

4.2.6.1.1 Influences of social interactions on tourism products

Since social media is widely used during the trip planning process as well as during travel at the holiday destination (Fotis, Rossides, & Buhalis, 2010; Tan & Goh, 2015a), this study was interested in learning whether social interactions on social media influence trip activities or decision-making when tourists were on the holiday. To understand the types of influence social interactions had on groups of tourists during their holidays, an open-ended question was asked of participants: "During holidaying/travelling at the destination, did you change your mind in the selections (destination, accommodation, restaurants, and activities at destination) after communicating and/or discussing with other social media users or reviewing information from social media? If yes, what and why?"

The questionnaire results found that 55.56% of participants changed their minds about destination-related tourism products, which were restaurants (80%), attractions at the destination (72%), transportation (48%), and routes (40%), due to interactions on social media (Table 4.12).

While holidaying at the destination, participants were found to utilise social interactions on social media during information seeking to make decisions and changes to trip activities. For example, participants stated that:

> Participant 2: We use to go to restaurant in our Europe tour seeing ratings and people's reviews because nobody [tour member] had any idea about restaurant there.
>
> Participant 3: We changed the rote. For example, we went to hotel from airport by train after discussing with my friend but we first plan [ed] to go by bus.

Table 4.12: Changes of decisions about tourism products due to social interactions on social media

Tourism products	**Yes to changing of decision about tourism product (%)**
Restaurants	80
Attractions at destination	72
Transportation	48
Route	40

While 44.44% of participants did not change their decisions about the tourism products after obtaining information on social media, they mentioned that social media helped them to get

updates about happenings at the destination and back at home, as well as keeping up to date with the tour group. Two participants mentioned that:

> Participant 28: We didn't change anything but we were always connected with our family and local news.
>
> Participant 33: We didn't change but it helped us to contact with friends [tour mates] during our travel.

4.2.6.1.2 Further details on influences of social interactions

This section discusses more details of the social interactions employed by groups of participants via social media while executing their group travel. The following section explains the influences of both types of social interactions on the group trip. The interview transcripts explore how all groups of participants took part in social interactions on social media when holidaying at their destinations because they had to re-plan some parts of the trip, such as activities and places to go, as well as to making decisions instantly about tourism products such as restaurants, routes, transportations, and places to visit.

Out of the two types of social interactions, more than half of the groups (8 groups, 57.14%) reported that they had direct social interactions with friends and family members to ask for experiences and suggestions or verify information regarding tourism products. On the other hand, all groups (100%) had experience of conducting indirect social interactions on social media to seek tourism information, as the information acquired via indirect social interactions is experiential. Following are the influences of direct social interactions via social media when groups of participants were holidaying.

a) Influences of direct social interactions on tourism products and services

There are some situations that arise while holidaying at the destination when pre-planned trip activities do not work completely and re-planning or altering some parts of the trip plan is required. There are also some parts of the trip (e.g., choosing a restaurant for every meal), which tourists do not plan at the pre-trip phase because they want to decide based on their situation during travelling. In such cases, tourists (groups of participants) searched for information to re-schedule group trip activities, including places to go and things to do, by means of social interactions. Following is a discussion of the impacts of direct social interactions on the decision-making process.

i) Deciding on local attractions and activities

The interviewed participants expressed that they had experience of information seeking and verification of ideas when they were on the group trip. In particular, they extensively sought ideas and suggestions about places to visit and activities in order to make on-site decisions rapidly. They contacted their friends and family members via texting or calling on Facebook Messenger, WhatsApp or WeChat to ask for opinions and suggestions of places to go, such as botanical gardens and shopping malls and scenic places such as Snowy Mountain, beaches, and the Fuji Mountain lookout. One possible reason for such direct social interactions while travelling as a group was to enable an informed and confident decision based on direct conversation with experienced and reliable persons. In addition, tourists performed adventurous activities like snowboarding, swimming, and riding in a helicopter based on direct suggestions from experienced friends. Two groups of participants mentioned:

> My son likes swimming but we don't know any place where he can swim. I called my friend (WeChat) to know about swimming place and she suggested me to take him to south bank, Brisbane where he can swim whole day and it was free. We went there and we all liked the place very much. (Group 1)

> We didn't have any knowledge about snow type activities. I talked with my friend to get tips on snow related activities. He suggested me to do snowboarding and we did it though it was bit risky for us as first timer. At the end, we all liked it. (Group 7)

ii) Deciding on restaurants

Most of the groups (78.57%) mentioned that they did not have a proper plan for the selection of restaurants during trip planning because they wanted to keep this part of the planning adventurous and make food decisions based on their situations. In other words, groups of participants wanted to decide on restaurants by considering their current locations and find restaurants by themselves while travelling. During travel, more than half of the groups (54.54 %) reported that they sought restaurant-related information from their friends and family members because they had some special dietary requirements. They also did so because they wanted specific suggestions or opinions about local authentic restaurants or cuisines so that they did not have any bad experience when dining. For example, two groups commented:

> I [member #1] sent message to my friend who had been in this restaurant [special sushi bar] to know whether going to this restaurant would be worthy or not. Because, this restaurant has always long que and take 4-5 hours to enter. We went there because of my friend's strong suggestion though we had to wait from 12 a.m. to 5 a.m. in the morning. But we were really very happy after eating sushi there. (Group 10)

> We asked my sister to suggest some restaurants in Abu Dhabi because she had experience. We went to a kebab shop according to her suggestion. (Group 3)

iii) Deciding transportation

There were some groups (5 groups, 35.71%) who changed their minds about using a mode of public transportation due to direct social interactions while travelling from one place to another at the destination. The reason for this change of planning was that participants found that their pre-planned transportation would not work well due to a lack of available online information and bad experiences such as long intervals between buses. For example, when a group of participants were travelling from their hotel (in Brisbane) to a tourist venue (Surfer's Paradise, the Gold Coast), they obtained information from their friends about transportation, who suggested that they go from Brisbane to the Gold Coast by bus instead of train as the cost and availability of the bus were better than the train on this route. A family group mentioned:

> I [one member of the family] called my friend (via WeChat) to get her opinion about transportation because I didn't find any good information or experience in Internet. My friend told me to go by bus because it is cheaper and service is good. (Group 3)

b) Influence of indirect social interactions

Almost all of the interviewed groups had experience of accessing various forms of social media, including the personal blogs of tourists, the social media pages of travel websites, travel groups and tourism service operators (e.g., TripAdvisor, Airbnb, Qyer, and Kayak) to fulfil their need to seek and validate information needs while holidaying. This study determined that tourists experienced a few influences due to indirect social interactions (blogs, social media pages of travel websites, travel groups, and tourism service operators) during their trips.

i) Deciding local attractions and activities

Out of 14 groups, 71.43% reported that they sought and validated tourism information about local places to visit and activities via indirect social interactions when they needed to re-plan their trips. They utilised indirect social interactions such as tourism blogs, the social media pages of travel websites, tourism service providers and travel groups on Facebook, Twitter, WeChat and Instagram to decide on tourist spots and activities because a wide range of reviews, opinions, and experiences including photos and videos are available from a large sample of tourists. More particularly, since the groups had to make decisions about new tourist spots instantly, the reviews and opinions of other tourists help them to verify their thoughts. A family group stated that:

> At first, we plan [ed] to take group tours in these two places [Noumea and Lifou Island] despite high costs for that. However, as we read some travelling blogs of other tourists, we find [found] it convenient and interesting to travel by ourselves. Finally, we spent the time in these two places by ourselves. (Group 4)

> There was rain in second day when we visited Bali. So, we changed our plan to visit a temple near to the hotel [reading reviews on TripAdvisor and suggestion from our taxi driver]. First we planned to visit an island and parasailing but we couldn't do it because of rain. (Group 12)

ii) Deciding restaurant at destination

All of the interviewed groups of participants mentioned that they sought out suggestions or tips from blogs of tourists, the social media pages of travel groups, travel websites and tourism service providers to help them select restaurants while executing trip activities at their destinations. They also used Google Maps to find directions and ratings as well as wide-ranging reviews provided by other diners. Such evaluation of foods and restaurants helped them to match up their requirements and make quick decisions. Some groups of participants (28.57%) reported that they employed both direct and indirect social interactions to decide on restaurants, to verify information and gather more information (reviews). Two groups said that:

> We always used Google Map to find restaurant because it was handy and useful source for our restaurant-related information. Our group had special requirements because we were vegan and used Google Map to find vegan or Indian restaurant during our trip. (Group 8)

> At the beginning, we planned to go to Hungry Jack for eating. But that time, my friend send [sent] the restaurant (Rock Pancake nearby Darling Harbor) address by webchat, and he recommended this one, then I and my husband went to eat pancake. We changed our restaurant because of him. (Group 4)

In summary, this study suggested that social interactions on social media had a significant impact on the decision-making process relating to on-site tourism products and services. Specifically, social interactions on social media helped the groups of tourists when they needed to change which places they would visit, make decisions on restaurants and alter their routes and transportation when travelling by providing high-quality information (i.e., suggestions and reviews from experienced tourists). The findings of this study are different from those of prior studies of CIS in the tourism domain (Ho et al., 2016; Mohammad Arif et al., 2015; L. Zhang et al., 2018). For example. previous studies (Ho et al., 2016; Mohammad Arif et al., 2015; L. Zhang et al., 2018) showed how the groups of tourists shared information within the group and collated information to make decisions during the trip planning phase, but not in the travelling phase. However, the current study has revealed how social interactions on social media work

for group members or serve as a guide for the groups of tourists by facilitating ideas and reviews of tourism products and services during the travelling phase.

4.2.6.2 Contributions of social interactions on social media in CIS

Based on the results of the questionnaire survey and group interviews, this section shows how CIS behaviours during the travelling phase can benefit from social interactions on social media.

While searching for information on the web, tourists sometimes face difficulties in obtaining relevant information and making decisions due to information overload and the overwhelming quantity of tourism-related websites (Lamsfus, Grün, Alzua-Sorzabal, & Werthner, 2010). As a result, they have adopted social media as a way to seek and share information during trips, to assist in confident decision-making (Leung et al., 2013). To identify the contributions of social interactions on social media to CIS tasks undertaken while travelling, an open-ended question was asked of participants: "How did information obtained from others on social media or search on various social media platforms help you during the trip?"

The results of the questionnaire identified three benefits of information obtained via social interaction on social media to CIS, which were getting information, validating information, and making an informed decision quickly (Figure 4.16). Of the participants, 44.44% used tourism information including photos, videos, and suggestions from other tourists posted on social media to conduct their group trip. During the trip, participants utilised social interactions to gather ideas, opinions and suggestions as well as to cross-check new ideas before making decisions. In addition, 26.70% of participants made informed decisions during their holidays using information shared by experienced tourists. In other words, participants gained enough knowledge from other tourists' experiences to make fast on-site decision.

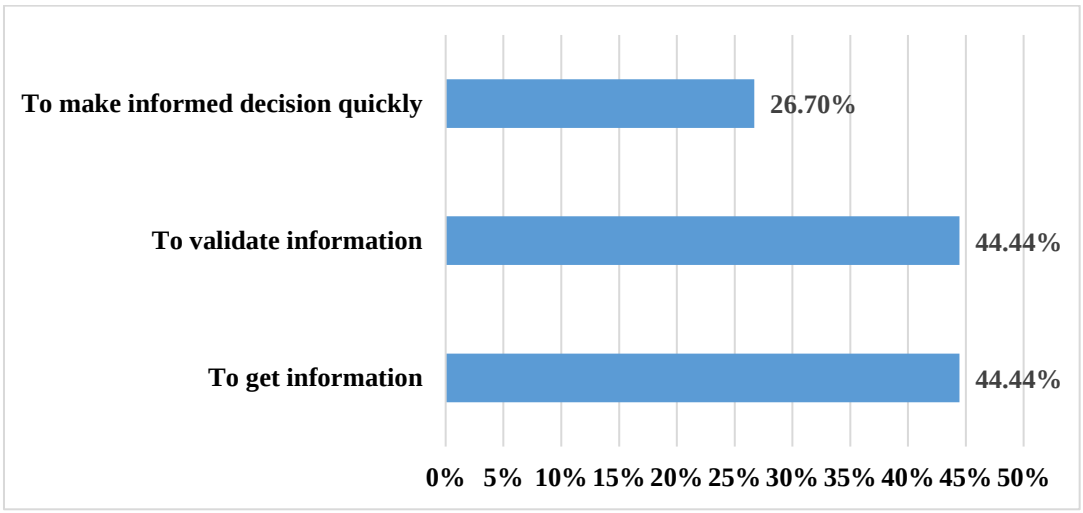


Figure 4.16: Contributions of social interactions on social media to CIS

The interview transcripts examine further details of the contributions of both types of social interactions on social media in the context of group travel. Following are the benefits of using social interactions in CIS while holidaying. Table 4.13 presents the summary of contributions of social interactions on social media during execution of the group travel.

Table 4.13: Contributions of social interactions to the execution of group trips

CIS activities	Contributions of social interactions
Seeking and sharing gathered information and opinions	Improve productivity of information seeking by sharing rich information gathered by members from others via social interactions on social media.
Seeking needed information	Speeding up the information seeking process through direct interactions with experienced tourists.
As tour guide	Overall, social interactions work as tour guide by providing proper guidance on every aspect of the ongoing-trip.
Making collaborative decisions	Assist in making well-informed collaborative decisions instantly on trip activities during holidaying.

4.2.6.2.1 Improving the productivity of information seeking

Social interactions on social media boosted the productivity of information seeking while a group of tourists was holidaying. Specifically, groups of participants admitted that they collaborated with others via social media to obtain necessary trip-related information when group members did not have the necessary skills to complete the task or realised the importance of involving others from their networks. For instance, the group members who were social media users or expert in information seeking took responsibility for seeking, gathering and verifying information by scanning the experiences of and making contact with other experienced tourists on social media. Thus, they obtained information via social interactions to improve the productivity of their information seeking, which eventually helped them to re-plan their group trips duirng travel. One group of participants mentioned that:

> To know the detail bus timetable from Newtown to city in Sydney, I ask [ed] my friend using WeChat because he visited Sydney many times and knows more information about this. I [another member of the group] do not contact anyone but I used www.tuniu.com [blog] to search information and we discussed all information [search results and obtained information] to have the better result after discussion. (Group 10)

4.2.6.2.2 Speeding up the information seeking process

Social interactions speed up the process of information seeking by tracking local news or happennings in real time as well as providing genuine facts about tourism products. For example, updates about tourist spots, e.g., times and warnings for accessing the local beach, helped tourists to re-schedule or alter their choice from the beach to another visiting place, e.g., indoor activities. In addition, participants stated that they posted status updates or queries on social media (i.e., Facebook, Instagram and WeChat) in order to get recommendations about key local tourist places and safety and security for particular visiting places and restaurants from peers in their social networks due to a lack of knowledge. Thus, real-time social interactions on social media sped up the process of information seeking. A group mentioned that:

> On day 3 of our trip, we wanted to go to a shopping centre, but we don't [did not] know the opening hours of shopping centre. So, I asked my friend using WeChat. He replied to [the] specific business hours. This helps us to get information quickly and arrange the time to go to the shopping centre. (Group 13)

> I [member #1] searched on social media and it helped me to find information easily. For example, when I wanted to go somewhere but I didnt know how to go, when I want to have dinner but I don't know where there is good restaurant [Japanese restaurant] nearby etc. I [member #2] also used blog to find information. (Group 10)

4.2.6.2.3 As a tour guide

Research shows that information plays an important role in decision-making during trip planning as well as in the travelling phase. During trip execution, social interactions on social media are considered to function as tour guides for tourists because social interactions guide the tourists by offering relevant information about the places they are visiting, including history and culture, and the activities they are performing. Tourists were found to change the places they visited place due to information gained via social interactions such as comments on the Facebook page of a tourist place (museum). For example, a family group said:

> We changed our decision reading other people's comments on Facebook. For example, we planned to visit a museum [during trip planning] in Florence [Italy]. So, we went there and saw a long queue. We were in the queue and searching for information about how long we have to stand in the queue to enter the museum. We got it takes at least 4 hours to enter there and then, we decided to quit the line and went for shopping. (Group 5)

> we decided most of our trip activities based on other people's experiences. It worked as guide for our trip at New Caledonia. (Group 7)

4.2.6.2.4 Making changes on trip planning

when groups needed to re-plan trip activities such as the selection of restaurants, attractions, and activities at the destination, social interactions on social media provided sufficient information in the form of text, feelings, ratings, opinions, and images and videos to imagine the propective tourist spots, types of restaurants, and activities including advantourous things to do. A complete tour plan might also be shared on personal tourist blogs for potential tourist. Such social interactions assisted tourists to make on-site collaborative decisions quickly. The following quote illustrates the use of indirect social interactions via social media as contribution to re-plan a group trip when travelling at the destination.

> We did not plan the second day of our Melbourne trip. I [member #2] found their information [other tourist's experience on a blog] was useful because they posted the whole travel route information with where we need to get off the bus and where to go after getting off the bus. They also posted photos of every sightseeing places along the route that I found very attractive. Therefore, I just followed their plan and found it pretty helpful. (Group 14)

> We included some new activities in our plan bacsuae of my friend's suggestion. My friend suggested me to go to a gold mine and we went there and liked it. (Group 3)

Since tour groups re-planned the trip while travelling, the groups' specialists in social media usage took responsibility for seeking, gathering and verifying information by scanning the experiences of and making contact with other experienced tourists on social media. Afterwards, they shared, synthesised and discussed the information oobtained with their tour mates to narrow down preferences and make final decisions. In this case, not all of the members in a group participated in information seeking tasks due to a lack of knowledge, expertise and networks on social media, but they provided valuable input in the form of opinions and views on the gathered information in the group decsion-making process.

The findings in this section revealed that CIS behaviours such as seeking and gathering information and making collaborative decisions may benefit from utilising social interactions during travel. These results add to the knowledge of how tourists use social interactions to improve the CIS behaviours while executing a group trip.

4.3 Chapter summary

This chapter addressed the five research questions related to the groups of participants' tourism CIS behaviours in two different travel stages, namely, group trip planning and group trip execution. The results were presented in sections around the research questions. In this research, a mixed-methods approach incorporating a quantitative questionnaire survey and a

qualitative semi-structured group interview was employed. The data based on the questionnaire survey and in-depth group interviews has provided a comprehensive picture in response to each research question. The qualitative interview questions were constructed based on the results from the quantitative survey. For example, for both phases of a group trip, the questionnaire data provided an overview of triggers and methods for intragroup collaboration, circumstances of using inter-group collaboration on social media, types of inter-group collaboration occurred on social media and their influences on tourism CIS. Meanwhile, the qualitative results provided a better understanding on the phenomenon by exploring the personal experiences of the group of participants (tourists). For example, through the in-depth interviews, the characteristics of CIS activities, factors in choosing CIS methods, details on situations of using social media in group travel context, reasons of employing social interactions on social media (inter-group collaboration), and influences of such social interactions on tourism CIS behaviours were identified.

The next chapter will further discuss and synthesise the findings, and position them within the context of the available literature.

5. Discussion

This study conducted questionnaire surveys and in-depth group interviews with participants to explore the collaborative information seeking (CIS) behaviours of social media users during group travel planning and travel at their destinations. Specifically, it examined tourism CIS behaviours before and during trips, including triggers and characteristics of CIS behaviours, methods of intra-group collaboration, circumstances of social media usage, collaboration occurring on social media during CIS and the influence of social interactions on social media on decision-making. This chapter first discusses the findings from the trip planning phase in light of prior works. Next, it presents the findings from the execution of the trips in line with relevant literature. The findings will be useful to enhance our understanding of the CIS activities involved in group travel during both planning and execution. The results of this study may also provide some evidence for tourism marketers and service providers developing strategies for potential groups of tourists. In addition, the findings suggest guidelines for CIS system developers when designing tourism-specific CIS tools as well as for existing social media communication tools regarding integrating features for facilitating group activities.

5.1 During group trip planning

These days, travelling with family members or friends is a common practice. Collaboration between tourists is pervasive in the course of group trip planning and information searching due to the diverse and complex nature of tourism information needs and searches (Fardous, Du, Choo, & Huang, 2017; Mohammad Arif et al., 2015; Shah, 2014). This study adds an understanding of the characteristics of group trip planning, the social information horizon, and the influence of social interactions on social media on group trip planning. Next, a framework based on the empirical data in the collaborative information seeking (CIS) context is presented.

5.1.1 Characteristics of group trip planning

Since group travel is not uncommon, there are many elements of group trip planning that require collaboration between members of a tour group to complete the trip planning task. In addition, leisure tourists need to conduct tourism information searches to choose the right destination and make decisions about attractions, accommodation and transportation in order to enhance the quality of their trip by reducing uncertainty (Fardous, Du, Choo, Huang, et al., 2017; Gursoy & Chen, 2000; Tan & Chen, 2012). Therefore, determining the elements of group

trip planning will provide guidelines for tourism marketers and service providers to develop business strategies for groups of travellers as well as for individual tourists. It will also enable tourism service providers to design their websites to offer personalised services for groups of tourists based on the characteristics of CIS activities.

This study identified the behavioural characteristics of collaborative trip planning when a group of tourists plans for a group trip. The results of the questionnaire and group interviews revealed that group trip planning entails four characteristics: initial co-planning, seeking and sharing information, prioritising choices, and making collaborative decisions. Identifying group trip planning activities and characteristics provides new insight, in the sense that it illustrates that group trip planning is a complex task because group members are required to work together on tasks ranging from initial planning to making collaborative decisions about tourism products and services.

In addition, the results also suggested that group trip planning is a complex process which requires collaboration between the group members due to the requirement for preliminary discussion, the need to share opinions or preferences, a lack of knowledge and the necessity of decision-making. In particular, during initial co-planning, group members needed to work together on preliminary discussions about the upcoming trip, including selecting a holiday destination and possible trip-associated activities, and dividing trip-related responsibilities (i.e., information seeking and gathering tasks). Similarly, the remaining group trip planning characteristics (i.e., seeking and sharing information, prioritising choices and making collaborative decisions) also comprised collaborative activities relating to the trip. A prior study by Ho et al. (2012) presented a set of characteristics of online tourism information searching for an individual tourist in a non-collaborative context.

Ho et al. (2012) stated that a tourist experienced four stages of information searching, including the start of online searching, online searching, the end of online searching, and offline searching. Prior knowledge and experiences, online searching strategies, processing and recording of information, barriers to information searching, reasons for ending an online search, summarising information, exchanging and sharing information, and searching for more information via other auxiliary sources (offline search) were the parts of all four stages of online searching. This study is different from Ho el al.'s (2012) study because this thesis has investigated and identified a set of characteristics for group trip planning based on the collaborative behaviours of groups of tourists. Another study by Mohammad Arif et al. (2015)

outlined four stages of collaborative searching in the tourism context, of which collaborative planning was identified as a Stage 1 collaborative activity. In that study, collaborative planning took place prior to the information search, and planned for destination, budget, accommodation options, time and length of the trip, information search strategies, and division of search tasks. The findings on the characteristics of group trip planning reported in this thesis are different from Mohammad Arif et al.'s (2015) results regarding the stages of collaborative search. This thesis has determined a set of group trip planning characteristics in which initial co-planning has been identified as one of the core components of group trip planning, in that weak or absent co-planning may lead to an unorganised group trip and create misunderstandings among group members. Seeking and sharing information with members during trip planning represents the collaborative activities that continued the planning task further. Another important characteristic of group trip planning is prioritisation of choices, through which each member shows respect for other members' opinions and preferences. Making collaborative decisions is the key and final aspect of a group trip planning process because group members want to make sure that every member can experience every tourism product and service with similar levels of interest and excitement during the trip.

5.1.2 Factors in selecting a communication tool during a group trip planning

During the trip planning phase, members of the tour group were not co-located all the time. Therefore, they used different methods to collaborate within the group. A group of tourists collaborated with each other to seek and share travel information (search keywords, website links and search results), discuss personal viewpoints, narrow down their preferences, and make final decisions while conducting CIS during trip planning. Various tools were found to be used for communicating with travel companions, including social media tools, phone calls and text messages, communication apps, face-to-face meetings and email. Similar findings were reported in Mohammad Arif et al.'s (2015) and Shah's (2012) studies: that tourists collaborated with both co-located and remotely located people via multiple means. However, the participants in this study were social media users who relied on social media tools more than the general population in order to facilitate communication and collaboration during CIS.

Using a collaborative tool plays an important role in effective collaboration. The results indicate that there were several factors that influenced people (a group of tourists) to pick a particular collaborative tool to continue trip-related communication, such as a requirement for group communication, group members' geographic locations, speeding up the planning

process, and the type and urgency of information needs. In a group setting, it is important to be able to see the previous and ongoing conversations of all members to carry on intra-group collaboration. For ease of group communication, the groups of tourists were found to use social media communication tools (e.g., Facebook Messenger, WeChat and WhatsApp) often for sharing information both synchronously and asynchronously. Social media tools offer both audio and video group chat features as well as saving all text conversations so that anyone can read them later. Face-to-face group meetings also provide some advantages, such as helping the group of tourists to speed up their planning process by discussing and making decisions together. Prior studies (Mohammad Arif et al., 2015; Shah, 2012) mainly discussed communication methods used for tourism collaborative information seeking and sharing. However, the findings of this research, such as which factors are involved in selecting a collaborative tool, will enhance and enrich the existing literature on CIS in the tourism context by adding new knowledge and understanding of the methods of intra-group communication used during trip planning and the factors that guide a group of tourists to opt for a particular tool to complete their group trip planning.

5.1.3 Circumstances of social media use during group trip planning

Since tourism is an information-intensive domain, tourists have been found to search for information from various sources, including social media (Imazu et al., 2011; Mohammad Arif et al., 2012; Schroeder & Pennington-Gray, 2015). In this study, participants demonstrated that they used social media in a variety of circumstances for the purpose of fulfilling tourism information needs during their trip planning phase. The circumstances of social media usage while conducting CIS included gaining a basic understanding of the destination, gathering more information about various tourism products, seeking certain information about tourism products and services, validating specific information related to the destination and communicating with tour partners. This wide range of social media usage is interlinked with the tourism CIS because of the experiential nature of tourism. For example, the circumstances of social media usage allowed an individual tourist to acquire an image of the destination, gather a wide range of rich information, find customised information (information on hotels or local places to visit), verify certain information (e.g., ideas), and share their information in the form of search results, opinions and reasoning with other tour mates during CIS. A previous study by Fotis et al. (2012) showed that social media is used in all stages of a trip, namely before, during and after the trip. They also found that tourists use social media predominantly after the trip for sharing their experiences and photos with friends and/or other tourists. The

findings of this study are distinct from Fotis et al.'s, (2012) study, however, in that this research examined social media usage in a group travel context in order to identify the circumstances of social media use during group trip planning. Another study by Chung & Koo (2015) investigated reasons for researching travel information using social media. Their study revealed that the reliability of information and enjoyment influenced tourists to search for tourism information using social media. However, this study investigated the circumstances of social media usage by tourists that lead to planning a group trip by having a basic understanding of the destination, gathering more information, seeking certain information and validating specific information. The findings of this study add to the existing literature on CIS in the tourism domain by providing an understanding of the circumstances of social media usage when performing tourism CIS activities.

5.1.4 Towards a framework for CIS in trip planning

Based on empirical observations, a framework for CIS in the tourism context was developed (Figure 5.1). This framework highlights the collaboration between a group of tourists and the use of social interactions via social media by individual group members. It considers collaborative tourism information seeking to include both individual and collaborative information seeking and sharing activities. Initially, tourists collaborate with group members (in-group collaboration) to complete preliminary planning tasks such as selecting the destination, time and length of the trip, and dividing up and assigning trip-related tasks. On the completion of co-planning, a tourist independently interacts with others (outside of the tour group) such as friends, family members, colleagues and acquaintances as well as accessing travel blogs and the social media pages of tourism service providers and travel groups to seek, gather, and evaluate specific information about tourism products (flights, hotels, weather, local public transportation and routes). The next steps in the trip planning process involve the collaborative activities of seeking group members' opinions or reasoning and sharing information gathered, and discussing personal points of view regarding issues and choices with tour mates. These stages are interrelated with the previous step of individual information seeking because all group members present and express their ideas, reasoning, and opinions based on their individual searches and the information they obtained. They may change their minds about original decisions associated with tourism products (hotels, restaurants, activities) due to serendipitous information obtained from social interactions. In the end, group members make a final group decision on tourism products by considering and incorporating every group member's preference.

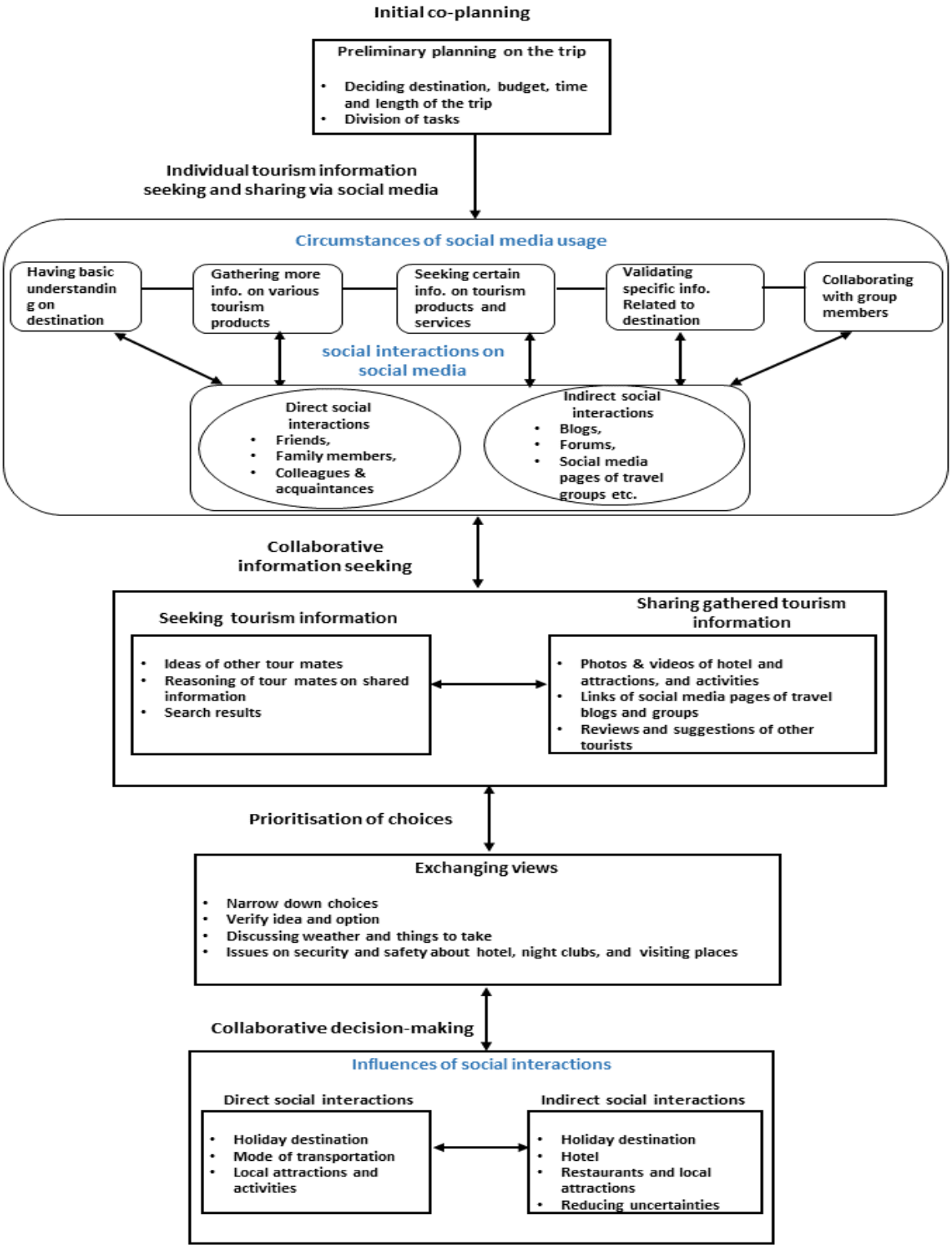


Figure 5.1: Tourism CIS framework involving social interactions during trip planning

5.2 During execution of the group trip

In this section, our findings on the tourism collaborative information seeking (CIS) behaviours of social media users during travel at the destination are discussed. The findings of this study

will be important to online marketers as they will enable them to better understand tourists' use of social media and information seeking behaviours while travelling and adapt online marketing strategies according to tourists' information needs while they are on their trips.

5.2.1 Characteristics of tourism CIS during group travelling

In a group setting, collaboration helps team members to solve certain problems and achieve their common goal. Therefore, identifying the triggers for intra-group collaboration in the tourism context are important to understanding the complicated situations in which tourists need to collaborate and defining the characteristics of tourism collaborative activities. This study identified four characteristics of tourism collaborative activities, which were linked with re-planning trip activities and organising the tour group during travel. They were: seeking and sharing information; verifying information, coordinating the tour group regularly; and solving conflicts among group members. Thus, this study established two main characteristics of group travel. The first characteristic was the re-planning of trip activities when groups of tourists encountered unexpected issues during the trip, including severe weather, illness, and disagreements over choices, events and activities. Tourists in a group were involved in information seeking, sharing and synthesising, and in making alterations to parts of their pre-planned travel activities. The second characteristic was managing the travel group; tourists often collaborated with tour mates to coordinate the group, make on-site trip-related decisions (e.g., meals), and solve conflicts between members. For example, tour mates usually sent messages to the group forum regularly to decide when to leave the hotel and where to eat.

A study by Ho et al. (2016) presented ten characteristics of pre-trip tourism information searching to show how a smartphone user (individual tourist) searched for information in the trip planning phase. They identified internal searches, mobile searches, saving information in the smartphone, preliminary collaborative tourism information seeking, barriers to tourism information seeking, bringing the mobile search to an end, summarising information, a PC Internet search, advanced collaborative tourism information seeking, and searches via editorial communications as characteristics of pre-trip tourism information search behaviours. In contrast, the results of this study reveal characteristics of group travelling based on tourists' collaborative activities. These findings add to our knowledge of CIS behaviours in the execution of group travel context by providing an understanding of the properties of collaborative activities during group trips. In addition, these findings will guide CIS tool

developers to design and integrate specific features for the groups of tourists by facilitating collaborative activities while travelling.

5.2.2 Factors in using methods of Intra-group collaboration

During their trips, groups of tourists (group members) needed to work together for various trip-related purposes ranging from information seeking to making on-site group decisions. Moreover, the group was often physically co-located at that time. Therefore, the most common and most convenient way to collaborate when seeking opinions and making collaborative decisions was face-to-face interaction. In the travel groups, methods of collaboration were chosen based on the situations and convenience of the tourists. For example, tourists employed face-to-face interaction when they had to solve disputes about prospective travel activities and finalise decisions instantly; face-to-face group interaction also helped them to make satisfying decisions by observing every group member's facial expression. Another channel for intra-group communication was using technology such as social media tools (e.g., Facebook Messenger, WhatsApp and WeChat) as tourists in a group needed to seek and share tourism information (e.g., background information on local attractions, reviews, images and videos of scenic views, places, temples, architecture and museums) to research potential changes to travel activities.

A prior study (Mohammad Arif & Du, 2012) found that tourists collaborated with both co-located and remotely located people via phone calls, emails, IM, face-to-face meetings and web inquiries during the travel planning stage. A more recent study by Ho, Lin, Yuan, Chen, and Alvares (2016) also showed that tourists communicated with their travel mates synchronously or asynchronously through voice calls, emails, web inquiries and social media tools for information searching during travel planning. However, the findings of this study are different from the results of these studies (Ho et al., 2016; Mohammad Arif and Du, 2012) in that this study identified that the choice of methods for intra-group collaboration depended on the information needs and convenience of the tourists, whereas the studies mentioned above were conducted at the travel planning phase and determined the methods used for collaboration only. The results of this study provide insights into the use of social media as an information searching and intra-group collaboration platform, which will assist CIS tool developers in integrating social media into their systems as a way of providing information seeking and sharing facilities during CIS tasks.

5.2.3 Social interactions on social media during group travel

The flow of information is essential for the successful completion of activities (Mohammad Arif et al., 2015; Spence, Reddy, & Hall, 2005). However, this does not always happen in practice and demands collaboration with others to find the information needed to accomplish tasks. This research found that tour groups utilised social media to enable the flow of information during information seeking for re-scheduling travel activities. For example, team members deciding on a travel activity might require more information than they previously thought they needed. In such a situation, teammates who were technologically expert (social media users) performed information seeking, gathering, and validating tasks using social media and then shared the obtained information with the group to synthesise, assess and make decisions. Specifically, skilled collaborators read about the experiences of and interacted with other tourists on social media to bring a diverse range of ideas and knowledge to the group, and thus, social media aided them to obtain rich (i.e., authentic and specific) information and make a group decision quickly.

Due to the experiential nature of tourism information, potential tourists often look for the experiences and comments of other tourists (non-travel group members) to assist with making informed decisions. This study confirmed that groups of tourists preferred to see and follow other experienced tourists' opinions and knowledge on various social media platforms when re-planning or altering on-site activities. In this situation, they sought information through or from other social media users to learn, gather and validate information for self-group trip re-planning. This finding is consistent with Shah, Capra, and Hansen (2017), who found that there are some situations in which both social ties and collaborative ties are required to solve a common problem. This study adds to the existing knowledge that social ties (social interactions) assist in tourism CIS activities.

5.2.4 A tourism CIS framework during group travel

The results of this study were used to explore the triggers of tourism CIS activities and the contributions of social media, including social interactions, in supporting CIS activities during the execution of group travel. The study revealed that a group of tourists collaborated with each other for two main purposes during travelling: to work together when they needed to alter their pre-planned trip activities and to coordinate the tour group for any group activities. Tourists participated in various collaborative activities while changing some parts of their trip plans, for example by seeking and sharing trip-related information, synthesising each member's search

results and ideas and making collaborative decisions. Managing the tour group also played an important role in the group travelling context because lack of coordination could lead to an unsuccessful group trip. Hence, groups were found to collaborate with their tour mates to organise times and meeting locations for group members, make regular meal-related decisions, and solve conflicts of interest between group members. Social media played a significant role in conducting these CIS activities. For example, individual tourists took part in social interactions on social media to re-plan their trip activities by seeking and validating required tourism information. Tourists also communicated with other group members to seek or ask for reasons and opinions based on the search results and gathered information to make group decisions. In addition, they always collaborated to organise group activities to ensure a smooth and enjoyable group trip for all group members.

An empirical model was developed to illustrate the CIS activities and contributions of social media to CIS activities when travelling at the destination. Figure 5.2 shows how social media helps travellers in the collaborative activities of re-planning trip activities and managing the group. Finally, this framework contributes to the conceptual understanding of how tourists use social interactions to support CIS for tourism information.

5.3 Social tourism information horizon map

There is evidence showing that social media plays an influential role in individual travellers' trip planning and decision-making, as mentioned in the literature review in Chapter Two. In this section, first, this study found a link between social interactions on social media and collaborative information seeking (CIS) during both group trip planning and trip execution, and then developed a social tourism information horizon map based on the social interactions on social media.

5.3.1 Interweaving of collaborations within the group (CIS) and social interactions

Tourists were found to socially interact with their networks on social media to support their CIS activities during both group trip planning and travelling. Social interactions took place when individual tourists asked or looked for information from others or other sources on social media platforms to solve their problems. The information obtained via social interactions on social media helped tour mates to contribute to the group by finding, gathering, validating and refining information in order to make collaborative decisions. In particular, due to a lack of domain knowledge during tourism information seeking, group members interacted with

experienced tourists from their social networks to find, gather, verify and refine tourism information and then shared the obtained information with the group to asking for opinions or reasoning.

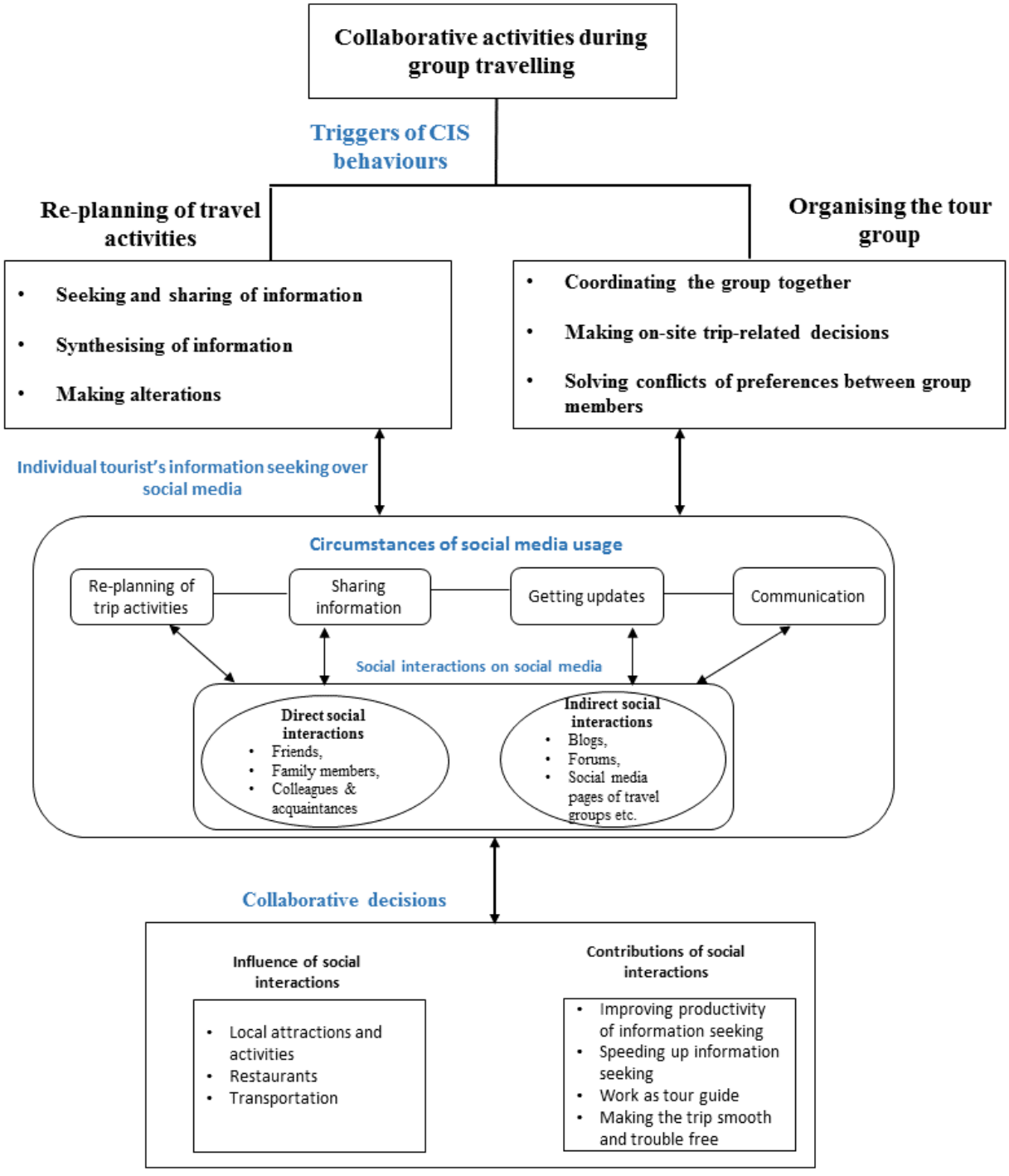


Figure 5.2: Tourism CIS framework during group travel involving social interactions

In this way, social interactions on social media and CIS are intertwined, and social interactions on social media influence CIS behaviours during travel planning and execution. Thus, such

collaboration extends the CIS research reported in the existing literature on intra-group collaboration. Though Shah et al. (2017) discussed a research agenda for considering social and collaborative information seeking, there is no research to date that has studied the interweaving of CIS and social interactions on social media. The results of this thesis study highlight the use and influence of social interactions on social media in CIS activities while planning and executing a group trip.

Prior research has explored how a tourist interacts with intra-group and inter-group people in general while gaining travel-related information during travelling (Tan & Goh, 2015). Tourists were found to be influenced by such interactions when making decisions. This study confirmed the influence of two specific types of social interactions (direct and indirect) on social media and their impacts on group trip planning and execution. This thesis further showed that interactions with friends and family members on social media were the most common social interactions on social media for obtaining travel-related information.

5.3.2 Analytical social information horizon map

Since information plays a significant role in travel planning and decision-making (Fardous, Du, Choo, & Huang, 2017; Mohammad Arif et al., 2012), understanding the information sources available on social media will help tourism operators to develop and promote their services through these channels. This thesis found that two types of social interactions on social media happened during CIS activities for planning a group trip, which were: i) direct social interactions and ii) indirect social interactions.

A social tourism information horizon map was drawn up to structure, explain and analyse the typical information seeking behaviours of a group of tourists on social media based on the results of social interactions on social media (Figure 5.3). The social tourism information horizon map provides a practicable and qualitatively valid way to visualise, communicate, and structure the patterns of use of these information sources and the organisation of information seeking activity. Information horizons comprise information sources perceived by an information seeker (Huvila, 2009). In this study, the analytical tourism social information horizon map is referred to as the source of tourism information on social media accessed by a group of tourists during CIS for planning and executing their trip. More specifically, during the information seeking process, tourists employed a variety of sources of information on social media to satisfy the trip-related information needs that eventually led them to make decisions about tourism products and services. Besides explaining the sources, the social tourism

information horizon map also provided a method of visualising the information seeking activities of a tour group and their interaction with the information sources.

On the basis of the social tourism information horizon map, it is clear that tourists interact with a broad range of sources on social media while searching for travel information. The analytical social tourism information horizon map describes the sources of information and their use during information seeking and decision-making in the context of trip planning and group travelling (Figure 5.3). Typically, the perception of the sources related to the information seeking starts with a group discussion, which comprises the ideas and thoughts of individual tourists in the tour group (transmitter). As such, the personal knowledge of tourists (group members) serves as a fundamental initial source of information at the beginning of the information seeking process during trip planning and execution, and a carrier to the specific sources of information according to the required information types. The information search process proceeds from the ideas and thoughts of tour mates to grasp the relevant sources of information on social media, such as the social contacts of tour mates in social networks (friends), blogs (personal and commercial), Google Maps, and the Facebook pages of individuals (friends) and tourism service providers (TSPs). For information acquisition, the information seeking process is transmitted to other sources on social media and ends with a group discussion for making collaborative decisions based on the findings of the information seeking process. The principal carriers of the information seeking process are the social contacts of tourmates, blogs (personal and commercial), Facebook pages, and Google Maps. The process is cyclic and iterative to satisfy a diverse range of tourism information needs with the agreement of all tour members. The iterative information seeking process continues until the group of tourists makes their final decisions.

A study by Huvila (2009) developed and presented analytical information horizon maps related to the work roles of archeology professionals (e.g., academic teaching, field archeology and academic researcher) to show the practicable representation of patterns of work role information behaviour. This study presents an analytical social tourism information horizon map related to the information seeking behaviours performed by a group of tourists while conducting CIS, which is different from Huvila's (2009) information horizon map. The analytical social tourism information horizon map adds to our knowledge of CIS the fact that a group of tourists interacts with a broad range of sources for information while seeking information.

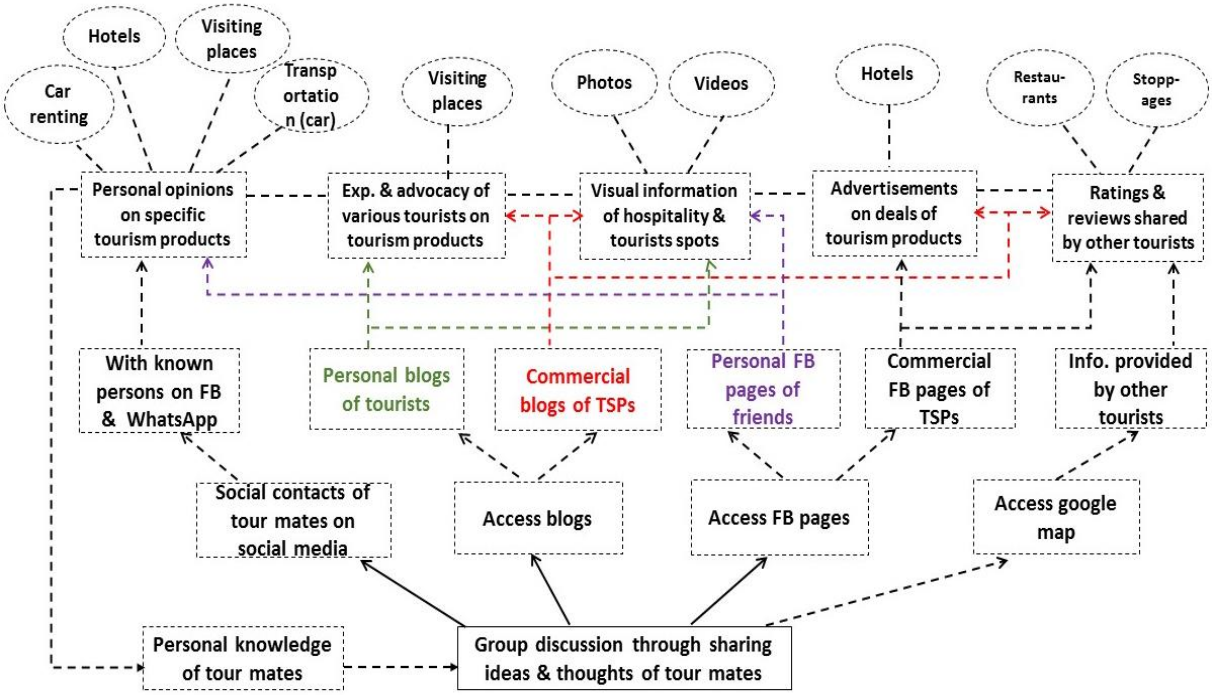


Figure 5.3: Social tourism information horizon map of a tour group

Notations used in social tourism information horizon map

Carriers

Fundamental information source

The attribute of a resource

The link between sources; arrow indicates the sequence of use of information resources

An emphasized link between sources

Link between sources

5.4 Comparison between CIS behaviours in the trip planning and execution phases

The findings on the two phases of a group trip revealed that there are notable differences in collaborative information seeking (CIS) behaviours when a group of tourists plan a group trip and execute the group trip (Table 5.1). For example, during the trip planning phase, the requirement for preliminary discussion, lack of knowledge, need for sharing opinions or preferences and necessity of decision-making trigger intra-group collaboration, while it is the necessity of sharing trip-related information and the need to organise the tour group that trigger collaboration within the tour group during the trip. Prior research (Mohammad Arif, Du, & Lee, 2015) identified collaborative planning, collaborative information searching, sharing of information, and collaborative decision making as the four stages of tourists' collaborative search during a group trip planning. The authors (Mohammad Arif, Du, & Lee, 2015) did not examine the triggers for intra-group collaboration while planning and executing the group trip. In addition, the characteristics of tourism CIS behaviours during group trip planning and travel are different. Initial co-planning of the trip, seeking and sharing travel information, prioritising choices and making collaborative decisions were established as CIS behaviours' characteristics of a group trip planning process. On the other hand, characteristics of CIS behaviours during group travel include seeking and sharing information, synthesising information, making alterations to existing plans, coordinating the group, making on-site trip-related decisions and solving conflicts of preferences between group members. Similarly, studies by Mohammad Arif, Du and Lee (2012, 2015) conducted their study on the group trip planning phase and examined the reasons for information seeking and sharing at this phase. In the current study, tourists were found to collaborate more during the trip execution phase than in the trip planning phase in order to coordinate the tour group by sending messages in their group chat on social media on a regular basis. For example, a group of tourists used to notify their group regularly about when to meet as a group, where to meet, at what time to dine, what to do next and where to go next.

Having an initial basic understanding of the destination, gathering more information about various tourism products, seeking opinions and suggestions on tourism products and services, validating specific information before making decisions and collaborating with tour mates were determined to be circumstances of social media use for the purpose of planning the group trip. However, it was observed that the circumstances of social media use during the group travelling phase were different. Tourists employed social media not only to seek tourism information but

also to share trip-related updates, acquire real-time news on local events and occurrences, and check updates on people back home while executing the trip. Furthermore, the research findings suggest that social interactions on social media make significant contributions to CIS behaviours during travelling at the destination, in particular by providing reliable and credible information quickly, and playing the role of tour guide.

Table 5.1: Difference between CIS behaviours in two phases of a group trip

CIS behaviours	During a group trip planning	During execution of a group trip
Triggers of CIS behaviours	• Necessity of decision-making • Requirement of preliminary discussion • Lack of knowledge • Need of sharing opinions	• Necessity of sharing trip-related information • Requirement of organising the tour group
Characteristics of tourism CIS behaviours	• Initial co-planning on the trip • Seeking and sharing of information • Prioritisation of choices • Making collaborative decisions	• Seeking, and sharing of information • Synthesising of information • Making alterations • Coordinating the group together • Making on-site trip-related decisions • Solving conflicts of preferences between group members
Circumstances of social media usage	• Having basic understanding on destination • Gathering more information on various tourism products • Seeking certain information on tourism products and services • Validating specific information related to destination • Collaborating with group members	• Seeking and gathering tailored information • Cross-checking of information • Sharing experiential travel activities with family and friends • Sharing post to seek travel information • Getting updates on local news and events • Getting updates on family and friends • Keeping in touch with family and friends • Collaborating with tour mates
Types of collaboration	• Social collaboration on social media • Intra-group collaboration	• Social interactions on social media • Intra-group collaboration
Influences of social interactions on the group trip	**In group decision-making:** • Deciding holiday destination • Deciding hotel • Change in mod transportation	**In group decision-making** • Deciding local attractions and activities • Deciding restaurant and

- Deciding local attractions and activities, and
- Reducing uncertainties

In CIS behaviours

- Seeking and sharing gathered information
- Making group decisons

- Deciding transportation

In CIS behaviours

- Seeking and sharing gathered information and opinions
- Speeding up the information seeking process
- As tour guide
- Making collaborative decisions

However, the results of this research found a similar trend in collaboration occurred during information seeking in both phases of a trip (i.e., planning and execution). Two types of collaboration took place during information seeking, including collaboration with the tour group and collaboration with others (social interactions) on social media. Thus, both types of collaborations play an important role in a group travel context. In other words, this study found that groups of tourists decided on a holiday destination, accommodation, transportation and local attractions and activities based on information obtained from social interactions on social media (collaboration with other social media users), and made decisions about local restaurants, routes and transportation, on-site activities and attractions by considering the tips left by others on social media. This study also identified that face-to-face meetings were the most common method of intra-group collaboration during the trip, whereas social media tools were the most extensively used medium for communication in the trip planning phase.

5.5 Dynamic nature of tourism CIS

The differences between the collaborative information seeking (CIS) behaviours of social media users (tourists) during the trip planning and the travelling phases indicate that the tourism information seeking process is complex and dynamic in nature. In this study, this dynamic nature is demonstrated as the changes in tourism CIS behaviours occurred between the trip planning phase and the trip execution phase. For example, a group of tourists worked together to plan their upcoming trip when they had a requirement for preliminary discussion, lack of knowledge, need to share opinions or preferences, and need to make decisions, whereas during travelling, a group of tourists collaborated if they needed to share trip-related information and organise the tour group, in order to re-plan trip activities and coordinate the tour members respectively. The purposes of intra-group collaboration in these two phases were different; tourists worked together mainly to plan their upcoming trip during the pre-trip phase (trip planning) and worked together to re-plan their trip-related activities and coordinate the tour group during the execution phase of the trip.

The characteristics of CIS behaviours in both phases were also different as a result of the different triggers of intra-group collaboration. During group trip planning, tourists searched for tourism information using social media significantly, as well as through social interactions on social media, because they needed to make decisions about most of the tourism products and services (flights, hotels, transportation, places to visit and things to do) in this phase. On the other hand, during the group travelling phase, tourists utilised social media for a variety of reasons including seeking information, sharing trip-related activities, getting updates and communicating with tour mates and others. The current study also discovered the influence of social interactions on social media while a group of tourists was seeking tourism information and making decisions about tourism products; the results are considered as an important aspect of the dynamic nature of group information seeking and decision-making on social media. Previous study by Fotis, Buhalis and Rossides (2011) investigated the role and impact of social media on how holidaymakers plan and consume holidays (before, during and after holidays), however, to a different extent and for a different purpose. Particularly, they found that social media are predominantly used during the information search stage of the trip planning process and to stay connected with friends during holidays. However, their study (Fotis, Buhalis, & Rossides, 2011) was conducted in the context of individual tourists not a group trip context. Also, they (Fotis, Buhalis, & Rossides, 2011) only considered the use of social media while the current research explored and presented various aspects of CIS behaviours when a group of tourists plan and execute the group travel.

This study shifted the focus from individual tourists' information seeking behaviours on social media to groups of tourists' information seeking behaviours. The results and the differences identified in tourism CIS behaviours between the trip planning and travelling phases add to our understanding that tourism CIS is a dynamic process and tourists behave differently based on their situations and contexts to fulfil their information needs. Such dynamic behaviours between the stages of a group trip provide guidelines for tourism researchers and practitioners to work together in order to facilitate customised trip planning and information seeking systems to attract potential groups of tourists.

5.6 Implications of the results

5.6.1 Theoretical implications

During collaborative information seeking (CIS) activities, people collaborate to find, retrieve and share information to fulfil their common information needs. However, this can be a

challenge for collaborators when they have insufficient knowledge about the topic and need to make decisions. This study of CIS practices during group trip planning and travel found that there are four important reasons why a group of tourists collaborates during trip planning: the requirement for preliminary discussion, lack of knowledge, need to share opinions or preferences and necessity of decision-making. There are also two main reasons why tourists collaborate during travel: the necessity of sharing trip-related information and the requirement to organise the tour group. This study also revealed that during both phases of a group trip, tourists utilise social media significantly for their travel purposes. There are some situations in which a group of tourists needs to obtain tourism information using social media, particularly social interactions on social media, due to lack of knowledge of the destination and related products and services. Very few studies on CIS in the tourism domain have focused on social interactions on social media during collaboration, since the predominant view of information seeking in tourism has been that it is an individual activity or a collaboration with accompanying tour mates. For example, existing studies have proposed collaborative search stages in tourism CIS that focused mainly on the stages of tourists' collaborative searches during trip planning (Mohammad Arif et al., 2015) and an individual tourist's pre-trip information search behaviours (Ho et al., 2016). In this study, the results present the tourism CIS behaviours of social media users during two different phases of a group trip.

The findings of this research also highlight the influences of social interactions on social media during CIS activities. For instance, social interactions on social media impacted tourists' decision-making processes such as deciding on tourism products and services. The results on the influence of social interactions on the decision-making process are consistent with Tan and Goh's (2015) work which states that social interactions influence tourists in decision-making. However, this study has moved the focus to group decision-making and extended the knowledge of which types of social interactions influence which types of tourism products and services during the trip planning and group travel phases. In addition, this study adds to the existing CIS literature the knowledge that social information seeking (i.e., social interactions on social media) and CIS are interrelated because they both contribute to collaborative information seeking and decision-making processes.

During intra-group collaboration, this study found that face-to-face meetings were the most common method of group communication during group travel, whereas social media tools were the most extensively used form of communication in the trip planning phase. These results provide an insight into how groups of tourists collaborate to share knowledge and make group

decisions. Furthermore, it adds to the existing knowledge on tourism CIS by examining social media usage as a technological support for intra-group collaboration in such a scenario.

Finally, a tourism CIS framework involving social interactions on social media during group trip planning was proposed based on the results. Another CIS framework in the group travelling context was also developed to show how social interactions on social media are connected with CIS behaviours. These CIS frameworks show phase-specific collaborative tourism behaviours that occurred in two phases of a group trip, which may eventually help to identify collaborative activities and design a CIS system fulfilling information needs.

5.6.2 Practical implications

Understanding the information seeking and sharing behaviours of tourists in the different phases of a group trip will help tourism operators to improve their promotional and marketing strategies by using different social media platforms. For example, travel operators seeking to attract young tourists should consider providing travel information on various social media platforms as well as on travel websites. Travel service organisations should ensure quality of service so that prospective tourists can obtain positive views through both direct (word of mouth from family, friends, colleagues and acquaintances) and indirect (blogs, forums and social media pages of travel groups) interactions on social media. Tourism collaborative information seeking (CIS) system designers and service operators should also design features of CIS systems or apps and policies based on the phases of group travel (i.e., trip planning and execution).

The results of this study provide insights into the use of social media as an information searching and intra-group collaboration platform, which will lead CIS tool developers to integrate social media into their systems as a way of providing information seeking and sharing facilities during CIS tasks. In addition, existing or original social media communication tools may consider adding some extra features to facilitate support for group communication and decision-making. For example, the findings on the characteristics of group trip planning, such as initial co-planning, seeking and sharing information, prioritising choices, and making collaborative decisions suggest that a favourable tourism-specific CIS system should have the following key attributes: i) a feature that facilitates preliminary trip planning activities such as flagging and storing information about the destination and length of trip and dividing up search tasks and search strategies (e.g., responsibilities for search tasks and websites to be visited etc.), ii) a feature for exchanging messages to support proper communications and sharing of

information between the collaborators, iii) a feature allowing collaborators to place certain messages (i.e., very important messages or selection priorities) at the top of the screen so that all the group members can easily check important messages or preferences of other members at any time without having to ask repeatedly, and iv) a feature allowing collaborators to making decisions by sharing all members' opinions instantly.

Since tourism is a dynamic and competitive industry that requires the ability to adapt constantly to customers' changing needs and desires, industry practitioners can apply empirical findings from academic research to their businesses in order to remain competitive. In addition, the CIS frameworks involving social interactions on social media developed in this thesis can guide tourism practitioners to formulate effective and efficient marketing strategies and actions including i) developing a CIS tool incorporating social media platforms, ii) introducing features in social media communication tools for providing group communication and decision-making facilities, and iii) distributing campaigns and advertisements about tourism products and services that consider different types of tourists' demands and needs on various social media platforms.

5.7 Chapter summary

This chapter presents a discussion and the implications of our findings based on the CIS behaviours of social media users during group trip planning and execution. The results of this study have provided insight into the nature of tourism CIS behaviours and social media use in tourism CIS activities. Specifically, they show a conceptual foundation for why and how tourism CIS takes place in two different phases of a group trip. Furthermore, they show that using social interactions on social media helped group members to make collaborative decisions by seeking and validating relevant information. The findings of this study also highlight the contributions of social interactions on social media in the context of CIS behaviours. Empirical models of tourism CIS behaviours during group trip planning and group travel are presented at the end of each section. The next chapter concludes this thesis by presenting the key findings, limitations and future directions of this research.

6. Conclusions, limitations and future works

6.1 Conclusions of the thesis

The thesis began with an extensive literature review on basic understandings of collaborative information seeking (CIS) behaviours in various contexts including tourism, information seeking using social media and social interactions on social media, and the influence of social media on tourism, along with a critical analysis of the incorporation of social interactions on social media and tourism CIS.

The results are analysed against the research questions for two phases of a trip: the trip planning phase and the trip execution phase (as outlined in Sections 4.1 and 4.2 of Chapter 4). The results presented in Section 4.1 demonstrate the triggers, characteristics and methods of tourism CIS behaviours, circumstances of social media use, reasons for collaboration on social interactions, and social interactions' influences on CIS behaviours while planning a group trip. The results presented in Section 4.2 show the findings from similar research questions when a group of tourists was travelling at the holiday destination. Key discoveries of the thesis are discussed in the following section.

6.1.1 Key findings on CIS behaviours in the trip planning phase

In the case of RQ1 from Section 4.1.2 of Chapter 4, triggers and characteristics of CIS behaviours during a group trip planning were identified. In other words, to present a basic understanding of tourism CIS behaviours, this thesis explored the triggers that initiate intra-group collaborative activities and CIS activities characteristics of social media users in the context of a group trip planning phase.

Next, to address RQ2, section 4.1.3 showed how a group of tourists collaborates with other tour mates regarding their trip planning as well as what factors a group of tourists considers when choosing which collaborative methods to use to work together.

In the case of RQ3 from section 4.1.4, the circumstances of social media use during group trip planning were determined to understand whether a group of tourists employed social media to plan their trip.

After this, to address the RQ4, in section 4.1.5, this thesis identified that another type of collaboration outside of the tour group (social interactions on social media) occurred during

information seeking in the trip planning phase. This collaboration beyond the intra-group collaboration was named as social interactions on social media.

In the case of RQ5 from section 4.1.6, the influences of social interactions on group trip planning, particularly decision-making, as well as the contributions of such interactions to performing tourism CIS activities were examined to highlight the significance of social interactions on social media in the group trip planning context.

6.1.2 Key findings on CIS behaviours during execution of the group trip

Section 4.2 of Chapter 4 mainly demonstrates the findings on similar RQs (research questions) when a group of tourists executes their group trip at the holiday destination (i.e., holidaying at the destination) to determine the differences in tourism CIS behaviours between the two phases of a trip.

In the case of RQ1, in section 4.2.2 of Chapter 4, triggers and activities characteristic of CIS behaviours during the execution of a group trip were established to provide an overall understanding of the tourism CIS behaviours of social media users.

To address the RQ2, the section 4.2.3 of this thesis then revealed the collaborative ways and situations in which group members select the right method to conduct CIS activities related to continuing their holiday.

In the case of RQ3, the section 4.2.4 showed and discussed the situations in which the groups of tourists utilised social media during trips to provide an insight into social media use from the perspective of group travel.

Subsequently, in section 4.2.5, RQ4 explored how intra-group and inter-group collaboration took place during the travelling phase to fulfil the group's information needs while tourists were travelling in a group. Inter-group collaboration here is named as social interactions on social media.

In the case of RQ5, in Section 4.2.6, the influences of social interactions on social media on group trip planning and the contributions of social interactions during tourism CIS activities were investigated to show the links between such interactions and CIS.

In this thesis, the CIS behaviours include triggers and characteristics of CIS, methods of conducting CIS and factors that influence in selecting CIS methods, circumstances of social

media use while conducting CIS, types of social interactions on social media during CIS and influence of social interactions on CIS. In order to address the primary research question of this thesis (What are the characteristics of tourism CIS behaviours over social media in the journey of a self-organised group trip from trip planning to execution?), this study divided the primary research question into similar set of five sub-questions. Thus, the findings of these five set of sub-questions during group trip planning and execution of the group trip phases led to address the main/primary research question.

6.2 Limitation of the thesis

The study reported in this thesis has several limitations that it is important to point out here. First, the questionnaire survey study (i.e., surveys on the trip planning and trip execution phases) was conducted with a limited number of participants for each stage of a group trip, and the participants were young. Therefore, a large-scale study may be needed to develop a deeper understanding of tourists' motivations and methods for collaborating while seeking tourism information in a group travel setting.

Second, the current study identified the influences of social interactions that occurred while tourists were seeking tourism information and making decisions on tourism products; the results are considered to be an important aspect of the dynamic nature of group information seeking and decision-making on social media. However, a large-scale study that includes surveying a large group of participants from different age groups and professions as well as semi-structured group interviews with a large number and various types of groups may be needed to underpin this issue and extract inherent and dynamic processes in the collaborative information seeking (CIS) behaviours involved in group trip planning and group travelling. Therefore, the results of this research might not be generalisable to a broader population.

Third, the focus of this research was to explore the triggers, characteristics and methods of intra-group collaboration in conducting CIS behaviours during the planning and execution of a group trip. The circumstances of using social media and purposes of social interactions on social media were then investigated as another type of collaboration during tourism CIS. However, this thesis did not investigate the effects of different sizes and types of travel groups (e.g., family or friend groups) on tourism CIS behaviours, which would be a worthwhile future endeavor. Therefore, a more comprehensive analysis is needed to understand group dynamics and compare groups.

6.3 Future works

There are several interesting questions still to be addressed in the field of tourism collaborative information seeking (CIS) behaviours. The final section of this thesis will highlight some of these questions, along with suggestions to extend the work reported here.

6.3.1 Extending ideas

As pointed out in the limitations section of this chapter, each of the studies reported in this thesis was targeted towards a specific population such as the younger generation (e.g., students, teachers, researchers and others). Further investigations are needed to study other specialised populations, such as mid and older generations travelling in a group to understand their CIS behaviours on social media. This may require employing different methods of studying collaboration, including the roles of group members and empirical observations of planning a group trip and executing the group trip.

As noted earlier in the discussion of limitations, additional investigations are needed to reveal the difference between different group types (e.g., groups of family members, friends and colleagues) and sizes (number of group members) while conducting tourism CIS behaviours. Allowing for different types and sizes of groups in a collaborative project (i.e., trip planning and execution) and studying the group dynamics can be very complex procedure, but can also provide very insightful information about how different types and sizes of groups collaborate and what kind of support they need to make their collaborations more effective and engaging.

Finally, this thesis explored the CIS behaviours of social media users who reside in Australia. Further exploration of tourism CIS behaviours with participants from other Asian countries (e.g., China, Japan, Indonesia and Malaysia) is also needed as Asian visitors to Australia are a rapidly growing category of tourists (Tourism Australia, 2019).

6.3.2 Exploring tourism CIS behaviours

In future, we will investigate tourism CIS behaviours of social media users further by identifying the roles of group members in planning and executing a group trip. In particular, we will examine how every member contributes to resolving shared information-related problems during CIS behaviours. In addition, we will address how members of the tour group make sense of information during such tasks as another dimension of CIS behaviours in the tourism context. Recently there has been growing evidence that tour groups made up of friends

or family members conduct online information seeking tasks together using social media for planning and executing a vacation (Fardous, Du, Choo, & Huang, 2017) and researchers are developing CIS tools to support users during tourism information searching (Mohammad Arif et al., 2015). Considering the importance of collaboration during group trip planning and execution, we aim to design and develop a CIS tool incorporating the feature of social interactions on social media, specifically for tourists to use for performing tourism CIS activities.

In order to explore group dynamics in the tourism context further, we will study the dynamic behaviours of social media users for tourism information searching. For instance, as group travel is common nowadays, membership of groups varies according to group types. In other words, the number of members in a group may vary based on whether it is comprised of family members, couples or friends. As a result, to gain more insights into the group dynamics, this study will investigate more on this issue.

Based on the findings of this research and the literature review, we are interested in exploring the CIS behaviours of social media users in different contexts such as education and health as well as domestic projects. For example, a recent study (Hamid, Bukhari, Ravana, Norman, & Ijab, 2016) found that international students utilised social media for various purposes significantly while settling down in a new country. Therefore, this study will extend the knowledge of CIS behaviours in the education context by exploring the nature of CIS behaviours for fulfilling educational needs.

6.4 Closing remarks

This thesis has described a mixed-methods approach to studying the tourism CIS behaviours of social media users during both trip planning and travel. The findings of this research can be divided into two parts. Firstly, through a questionnaire survey study and a series of in-depth semi-structured group interviews, this thesis examined why groups of tourists collaborate with each other during travel information seeking, how tourism CIS behaviours are characterised during both phases of a group trip, how collaborators conduct CIS activities and what factors influence them to use particular communication tools for collaboration purposes. Secondly, this research also revealed the circumstances of social media use by the groups of tourists for travel-related purposes, what types of social interactions on social media (collaboration outside of tour group) occur during CIS activities and how such social media interactions influenced

collaborative behaviours like decision-making. The insights gained in this thesis enrich our knowledge of CIS by exploring the conceptual understanding of tourism CIS behaviours. The knowledge explored in this thesis will also help CIS developers to design CIS tool that can support tourism CIS and integrate social interactions on social media.

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Appendices

Appendix A: Consent form

UniSA | Research and Innovation Services

Human Research Ethics Committee

CONSENT FORM

This project has been approved by the University of South Australia's Human Research Ethics Committee. If you have any ethical concerns about the project or questions about your rights as a participant please contact the Executive Officer of this Committee, Tel: +61 8 8302 3118; Email: humanethics@unisa.edu.au

SECTION 1: CONTACT AND PROJECT DETAILS	
Researcher's Full Name:	Jannatul Fardous
Contact Details:	jannatul.fardous@mymail.unisa.edu.au
Supervisor's Full Name:	Dr. Jia Tina Du
Contact Details:	Tina.Du@unisa.edu.au
Protocol Number:	
Project Title:	Investigating mobile social media users' behaviours in tourism collaborative information retrieval

SECTION 2: CERTIFICATION

Participant Certification

In signing this form, I confirm that:

- I have read the Participant Information Sheet, and the nature and the purpose of the research project has been explained to me. I understand and agree to take part.
- I understand that I may not directly benefit from taking part in the project.
- I understand that I can withdraw from the study at any stage and that this will not affect my status now or in the future.
- I confirm that I am over 18 years of age.
- I understand that I will be audiotaped / videotaped during the study.

- I understand that the tape(s) will be stored as soft copy and hard copy by the researcher at the university campus for five years and will be accessed only by the researcher and the supervisor for this project purposes.
- I understand that wherever practical, the University will acknowledge my participation in the project in exercising this right.

Participant Signature	*Printed Name*	*Date*

Researcher's Certification

I have explained the study to subject and consider that he/she understands what is involved.

Researcher's Signature	*Printed Name*	*Date*

Appendix B: Cover sheet of questionnaires



Title of the project: Investigating social media users' collaborative information seeking behaviours during group trip planning and the execution of travelling

Declaration:

Participation in this study is voluntary and participants are free to withdraw from the research project at any time without affecting their status now or in future. The goal of this study is to collect data to investigate the social media users' behaviours while planning for a group trip as well as executing the group trip through questionnaire surveys and semi-structured group interviews. The semi-structured group interviews will be audio-recorded and can be video-recorded as well if necessary. The collected data will be stored for five years in soft copy and hard-copy format at the university campus. All records containing personal information will remain confidential and no information which could lead to the identification of any individual will be released, unless required by law.

Age range (e.g., 18-25):

Gender of participant: Male/Female

Profession of participants:

Home country:

Name of the social media (e.g. SNS):

The place you will visit:

Number of travel group member:

Contact details

Name of researcher: Jannatul Fardous (pursuing PhD)
Name of Supervisor: Dr. Tina Du (Senior lecturer)

Division: Division of ITEE (IT, Engineering and Environment)
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Research ethics

This project has been approved by the University of South Australia's Human Research Ethics Committee. If you have any ethical concerns about the project or questions about your rights as a participant please contact the Executive Officer of this Committee, Tel: +61 8 8302 3118; Email: humanethics@unisa.edu.au

Research participant invitation

My name is Jannatul Fardous and I am doing PhD at the school of Information technology and mathematical sciences (ITMS) in UniSA.

I am studying "Investigating social media users' collaborative information seeking behaviours during group trip planning and the execution of travelling". For this purpose, I am required to conduct questionnaire surveys and semi-structured interviews to collect users' experience as data. The goal of this study is to explore the behaviours of social media users and to identify the impacts of social interactions on social media in tourism domain. The findings of this research will present an in-depth understanding on employing social interactions for collaboration while seeking tourism-related information. In addition, some design features will be provided to develop or re-designed a new collaborative information seeking (CIS) tool or interface for social media users.

Your participation would involve to participate the questionnaire surveys where you are required to answer the questions, for example activities and interactions with your tour mates during trip planning and execution of the trip. The link or print copy of the questionnaires will be provided to participants via email when necessary or in-person. Participation is voluntary and participants may withdraw at any time without it affecting your position or studies at UniSA. All records containing personal information will remain confidential and no information which could lead to the identification of any individual will be released, unless required by law.

Requirements for participant:

1. At least 18 years old,
2. Should be social media user (participant is required to have an account in social networking site and access the social networking sites, blogs, forums through mobile devices),

3. Planning or returned from a trip as a group and the trip planning activities include deciding on the destination place, transportations, accommodation, and foods and activities at destination,
4. Each group must have at least two members and the additional group members (tour partners) will be selected by the primary participant himself/herself.

Tasks for participants:

Your participation is mainly to complete a questionnaire survey. There are two versions of questionnaire, one for pre-trip planning and another for post-trip reflection. If you are planning a trip with other people, please go to the pre-trip planning questionnaire link below and complete the survey. If you have recently had a group trip, please participate in the post-trip questionnaire link below.

Please note that if you are qualified for both of the surveys (Pre-trip and Post-trip), you can participate in both questionnaire surveys based on your experiences (trip-planning and during the trip).

Appendix C: Questionnaire survey during trip planning phase

Pre-trip Questionnaire

1. **Time and Date of your upcoming trip**

2. **Place of your trip planning activity (e.g. home, office, university, in the street, and shopping mall)**

3. **Which Device you have used during the planning activities**? For example, mobile phones, and tablet)

4. **Name of the place you are planning to visit**

5. **What type of planning activities you have done personally in your trip-planning stage?**

   Please tick the box (es) based on your experiences.

   ☐ Selecting time and length of the trip.

   ☐ Searching information on social media.

   ☐ Booking of flight

   ☐ Booking of accommodation

   ☐ Selecting destination place and attractions at destination.

   ☐ Discussing and sharing information with tour mates

   ☐ Discussing with people (friends, family, colleagues, and acquaintances) from social media in order to gain information.

   ☐ Validating of information by discussing with people from social media (e.g. Facebook/WeChat).

6. **What were the situations you communicate or collaborate with your tour mates during the trip planning stage?** E.g. sharing information or else.

7. **What did you discuss and share with your tour mates during the planning?** For example, time and date of the trip, and search results etc.

8. **How did you share or collaborate with your tour mates for any trip-related information during trip planning?** For example, phone or Facebook Messenger or WeChat.

9. **Did you communicate / discuss with anyone else (i.e. not your tour mates) from social media for searching trip-related information? If Yes, who?** For example, Family member or friends via social media.

10. **If the above question was Yes, what did you discuss?**

11. **Did you share the information you obtained from the search via social media with your tour mates? If Yes, how did you share?** For example, phone or Skype.

12. **What are the sources of trip-related information you relied/trusted most during the trip planning stage? And why?** For example, sources can be Family members/tourism websites / blogs etc.

13. **During the trip planning, did you use social media for searching your trip-related information, and if yes, what was the situation?** For example, searching for ideas.

14. **During the trip planning, did you search for information on social media, and if yes, when and why?? Can you explain it in the stages of your trip planning (e.g.** beginning, middle and end of trip planning**)**

15. **Which feature of social media influence you to make decision during your group trip planning?**

    Please tick the box (es) based on your experiences.

    ☐ Photos and videos shared by tourists.

    ☐ Experiences and opinions shared by tourists.

    ☐ Source of credible and authentic information

    ☐ Social media as group communication tool.

    ☐ No influence at all on my trip planning.

16. **At the end of your trip planning, did you change your mind in the selections** (destination and tourist's spots etc.) **after communicating/discussing with people from social media? If Yes, what did you change?**

17. **Please explain how did the social media or people from social media help you in your trip planning?**

Appendix D: Questionnaire survey during execution of the group trip phase

Post trip Questionnaire

1. **Time and date of your recent trip**

2. **Name of the place you have visited**

3. **What type of devices you have used for your communication and information need during the trip?** For example, mobile, tablet.

4. **Profession of participants**

5. **Do you have any account on social networking sites? If Yes, please write down the name of social networking site you access frequently.**

6. **What were the situations you communicate/collaborate (worked together) with your tour mates when you were holidaying together?** For example, sharing information or anything else.

7. **Did you have any information needs to discuss/share with your tour mates during the trip? If Yes, what were that information needs?** For example, transportation (bus/train)

8. **Did you use/access social media during your trip for your trip purposes? If yes, why?**

9. **During the trip, how many times did you use social media every day?**

☐ Once a day.

☐ 2-3 times a day.

☐ 4-5 times a day.

☐ More than 5 times a day.

☐ didn't use at al.

10. What were the situations for using social media when you were holidaying at your destination?

11. What type of information (related to your trip) did you search on social media during travelling?

12. Did you communicate / discuss with anyone else (i.e., not your tour mates) from social media during the trip for any-types of information? If Yes, who? For example, Family.

13. If the above question was yes, did you change your plan because of the gathered information? If yes, what did you changes (e.g. route)?

14. Did you share anything (information) that you obtained via social media with your tour mates? If yes, how did you communicate/discuss information searching and decision-making with your tour mates during the trip?

15. Did you share anything or experiences of your trip on social media when you were in the trip? If yes, why?

16. If the above question was Yes, what did you share on social media?

17. After returning from the trip, did you share/post your experiences, opinions, photos and videos on social networking site (e.g. Facebook)**? If yes Why?**

18. How did social media help you during the trip?

☐ to gain particular information on tourism products.

☐ To get the overall picture of destination via photos and videos.

☐ To validate information by checking/discussing with people via social media.

☐ Other.

If others, please write down here.

19. Could you write the important aspects/characteristics of social media which help you during group travelling?

Appendix E: Interview guidelines during the group trip planning and execution of the group trip

Interview on group information seeking during trip planning phase

Questionnaire

1. Basic information about group trip composition.

i) How many members in your group?

ii) Who were they?

2**. Basic information about your trip.**

iii) Where did you go?

iv) How many days did you stay there?

3. Experience using social media

v) What social media do you use?

vi) How long do you use social media?

vii) Which device do you use to access social media?

Interview Part

1. **How did you decide the details of the trip? How did you gather information about the trip, e.g. destination, hotel, places to see?**

2. **Could you explain how did you search, browse (look around) and share your trip related information?**
   i) Did you (with team mates) search same/different trip-related information?
   ii) Were you located together/separately?

3. **Can you tell me in which situations/under what circumstances did you use social media for your travel planning? Please give details.**

4. **Did you post anything on social media platforms about your trip? If yes, what did you post? Why did you post?**

Now I would like to know your experiences about how you planned your trip as a group.

5. **What were the reasons to collaborate/work together with your tour mates? (give details)**
6. **What did you share and discuss with your tour mates during trip planning stage?**
7. **How did you collaborate with your tour mates for trip related purposes? Please give me an example.**

8. **Did you have any conflict/disagreement/complain with your tour mates while making decisions? If yes,**
   i) What types of conflict occurred?
   ii) How did you handle/solve them?

9. **For trip-related purposes, did you communicate / discuss with anyone else (apart from your tour mates) during trip planning?**

i) If yes, who were they?
ii) How well do you know each other?
Probing questions: how often do you communicate with that person? How do you maintain your relationships? (For example, just follow that person's news on SNS)?
iii) On the 1- 5 Likert scale, how do you rate your relationship? 1 stands for not closed at all and 5 stands for closed.
iv) How did you communicate/discuss with that person?
v) Why did you communicate/discuss with that person for your trip planning? Please explain in-details.
vi) How did you find the information or communication with them and did they have impacts on your present decisions?

10. **Did you review blogs/forums etc. written by travel company or experienced tourists during trip planning? If yes,**

i) Can you please give me the details?
ii) How did you use them?
iii) Why did you use them?

iv) What triggered you to review blogs/forums etc.?
v) How did you find the information you got from blogs/forums etc. for your trip planning? Please explain (example in your case).

11. **Did you share the information you got from social interactions or via social media (blogs/forums) with your tour mates?** If yes,
    i) How was it shared?
    ii) What did you share
    iii) Why did you share that information?
    iv) How did that information help you in your group trip planning?

12. Did any adverse effect arise due to the information you got from social interactions? What and why? Or the information was not useful/helpful for your trip planning?

Interview on group information seeking during travelling phase (at the destination)

Now, I would like to know about your travel information seeking experiences when you were at your destination.

1. **Did you use social media during travelling?**

If yes,

a) **Can you tell me in which situations/under what circumstances did you use social media during travelling? Please give details.**
b) **During travelling, did you communicate/discuss/share with anyone (including your tour mates) via social media for trip-related information?**
    i) If yes, who and why did you communicate?
    ii) How did you communicate with that person?
    iii) How did you find the information you got from that person (useful/helpful/not useful etc.)? Please explain (example in your case)

If the participant researches on social media instead of communicating with others (people), question C will be asked.

c) **During travelling, did you review blogs/forums etc. written by travel company or experienced tourists during travelling?** If yes,
    iv) What were they?
    v) How did you use them?
    vi) Why did you use them?
    vii) How did you find the information you got from blogs/forums etc.? (Useful/helpful/not useful etc.)? Please explain (example in your case).

d) **Did you share the information you got from social interactions or via social media (blogs/forums) with your tour mates?** If yes,
   i) How was it shared?
   ii) What parts of it was shared?
   iii) How that information did gained from social interactions or social media impact your present decision?

e) If no, why didn't you share with your tour mates?

f) Did you share any information on social media during travelling? If yes, what and why did you share?

g) After coming back from the trip, did you use social media to share about your recent trip? If yes, what did you share? Why did you share? And how?

If no,

Why did you not use social media during travelling?

2. Let's talk about how tour mates work together during travelling.

i) During travelling time, how did you search for information?
ii) When did you search for information during the trip?
iii) What kind of information did you search for and share within the group
iv) **Probing question:** Did you (team mates) search same/different trip-related information sitting together/separately?
v) How did you collaborate with your tour mates for trip related purposes? Please give me an example.
vi) What were the reasons to collaborate/work together with your tour mates? (give details)
vii) What did you share and discuss with your tour mates during the trip?
viii) Did you have any conflict/disagreement with your tour mates during traveling time? If yes, what types of conflict occurred? And how did you handle/ solve them?

Additional feedback:

What else do you want to tell me about your group trip for example, communication, coordination and preferences?

In general, what do you think about social media for your travel planning?

Appendix F: Coding scheme

Phase: Group Trip Planning

Table 1: Codes developed for RQ1 (During group trip planning)

Research question	Open codes	Selective codes

RQ1. What are the triggers and characteristics of tourism CIS behaviours?	• Requirement of preliminary discussion
	  ○ When need to discuss and select on tourism products (holiday destination, sharing tasks among members and initial information about flight/type of hotel/things to do and go)
	  ○ When need to discuss about planning like when to meet next time or how contact with other etc.
	  ○ When need to discuss about budget of toruism products like hotel, car rents, and flight fare
	• Lack of knowledge
	  ○ When need to know updates of planning (i.e., search results or important things to discuss with
		Triggers for intra-group communication

everyone like which hotel and flight as per budget)

    - When need to know specific information (i.e., which websites or links, name and location of hotel, airport and toruists' spots)

- Need of sharing opinions or preferences

    - When need to know other member's opinions and ideas on search results (i.e., options of hotels, airlines, local transportation, time and length of the trip etc.)

    - When need to ask reasoning (i.e., explanation of selecting particular hotel, tourists' spots or transportation etc.)

- Necessity of decision-making

    - When need to know other members' decision to select tourism products and services (i.e., hotel, foods, transportation,

route or places to go and length of the trip) ○ When need to ask other members' choice among all options. • Initial co-planning on the trip ○ Group members were needed to make some initial planning on the upcoming trip (e.g. holiday destination, time, date and length of the trip, mode of transportation (by flight or by car), available foods and authentic cuisines (local food), weather and related suitable clothes, and safety issues at the potential destination). ○ Group members also had distributed information searching tasks among members. • Seeking and sharing of information ○ Members of the group shared their findings of research on the tourism products with other	Characteristics of intra-group communication

members so that every member can see and give their opinions. For example, they shared links of blogs, screenshots of reviews, pictures and videos of visiting places (e.g. names, routes and timing).

    - They shared their (group members) views and thoughts on the new ideas and information.

- Prioritisation of choices

    - The group were required to go through a step to prioritise their chocies before make-decision. At this step, group members discussed together to prioritise their choices considering every member's choices. For example, they narrowed-down the list of findings (i.e., two/three hotels, list of places and things to do, possible restaurants and places to take break on the way to destination).

- They also resolved their disagreements on choices by explaining reasoning and through voting of members.

- Collaborative decision
    - Group members had gone through a step of group decision-making. In the end of trip planning, they sit together (via face-to-face or online) to make final decision on everything like (final date, booking flight ticket or renting cars, things to take like clothes, shoes and passports, places to eat on the way and destination place, booking of local transportation etc.

Table 2: Codes developed for RQ2 (During group trip planning)

Research question	Open codes	Selective codes

RQ2. How do tourists within a travel group collaborate with each other for tourism information seeking and sharing?	• Group members used social media tools to communicate and share information
	  o Facebook Messenger, t, Instagram and Twitter
	• They also used phone calls and text to talk and exchange information
	  o Mobile calls
	  o Instant Messaging
	• Members used communication apps to share their search results, photos and videos, and thinking
	  o WhatsApp, Viber and Skype
	  o WeChat and QQ
	• Group members met Face-to-face to share thoughts and discuss preferences together
	  o Physical meeting with tour mates
	  o Online face-to-face meeting
	• They used e-mail to share links of websites, blogs and social media pages, and options
		Methods for intra-group communication

- G-mail, Yahoo and QQ

- Requirements of group communication
  - Sharing links of websites, images and videos of local activities and attractions via social media communication tools.
  - Expressing ideas, opinions and reasoning on the shared information through social media.
- Group members' geographic locations
  - Sharing links of blogs, screenshots of reviews, pictures and videos of visiting places (e.g. names, routes and timing) with other members via social

Factors in selecting method for intra-group communication

media communication tools when they are not co-located.

- Sharing views and thoughts on the new ideas by social media.

- Speeding up the planning process
  - Meeting face-to-face to share ideas, preferences and make-decision quickly.
  - Meeting in-person to resolve conflicts among group members.
- Urgency and types of information needs
  - Communicating through mobile phone calls to share opinions or ask reasoning when needed to make-decision immediately.

Table 3: Codes developed for RQ3

Research question	Open codes	Selective codes
RQ3. Under what circumstances do	• Having basic understanding on destination	

tourists use social media for information seeking and sharing regarding their group trip?	○ Discussion on destination, hotel and places to visit ○ Searching on social media to see photos and videos about the destination and available accommodation and their price • Gathering more information on various tourism products ○ Looking for information about destination, hotel, foods and transportation on blogs, social media pages of tourism service operators and organisation ○ Searching and finding experiences, ratings and suggestions about visiting places, hotels, transportations, airlines and restaurants by other tourists • Seeking certain information on tourism products and services ○ Checking on the reviews of hotel, e.g. distance from hotel to tram station or nearest restaurants around hotel	Circumstances of social media usage during trip planning

    - Going through the experiences to find bad and good incidents about local visiting spots, security about public transports and visiting places and events

- Validating specific information related to destination
    - Cross-checking about the deals on price of hotels and airlines
    - Verifying about the destination place, local visiting places, activities, and accommodation through checking multiple reviews to finalise
- Collaborating with group members
    - Contacting with group members to learn opinions and reasoning
    - Sharing search results, e.g. links of websites, photos and videos, about visiting places, hotel rooms, restaurants and screenshot of comments and reviews
    - Sharing ideas and point of view on the shared information, e.g. opinions

	on probable hotel and selecting local places and activities	

Table 4: Codes developed for RQ4

Research question	Open codes	Selective codes

RQ4. How and why do tourists collaborate on social media during tourism information seeking?	• Collaborating with others on social media
	  ○ Close friends
	  ○ Family members/relatives
	  ○ Colleague and acquaintances
		Direct social interactions

	• Collaborating with others on social media
	  ○ Go through and post queries on personal blogs or social media pages to seek information
	  ○ Access social media pages (i.e., Facebook and Instagram pages, WeChat group) of travel organisations and groups to check bad experiences of other tourists
	  ○ Post questions to travel groups in WhtasApp, Facebook Messengers and WeChat to seek information
		Indirect social interactions

- Finding and gathering specific information
    - Search about local visiting places, local activities, events and cuisines on social media
    - Contacted with experienced tourists (friends and family members) to gather ideas and suggetsions
    - Read experiences shared on social media pages and blogs to find and gather particular information as much as possible about events and routes (safety and security, local weather)

Motivations of employing social interactions on social media

- Scheduling the trip-related activities
    - Group members go through social media pages to see the reviews and plans of other tourists for deciding time and length of the trip, e.g. how many days are enough to visit Tuscany, Italy.
    - Contacting with known experienced tourists to know about best time of the trip and length of the trip as well, e.g. discussed with friends to know which month is good to visit Europe
- Cross-checking of ideas

- Access blogs and social media pages on FB, Twitter and Instagram to see other tourists' plan and activities to verify their own plan. E.g. read other tourists' experiences to learn their plan like route, transportation and restaurants (Chinese) etc.
- Contacted and talked about trip plan with friends and relatives via social media. E.g. discussed with friends to verify the planning of visiting Dubai during school holiday and sought some names of hotels in Dubai and emirates.

Table 5: Codes developed for RQ5

Research question	Open codes	Selective codes

RQ5. How do social interactions on social media influence tourists' CIS behaviours?	• Changing decisions on tourism products and services
	  ○ Attractions/visiting places at destination
	  ○ Accommodation
	  ○ Restaurants
	  ○ Time and length of the trip
		Influences of social interactions on social media

	• Deciding tourism products and services (i.e., holiday destination, mode of transportation, local attractions and activities)
	  ○ Discuss with experienced tourists to learn and then to decide on destination, and local attractions and activities.
	  ○ Contact with other known social media users to know about budget, proper time to visit and available food options. Also decide transportation based on the direct suggestions.
	  ○ Communicated with known experienced tourists and service operators (i.e., Hotel manager and airlines people) via social media to get quotation and deals on hotels, flight fare, car renting and prices and time to reach from one place to another place at the destination.
		Influences of direct social interactions

• Deciding tourism products and services (i.e., holiday destination, hotel, restaurants and local activities)
  ○ Select holiday destination place, hotel, restaurants and local places to go and things to do based on the experiences of unknown tourists on blogs, social media pages and travel groups as well as reviews and ratings (bad experiences) shared by other tourists.
• Reducing uncertainties on the trip
  ○ Group members go through the personal tourist's blogs, social media page of travel website (i.e., ask.qyer.com, TripAdvisor, and google maps) to cross-check the information obtained via direct social interactions to make informed decisions by reducing the uncertainties. E.g. verify the mode of transportation (selecting driving rather than flying to reach destination-Melbourne) by reading the recommendations of other tourists though friends suggested to go by road.
	Influences of indirect social interactions on social media

Phase: During group travelling

Table 6: Codes developed for RQ1 (During travelling phase)

Research question	Open codes	Selective codes

RQ1. What are the triggers and characteristics of tourism CIS behaviours?	• Necessity of sharing trip-related information
	  ○ When need to share information (route, address, picture and links)
	  ○ When need to discuss about planning (next day activities)
	  ○ When need to sudden plan/ideas and know opinions of tour mates
	• Requirement of organsing the tour group
	  ○ When need to inform timing and location of group meeting
	  ○ When need to discuss about schedule of breakfast, time to leave for local attractions/activities
	  ○ When need to share current update of tour mates (someone or few members is/are going outside of the hotel)
		Triggers for intra-group communication

• Seeking and sharing information
  ○ Sharing links of websites, images and videos of local activities and attractions via social media communication tools.
  ○ Expressing ideas, opinions and reasoning on the shared information through social media.
• Synthesising information
  ○ Discussing together every member's ideas and search results (e.g. names of destination, hotels, routes and duration of the trip and budget).
  ○ Sharing views and thoughts on the group member's ideas and prefernce. E.g. which places they can visit on their way to a scheduled tourist's spots or what activities everyone can perform.
• Making alterations
  ○ Meeting face-to-face to share new ideas and preferences to make changes on the pre-planned ideas, e.g. they change visiting place due to one of the member's sudden health issues.
	Characteristics of CIS activities during group travelling

- They also make change on the activities due to local weather and transportation issues at the destination.

- Coordinating the group together
    - Communicating through social media communication tools or mobile phone calls to coordinate the group activities like when to go outside, for breakfast and lunch.

- Making on-site trip-related decisions
    - The entire group meet and discussed together to make-decision on onsite tourism products like performing activities like rides or visiting extra tourist's spots.
    - All group members also discussed together to decide on restaurants instantly.

- Solving conflicts among group members
    - Group members meet together to solve their clash in preferences such as they use voting system to make decision or they split into two groups to perform

activities based on their preferences.

Table 7: Codes developed for RQ2 (During travelling phase)

Research question	Open codes	Selective codes

RQ2. How do tourists within a travel group collaborate with each other for tourism information seeking and sharing?	• Social media tools
	  ○ Facebook Messenger, Instagram and Twitter
	• Phone calls and text
	  ○ Mobile calls
	  ○ Instant Messaging
	• Communication apps
	  ○ WhatsApp, Viber and Skype
	  ○ WeChat and QQ
	• Face-to-face
	  ○ Physical meeting with tour mates
		Methods for intra-group communication

	• Situations of participants and urgency of information needs
	  ○ When group members were needed to share opinions to make choices about on-site visiting places, restaurants and fixing time, they met in-person as a group.
	  ○ When they were needed to solve conflicts about preferences on tourism products, they also met in-
		Factors in selecting method for intra-group communication

person to discuss and make collaborative decision.

    - When group members were needed to share proposals, ideas and advice, they also met in-person.

- Types of information needs

    - When tourists were needed to re-plan their trip-related activities, they shared information like links of blogs, screenshots of reviews, pictures and videos of visiting places (e.g. names, routes and timing) with other members via social media communication tools.

    - They also used social media communication tools to share opinions and suggestions on the new ideas when they were not co-located.

- Coordinating the entire group

    - During travelling, tour mates were required to coordinate the tour group

	while about to perform as well as executing the activities. ○ In order to lead the group, they coordinated the tour group via group chat on social media for notifying the meeting location, upcoming activities, and timing of executing the events. ○ They also met in-person to resolve conflicts among group members.	

Table 8: Codes developed for RQ3 (During travelling)

Research question	Open codes	Selective codes
RQ3. Under what circumstances do tourists use social media for information seeking and sharing regarding their group trip?	• Obtaining information ○ Seeking and gathering customised information ○ Cross-checking of information • Posting information ○ Sharing experiential travel activities ○ Sharing travel-related post to seek information	Re-planning of the trip Sharing information

	• Getting up to date information
	  ○ Getting local news and events related information
	  ○ Getting recent updates of activities of family and friends
		Getting recent updates

	• Communication
	  ○ Communicating with their family members and friends
	  ○ Collaborating with accompanying tour mates
		Communication tool

Table 9: Codes developed for RQ4 (during travelling phase)

Research question	Open codes	Selective codes

RQ4. How and why do tourists collaborate on social media during tourism information seeking?	• Collaborating with others on social media
	  ○ Close friends
	  ○ Family members/relatives
	  ○ Colleague and acquaintances
		Direct social interactions

	• Collaborating with others on social media
	  ○ Go through and post queries on personal blogs or social media pages to seek information
	  ○ Access social media pages (i.e., Facebook
		Indirect social interactions

and Instagram pages, WeChat group) of travel organisations and groups to check bad experiences of other tourists ○ Post questions to travel groups in WhtasApp, Facebook Messengers and WeChat to seek information	
• Seeking and validating particular information ○ Search about places to go, local activities, events and cuisines on social media ○ Contacted with experienced tourists (friends and family members) to verify ideas and seek tips ○ Read experiences shared on social media pages and blogs to seek particular information about events and routes (safety and security, local weather)	Motivations of employing social interactions
• Quicker way of finding information ○ Access google map to see the reviews and decide on the restaurants instantly during travelling ○ Also go through social media pages to search for pictures and opinions to alter their places to visit due to sudden circumstances	

	(i.e., weather and physical condition) ○ Contacting with known experienced tourists to obtain direct suggestions to change plan as well as decide on activities instantly	

Table 10: Codes developed for RQ5 (during travelling phase)

Research question	Open codes	Selective codes
RQ5. How do social interactions on social media influence tourists' CIS behaviours?	• Changing decisions on tourism products and services ○ Restaurants ○ Attractions at destination ○ Transportation ○ Route	Influences social interactions on social media
	• Deciding tourism products and services ○ Discuss with experienced tourists to obtain ideas and then to decide on local attractions and activities. ○ Contact with other known social media users to know about restaurants and foods. Also decide restaurants based on obtained the information due to	Influences of direct social interactions

special dietary requirements.

- Communicated with known experienced tourists via social media to get instant suggestions on local transportation types, prices and time to reach from one place to another place at the destination.

- Deciding tourism products and services
  - Go through experiences of unknown tourists on blogs, social media pages and travel groups to gather ideas and reviews about local attractions and activities to re-plan trip activities.
  - Read reviews and check ratings (bad experiences) shared by other diners about on-site restaurants to decide on them instantly.

Influences of indirect social interactions