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INVESTIGATION OF ANTECEDENTS AND CONSEQUENCES OF USEFULNESS IN ONLINE TRAVEL COMMUNITIES: THE MODERATING ROLE OF DECISION MAKING STAGE

Bindu RANGA
School of Hotel Management and Tourism, Lovely Professional University Phagwara Punjab, India
ORCID: 0000-0002-2834-7554

Ranbir SINGH [1]
Department of Tourism and Hotel Management, Central University of Haryana, India
ORCID: 0000-0001-7629-1973

Indu RANGA
Department of Tourism Management, Christ University, Bangalore, India
ORCID: 0000-0002-8946-050X

ABSTRACT

This study examines the perceived usefulness (PU) of online discourse and the decision-making behavior of users in Online Travel Communities (OTCs). Partial least squares structural equation modeling (PLS-SEM) was used on secondary data available in OTCs in the form of 852 threads to empirically test the proposed integrated model. The antecedents of the perceived usefulness of online travel communities were found to be the argument quality and credibility. These influence the PU of user-generated content significantly and are helpful in information adoption in OTCs. The PU of OTC discourse positively impacts travelers' information adoption and decision-making. The current study offers implications for OTCs and online service providers for enhancing the usefulness of user-generated content in OTCs and social media sites, leading to online information use and travel decision-making. Prior literature has explored the nature and magnitude of the influence of electronic word-of-mouth (eWOM) on information adoption and intention to use information for travel purchases from users' perspectives and has investigated the PU of third-party travel sites. This paper is an effort to examine PU and decision-making by analyzing the User-Generated-Content (UGC) posted by the actual users.

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[1] Address correspondence to Ranbir SINGH (Prof.), Department of Tourism and Hotel Management, Central University of Haryana, India. E-mail: ranbir@cuh.ac.in

INTRODUCTION

Developments in internet technologies have amplified social networking sites and mobile applications that have helped in the extensive spread of electronic word-of-mouth (eWOM) in tourism information systems (Capriello et al., 2013; Gvili & Levy, 2016). eWOM can be available in the online sites' records, which can be retrieved anywhere, anytime, distinct from the offline word of mouth (Yang et al., 2012). The growth of eWOM in the tourism industry has augmented the expansion and popularity of third-party travel sites, which offer a platform for interactions among users and generate User-Generated-Content (UGC) about travel and service providers (Chong et al., 2018). Tilly et al. (2015) stated that around 20 to 45% of travelers use social media (SM) for information searching, alternative evaluation, and travel planning; however, only 5 to 30% of users utilize social media to share their experiences online. The generation of eWOM takes place on social media sites and online review sites as consumers post opinions and views, and consumers use suggestions or recommendations available in the form of eWOM to support their decisions (Munar & Jacobsen, 2014). Social networking sites and Online Travel Communities (OTCs) help facilitate travelers' travel decisions and evaluate their experiences while sharing knowledge online with potential travelers (Hajli et al., 2018; Kim et al., 2013). The information writing and posting on social media sites is the "giving" process, while the "taking" process of information search involves the interaction process where the available information is selected, read, replied to, and liked. The "taking" process has been investigated less than the former (Chung et al., 2015). The activities of liking, commenting on posts, and replying to any remark enhance the intimacy among social media users (Chung et al., 2015). Information in OTCs is co-created through prosumption as information is created and shared by residents, potential tourists, and businesses on a single platform (Oriade & Robinson, 2019). In OTCs, copious thoughts and ideas are exchanged on a single platform in the form of thread postings that also build the content quality of OTCs (Brand, 2016). The threads having longer content posted by users facilitate the Original Poster (OP) in decision making by offering detailed information, sharing observations, and providing guidance and suggestions while reducing uncertainty (Fang et al., 2018). Information usefulness in online communities depends on the trustworthiness, completeness, and timeliness of information, positively influencing users' purchase intentions (Cheung, 2014). The researchers have developed conceptual models to elaborate on the use of eWOM in travel decisions (Papathanassis & Knolle, 2011; Ayeh et al., 2013; Chong et al., 2018; Wang

& Li, 2019). Chong et al. (2018) have categorized the previous research on eWOM in tourism from the perspective of the sender, tourism managers, third parties, and the eWOM users. However, the studies have explored the nature and magnitude of eWOM influence on travelers' intentions to adopt and use to finalize their plans (Cheung, 2014; Chung et al., 2015; Chong et al., 2018), but these studies have disclosed the implications from the perspective of the users.

This paper investigates which aspects of online postings influence UGC's usefulness and what makes the Original Poster (OP) adopt the information shared by fellow members and make their final travel decisions. Additionally, the studies have analyzed respondent characteristics such as gender (Chong et al., 2018; Dedeoglu, 2019) and social presence (Chung et al., 2015), but the users' need for information to make final travel decisions has not been studied yet. Two stages of decision making, information search and alternative evaluation, are measured as moderators for the current study. Information search behavior in OTCs was analyzed by investigating the giving and taking process of the community members, and the authors have analyzed the UGC posted by the actual users and examined the real data produced by them. As in OTCs, the members communicate with each other for information search and travel planning purposes, and this study evaluates online discourse in OTCs using an Elaborate Likelihood Model (ELM) for measuring the impact of credibility (peripheral) and argument quality (central) on travel adoption by analyzing the mediating effect of perceived usefulness and also explores the decision-making of users.

The paper has the following structure. First of all, in the literature review, the antecedents of Perceived Usefulness are elaborated according to the ELM. Then information adoption and decision-making in OTCs are explained, along with the proposed hypotheses. Further, the research model is explained. Next, the research methodology and data collection procedure are elaborated. Subsequently, the data analysis carried out in Smart PLS is explained. Finally, the research findings are elucidated along with the implications.

LITERATURE REVIEW

Information Adoption Model

Elaborate Likelihood Model (ELM) has been a popular mechanism for understanding the information adoption behavior of eWOM users as it

offers insights into how users get influenced by the available information (Filieri & McLeay, 2014; Cheung et al., 2008). An ELM examines the users' attitudes influenced by peripheral and central routes defined by their cognitive process (Chong et al., 2018). The users taking the central route for the information process think critically and analyze the possible cues related to the arguments decisively and then form an attitude about the particular service (Zhou, 2017; Owusu et al., 2016; Sher & Lee, 2009). The level of argument, measured by a person perceiving it as strong or weak, defines the argument quality (Petty & Cacioppo, 1986), which is analyzed using the central route.

On the other hand, a user taking a peripheral route for forming an attitude does not look for the quality of argument in the information offered but searches for the environmental cues that support the decision (Sussman & Siegal, 2003). Conclusions are drawn from the heuristic indicators presented in the online information, evaluated by adopting the peripheral route (Chung et al., 2015). The peripheral route evaluates source credibility (Chong et al., 2018; Wang & Li, 2019), where efforts are not made to message elaboration (Angst & Agarwal, 2009). The argument quality and credibility of UGC stimulate a positive and significant influence on information adoption as per the ELM (Sussman & Siegal, 2003; Chan & Ngai, 2011).

With the support of the previous findings, this study proposes that an ELM can be utilized to understand the information adoption behavior of OTC members. Also, information giving has been the main focus for recognizing the community characteristics of users' motivation (Lee et al., 2014), while information sharing is the primary role OTCs play by enabling users to post queries, replies, and sharing diverse information on travel which need investigation (Chung et al., 2015). Similar to Sussman and Siegal (2003), Chung et al. (2015), and Chong et al. (2018), the argument quality of OTC posts has been taken by way of a central influence, and information credibility has been examined as a peripheral influence in this study.

Hypothesized Model

Hypotheses (H1–11) have been formulated according to the following categories:

Argument Quality

The influential strength of the argument presented in the online content shared by users defines the argument quality (Bhattacherjee & Sanford, 2006). Strong arguments motivate the users to participate in information activities with a strong attitude, and they tend to evaluate information critically (Li, 2013). Chong et al. (2018) have examined argument quality in terms of the review accuracy, argument strength, timeliness, sidedness, review framing, completeness, relevance, and certainty shown in online travel reviews. McKinney et al. (2002) have investigated argument quality as information accuracy, content, timeliness, and structure. Chung et al. (2015) analyzed the completeness, accuracy, consistency, timeliness, and definite travel information shared on social media to understand travelers' information adoption behavior. Further, the argument quality and information usefulness have been significantly addressed in the domain of social media, Facebook, online communities, and computer-mediated communication research (e.g., Chung et al., 2015; Chong et al., 2018; Wang & Li, 2019; Bhattacherjee & Sanford 2006; Li, 2013) and found significant association between the two constructs. The argument quality of online travel information available on social media influences the perceived usefulness and motivates to adopt the information shared (Chung et al., 2015). In OTCs, members write answers to a query posted by an information seeker, and the various replies share diverse knowledge with varying quality. The original poster evaluates the replies according to the need. The messages with strong arguments are likely to be useful for the OP to reply to and motivate them to adopt the information for travel decision-making. Thus, the following hypotheses have been formulated:

H1a: *Argument Quality of OTC posts positively influences the online discourse's Perceived Usefulness.*

H1b: *Argument Quality of OTC posts positively influences online Information Adoption.*

Credibility

The trustworthiness, believability, and reliability of information provided on online travel platforms define its credibility for travelers (Tormala & Petty, 2004; Cheung et al., 2009) and have been assessed based on the content offered as eWOM irrespective of the trustworthiness of the information provider or the social networking site (Cheung et al., 2009; Xie & Boush, 2011). Source credibility influences PU as well as social relationships, which further augment the information adoption from UGC

in social media (Chung et al., 2015). Reviews' sources, expertise, trustworthiness, rating, and consistency have been examined to evaluate the credibility of travel reviews by Chong et al. (2018). The online travel reviews (OTRs) posted by numerous reviewers are measured as credible when there is consistency among the statements and views shared (Chong et al., 2018). Previous research has investigated the source credibility by analyzing the profile of the repliers, or authors, such as the original name, number of posts, number of replies (Chen & Ku 2012), and the expertise, trustworthiness, and knowledge of the person who shares the information (Dedeoglu, 2019) but the credibility of the information content needs to be investigated to judge the reliability and trustworthiness. Chong et al. (2018) have investigated credibility by analyzing the consistency and trustworthiness of the eWOM in an online review site and found it influential in eWOM usefulness.

Likewise, the information shared in OTC threads may contain unclear or rational information, and the content should be assessed to investigate the consistency and justification in the various posts written by many repliers in the threads. It has been hypothesized that more credible information leads to high perceived usefulness and motivates information adoption. We propose the following:

H2a: *The credibility of OTC posts positively influences the online discourse's Perceived Usefulness.*

H2b: *The credibility of OTC posts has a positive influence on online Information Adoption.*

Perceived Usefulness

Perceived Usefulness (PU) is now being examined in the travel and tourism area, where many researchers have explored the PU of Information Systems (IS). Scholars have investigated the determinants of PU information systems and technology and found information quality, system quality, and infrastructures as major determents of PU (Alsabawy et al., 2016) along with individual and situational factors (Agarwal & Karahanna, 2000) and the depth and length of online reviews (Hu et al., 2016). Wang and Li (2019) studied the utilitarian perception of reviewers by evaluating the quality of OTRs, which has a positive relationship with the PU of travel review sites and the online community (Park et al., 2014). Perceived usefulness influences Facebook users' behavior (Yang & Brown, 2015), and it positively affects consumers' trust in review sites besides influencing their purchase intentions (Agag & El-Masry, 2017). Also, PU has been found influential in

users' continuous use of online travel services and encourages them to recommend the tourism services to others (Li & Liu, 2014).

In OTCs, members post queries to seek information to help them plan and sort out travel issues. However, the given information in the OTCs is written by many repliers, and it becomes decisive to ensure that the OP gets useful information. The information provided by community members needs to be applicable in the specific situation to solve the issue at hand. The information seeker can decide whether to adopt the information provided or make the travel decision by evaluating the usefulness of the shared knowledge. Thus, it is anticipated that:

H3a: *Perceived Usefulness of OTC posts influences online Information Adoption positively.*

The Mediating Role of Perceived Usefulness

Chung et al. (2015) have investigated the SM users' perception and disclosed that the argument and credibility of online information positively influence the information usefulness, which further influences social relationships significantly. In OTCs, the OP expects to get context-specific information, which can be applied in an actual situation. They are not likely to focus on the undesired and impractical knowledge shared by the community members. Users most commonly prefer positive and negative evaluations for information support in forums (Savolainen, 2014). Again, despite numerous answers from various members of OTC, people prefer short and diverse answers that enhance the information utility for travel planning (Gal-Tzur et al., 2020). The usefulness of information mediates the effect of eWOM quantity, credibility, and quality on users' purchase decisions (Matute et al., 2016) and significantly affects travel planning (Mendes et al., 2018). Thus, it is assumed that the higher the PU of OTC information, the more likely users are to adopt the information. Tourists get influenced by the usefulness of the information, besides giving weightage to the argument's quality and credibility. It can be hypothesized that PU will significantly affect the influence of argument quality and credibility on information adoption by OTC users.

H3b: *Perceived Usefulness of OTC posts mediates the influence of Argument Quality on Information Adoption.*

H3c: *Perceived Usefulness of OTC posts mediates the influence of Credibility on Information Adoption.*

The Mediating Role of Perceived Usefulness

Sussman and Siegal (2003) have demarcated the information adoption by how users accept and use the information provided for a particular case. Cheung et al. (2008) have found information helpfulness a significant determinant for information adoption in a virtual cuisine community. Filieri and McLeay (2014) disclosed that the timeliness, accuracy, value added, and relevancy of online travel reviews and the product ranking significantly influence information adoption by travelers. Cheung (2014) surveyed online customer community members to explore the relationships regarding eWOM information adoption and concluded that reliability, timeliness, completeness, and quality positively influence the information usefulness, and that usefulness impacts the purchase intentions of the community members. Purchase decisions are the decisions of consumers to buy or not a particular product or service after reading user-generated content on travel eWOM sites (Wang & Li, 2019). For purchase decisions, eWOM has been found to be the most significant source of information (Litvin et al., 2008). Users are more likely to accept the information that can be applied in a specific situation and help make decisions. Wang and Li (2019) have proposed that a multi-purpose–oriented design of a travel review site would positively influence the perceived usefulness, further stimulating the eWOM use and generation positively, enabling users to make purchase decisions.

In OTCs, the members participate in the online discourse and discuss various travel issues. The original poster must write comments on the knowledge shared by fellow members to call a thread complete. Only the OP's comments on the replies provide the direction to the discussion and lead it to a conclusion. Thus, the positive reply to the following posts indicates the agreement and intention to adopt the information. A high number of posts by the OP also indicates high involvement. The OTC members show indications of adopting information by interacting more with users who offer useful information. High intentions to adopt the offered suggestions and recommendations will influence travel decisions by generating more useful discourse. The user-generated content tells whether the OP intends to adopt some part of the information or is likely to take the travel decision. Also, the OP mentions the travel decisions in the replies. Hence, we can expect that:

H4a: *Perceived Usefulness of OTC posts is positively associated with travel Decision Making.*

H4b: *Information Adoption of OTC posts is positively associated with travel Decision Making.*

H4c: *Information Adoption mediates the relationship between Perceived Usefulness and travel Decision Making.*

Decision Making Phases as Moderator Analysis

Li et al. (2019) compared the high-quality answers for "information-seeking questions and discussion-seeking questions" in Research Gate Q&A, an online community used by academicians worldwide. The authors have revealed significant differences between the high-quality answers for the two categories; for instance, the theoretical basis was essential for information-seeking questions, and the replies' authority was a significant element for the discussion-seeking questions. However, Li et al. (2020) did not find significant differences in the scholars' perceptions of quality criteria across the two question types.

The Tourists' Cognitive Decision Making (TCDM) model proposed by Chen (1998) has stressed the cognitive process of travel decision-making, including the Problem Formulation stage, Information Search, Alternative Evaluation, and Implementation as decision-making stages. Twumasi and Adu-Gyamfi (2013), in the study of TripAdvisor, revealed that tourists actively use the OTC for disclosing their travel needs, information search, alternate evaluation, and final decisions. Gretzel et al. (2007) also found that travelers analyze reviews for idea generation, option evaluation, and confirming their final choices. The queries seeking "Information Search" and "Alternatives Evaluation" have different motives behind their postings in OTCs. As alternative evaluation is the second stage of travel decision-making, it is assumed that tourists posting such queries have basic knowledge about the topic or issue, and they are keener on others' opinions and recommendations. Thus, the argument quality can be important for these enquirers.

On the contrary, people post simple queries to get information about travel planning and facilities, and repliers answer such queries more objectively by sharing factual information, details, and general knowledge. Chung et al. (2015) analyzed the moderating effect of social presence on argument quality and source credibility influence on the PU of travel information. The results signified that in low social presence, argument quality is more significant on PU while the consequences of source credibility are more significant for PU. Choudhary and Gangotia (2017) revealed that Generation Y travelers use social networking sites actively to

get clarity about various alternatives and make travel decisions. Thus, the two stages of travel decision-making have been used as the moderators in the proposed research model, and the following hypotheses are proposed:

H5: *The Argument Quality of online discourse influences PU differently for travel decision-making stages.*

H6: *The Argument Quality of online discourse influences Information Adoption differently for travel decision-making stages.*

H7: *The Credibility of online discourse influences Information Adoption differently for travel decision-making stages.*

H8: *The Credibility of online discourse influences PU differently for travel decision-making stages.*

H9: *The Perceived Usefulness of online discourse influences Information Adoption differently for travel decision-making stages.*

H10: *The Perceived Usefulness of online discourse influences Decision-making differently for travel decision-making stages.*

H11: *The Information Adoption of online discourse influences Decision-making differently for travel decision-making stages.*

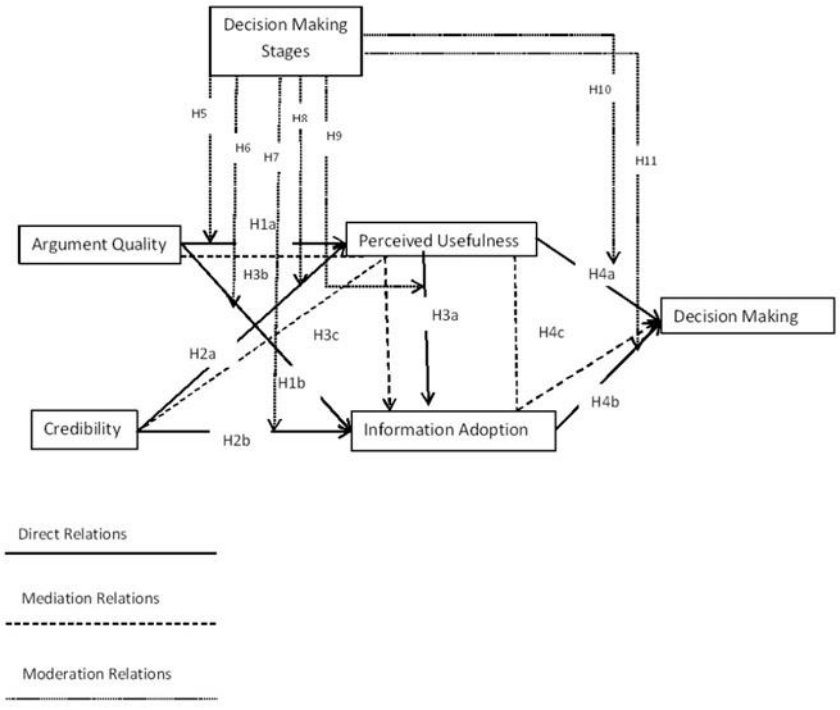

Figure 1. *Hypothesized Model of Decision-Making in OTC*

The conceptual model of information adoption and decision-making in OTC is shown in Figure 1. There are two exogenous constructs –

argument quality and credibility – and two mediators – PU and information adoption. Finally, one endogenous construct is decision-making. The direct and indirect relations among the constructs are examined on the secondary data collected from two OTCs.

METHODS

Measurement of Constructs

Based on the existing literature, the argument quality of posts in a thread has been defined by five items: accuracy, clarity, sidedness, completeness, and relevancy. All the measurement items have been analyzed in the previous research literature (e.g., Cheung et al., 2009; Cheung, 2014; Chung et al., 2015; Chong et al., 2018; Cheung & Thadani, 2012). In this research, credibility is measured by the trustworthiness of the thread postings and cues presented in posts that point to reliable and validated answers. The credibility of information shared in the OTCs threads is examined by three reflective items that investigate the posts' credibility, consistency of replies, and justification offered in support of the answer by community members. For measuring discourse usefulness, adoption, and decision making, items are adopted from the previous literature (Cheung, 2014; Chung et al., 2015; Chong et al., 2018; Wang & Li, 2019). The helpfulness of replies, applicability, and appropriateness of the queries are analyzed to measure the perceived usefulness of UGC in OTCs. Information adoption is evaluated with two items measuring the intention to use the information and the adoption of solutions offered by fellow members in OTC. Decision-making was a single-item scale that described the extent to which the OP had mentioned the final travel decision based on the replies received in the OTC. The information adoption and decision-making constructs are evaluated from the recipient's response to the previous replies. The queries posted by OPs have been categorized as "Information Search Queries" and "Alternatives Evaluation Queries," the two stages of travel decision-making that have been used as the moderators in the proposed research model.

Sample and Data Collection

With the purpose of investigating the influence of user-generated content's credibility and argument quality on the perceived usefulness, info adoption, and travel decision-making in online travel communities, data was collected from two major OTCs. A total of 852 travel threads consisting of 5,958 travel postings written by OTC members in 2019 and 2020 about tourism in India were extracted and evaluated. The threads that included

discourse about Indian tourism, starting with questions and containing at least two answers and OP's comments, were major selection criteria. The "India section" of the OTCs threads was examined for data collection. Further, Thorn Tree threads were selected randomly, but because of the high number of data, every first thread on each page from TripAdvisor was checked, and all those threads were extracted which fit the criteria.

About the OTCs

TripAdvisor is one of the largest travel review platforms that provide tourists' reviews on tourism destinations and service providers worldwide. The TripAdvisor forum is a platform where users from different parts of the world communicate with each other about their travel-specific problems. The travel threads are classified according to the different regions and countries of the world, and it also offers sections on tourism products, services, and discourse themes.

Thorn Tree is an online forum of Lonely Planet, which is a popular travel guidebook that offers worldwide travel information. Lonely Planet developed Thorn Tree to compete in the market and explore social-media opportunities (Butler & Paris, 2016). The online travel community provides thread discussion over the continents, and it offers the discourse platform region-wise. In 2019, Thorn Tree had thirteen million unique global users.

Data Analysis

The available secondary data were analyzed on a five-point Likert scale (ranging from "Very Low" to "Very High") by three authors based on a questionnaire (Appendix A) prepared with items from the literature (Cheung, 2014; Chung et al., 2015; Chong et al., 2018; Wang & Li, 2019). OTCs provide online discourse, which forms a thread of questions and replies written by OTC members in text form. The textual content has been transformed into data for statistical analysis by rating the thread posts on a scale of 1 to 5. The items for argument quality were measured as formative indicators (accuracy, clarity, relevancy, comprehensiveness, and sidedness), while for information credibility, perceived usefulness, and adoption, reflective indicators were used for the path model. Decision-making was a single-item scale. However, in the above studies, the argument quality has been examined as reflective scales with multi-items. But, in this study, the argument quality has been analyzed as a formative construct. The reason for choosing the formative scale is that in previous studies, the users' perceptions were analyzed with survey methods, but in

the current research, the coders analyzed the UGC posted on OTCs. Each thread was read three to four times for more clarity of content and context of discourse, and the authors found that a thread could be rated only once for a particular quality dimension. For instance, a thread was read in the context of "information comprehensiveness," and if the members had not provided any information about what the enquirer asked, the comprehensiveness was rated as "very low (1)." If a few aspects of the query were handled, the "low (2)" rating was given. In case half of the query was answered the thread was rated as "moderate (3)," if sufficient information was shared by members to meet the enquirer's needs, comprehensiveness was rated "high (4)," and if the thread provided detailed, complete, wide-ranging information, the thread was coded as "very high (5)." Thus, all the threads were evaluated based on a single-item scale.

Additionally, the nature of single items for argument quality was not reflective. Accuracy, sidedness, clarity, comprehensiveness, and relevancy could not be used interchangeably. Hair et al. (2017a, p. 43) specified that "each indicator for a formative construct captures a specific aspect of the construct's domain." Cohen's Kappa was used to check the inter-coder reliability of two DM stages (McHugh, 2012). The values of Cohen kappa showed nearly strong inter-coder reliability for the DM stage ($\kappa = .859$). Intraclass Coefficient Correlation (ICC) was calculated for the reliability test of latent constructs coded by three raters using MODEL 3 with two-way mixed methods for "absolute agreement." The ICC revealed an excellent coefficient correlation (ICC.942) among three raters (Koo & Li, 2016).

The data were analyzed with Smart PLS 3. Usakli and Kucukergin (2018) have proposed some practical guidelines for selecting and using PLS-SEM for research in the review study. PLS-SEM is preferred over CB-SEM (covariance-based SEM) because of the objectives and constructs of the study. Further, PLS-SEM is used if 1) the objective of the research is to predict rather than to confirm (Hair et al., 2018); 2) the proposed theory is not well-established (Wold, 1985; Henseler et al., 2014); 3) while using secondary data in study (Richter et al., 2016); and 4) analyzing formative constructs with ease, devoid of any model adjustments (Diamantopoulos & Riefler, 2011; Hair et al., 2017; Bollen & Davis, 2009).

First of all, this is an exploratory study; as per the authors' knowledge, no previous study has evaluated UGC in OTCs in the context of actual users and explored their behavior. Existing theory on this topic has emerged from the user's perceptions about the UGC posted in OTCs, while this study aims to predict the antecedents and consequences of information

usefulness and evaluate the impact on UGC creators' actual decisions. Second, the decision-making stages have been analyzed in this study as a moderator, and the proposed theory has not been used to analyze online discourse in OTCs. Third, this study is entirely based on secondary data in online threads written by OTC users about travel and tourism in India. Lastly, the argument quality has been examined as a formative single-item scale, which is comparatively easy to validate using PLS-SEM.

The measurement and structural model results have been explained in the following sections, followed by the results of hypothesis tests. Also, the MICOM process was used before applying PLS-Multi-Group Analysis (MGA) for calculating the moderator effect of information search and alternatives evaluation in the process of decision-making,

This research does not constitute Human Subjects Research as only publicly available threads were analyzed, and no interaction was carried out with any OTC members. Also, identifiable evidence, such as users' names and images, was eliminated from the collected data, following the ethical practices for using social media records (Moreno et al., 2013).

DATA ANALYSIS AND STUDY FINDINGS

Demographic Information

Data from TripAdvisor.com and Thorn Tree was collected for this study. Table 1 shows the profile of the potential tourists planning their travel in India who had initiated a thread discussion in the OTCs. 34.6% of the tourists were male, and 27.8 % were female. The percentage of foreigners was higher than that of Indians. The table reveals that most queries (64.4 %) were raised for information search, while 36.6 % of queries were related to the alternatives' evaluation for future travels in India. Table 1 also discloses information regarding their places of origin and preferred destinations.

Results of the Measurement Model

The convergent validity, collinearity, and the statistical significance of weights of formatively measured constructs are evaluated for the formative constructs in PLS-SEM. Figure 1 displays the structural model of this study. Table 2 highlights the outer weights with the significance level and VIF values for the latent variables. The comprehensiveness item (0.434, $p = 0.001$) had the highest weight, whereas accuracy (0.174, $p = 0.001$) had the lowest weight of all the indicators. All the indicators are statically

significant with p <0.05 with the VIF below 3, representing no collinearity issue among the examined indicators (Hair et al., 2019). Also, the redundancy analysis of argument quality was checked using a single global item defined on the literature bases, which worked as an alternative to the argument construct and reflected the same meaning. The convergent validity was found to be 0.78 (p <0.001), which is higher than 0.70 and also acceptable (Hair et al., 2017).

Table 1. *Demographic Summary of Potential tourists (OP in OTCs)*

Indicators	Categories	Sample (n=852) Total Frequency (f)	Percentage (%)
Gender	Male	295	34.6
	Not Disclosed	320	37.6
	Female	237	27.8
DM Stage	Information Search	540	63.4
	Alternate Evaluate	312	36.6
OP' s Need	Accessibility	179	21
	Tour Plan	127	14.9
	Documentation & rules	139	16.3
	Itinerary	117	13.7
	Destination& attractions	117	13.7
	Other	104	12.2
	Accommodation & food	69	8.1
Destination region	North India	285	33.5
	North-East India	76	8.9
	West India	122	14.3
	India	113	13.3
	South India	180	21.1
	Central India	51	6
	East India	25	2.9
Place of Origin	India	305	35.8
	Foreign	366	43
	Not Disclosed	181	21.2

The "convergent validity" was evaluated with the outer loadings of the reflective constructs, which were higher than 0.70 except for the one item of PU (PU2 = .510) and statistically significant with a p-value less than 0.001, and by the "Average Variance Extracted" (AVE), which were above .50 for information adoption, information credibility, and PU. (Hair et al., 2019). Further, the VIF was below three, showing no multicollinearity issue. The reflective assessment in Table 3 also discloses that the rho_A of all the constructs was 0.796, 0.772, and 0.852 for information adoption, credibility, and PU, respectively, above the threshold value (0.70), representing accepted "internal consistency reliability" (Hair et al., 2019).

Table 2. *Assessment of Formative Construct*

Constructs	Indicators	Outer Weights	t Statistics	Outer Loadings	VIF
Argument Quality	Accuracy	0.174	3.941**	0.739	1.876
	Clarity	0.299	7.736**	0.793	1.689
	Sidedness	0.084	2.159*	0.666	1.727
	Comprehensiveness	0.434	9.474**	0.908	2.448
	Relevancy	0.221	5.121**	0.837	2.304

**p<0.001, *p<0.05

Table 3. *Reflective Constructs*

Constructs	Indicators	Outer Loadings	t	VIF	Cronbach's Alpha	rho_A	CR	AVE
Info Adoption	ADOPT1	0.917	163.909*	1.759	0.793	0.796	0.906	0.828
	ADOPT2	0.903	121.739*	1.759				
Credibility	CRED1	0.845	66.075*	1.717	0.772	0.772	0.868	0.686
	CRED2	0.818	61.5*	1.477				
	CRED3	0.822	58.11*	1.615				
Perceived Usefulness	PU1	0.918	166.82*	2.024	0.714	0.852	0.834	0.639
	PU2	0.51	12.83*	1.146				
	PU3	0.901	115.90*	2.066				

*p<0.001

Table 4. *Discriminant Validity Using HTMT*

	Credibility	Decision Making	Info-Adoption	Perceived Usefulness
Credibility				
Decision-Making	0.696			
Info-Adoption	0.614	0.885		
Perceived Usefulness	0.881	0.73	0.675	

The HTMT ratio was calculated to measure the discriminant validity (Hair et al., 2018). The HTMT values for reflective constructs were under 0.85 for different constructs and .90 for similar constructs as disclosed in Table 4 (Henseler et al., 2015; Hair et al., 2019). The HTMT inference criterion was below 1.

Assessment of Structural Model

After validating the measurement model, the R2, Q^2, and model fitness were checked in the structural model.

Table 5. *Values of R^2 and Q^2*

Outcome variables	"R^2"	"R^2 Adjusted"	Q^2
Decision Making	.702	.702	.697
Info-Adoption	.33	.327	.269
Perceived Usefulness	.647	.646	.396

Table 5 demonstrates that the hypothesized model explains 70.2 percent of the variation (R2) of the decision-making of OTC members, 64.7 percent of perceived usefulness, and 33 percent of information adoption. Further, to assess the predictive relevance of the research model, a cross-validated redundancy analysis was examined by following the blindfolding procedure (Stone, 1974; Geisser, 1974). The Q2 for DM, PU, and information adoption are 0.69, 0.39, and 0.26, respectively, which are higher than zero, showing the predictive relevance (Table 5).

Further, the standardized root mean square residual (SRMR) was calculated from PLS-SEM, which specifies a good fit of the model as it is less than 0.08 (0.064), which is the limit of good fit (Hair et al., 2018). Further, the normed fit index (NFI) values of 0.84 are near to the acceptable value (i.e., 9) for good model fit (Byrne, 2010).

Results of Hypothesis Testing

This section summarizes the results of the direct mediation and moderation hypothesis proposed in the model. For the moderating effect of the DM stage, a multi-group analysis was conducted. The results are as follows:

Direct relations among constructs:

All hypotheses were supported, as disclosed in the path coefficient results (Table 6). We found that the influence of argument quality ($\beta = .629$, $p < .001$, H1a supported) and credibility ($\beta = .210$, $p < .001$, H2a supported) were found to be significantly associated with PU. Also, the three antecedents affect information adoption significantly: argument quality ($\beta = .223$, $p < .001$, H1b supported), credibility ($\beta = .094$, $p < .05$, H2b supported), and PU ($\beta = .303$, $p < .001$, H3a supported) with 95% bias-corrected confidence intervals. The PU of OTC threads and information adoption were influencing OPs' travel decision-making significantly ($\beta = .337$, $p < .001$, H4a supported; and ($\beta = .606$, $p < .001$, H4b supported, respectively). The effect size of argument quality and perceived usefulness for information adoption are 0.02 and 0.04, respectively, showing relatively small effect sizes, and the f^2 of credibility is .005 (Table 6), which indicates a weak effect. In contrast, the effect size of argument quality for PU and information adoption for DM were large (Cohn, 1988).

Table 6. *PLS-SEM Results and Hypothesis Testing*

	Hypothesized Paths	Path Coefficient	t Value	95% CI	f^2	Decision
H1a	Argument Quality -> Perceived Usefulness	0.629	17.068**	0.556, 0.7	0.431	Supported
H1b	Argument Quality -> Info-Adoption	0.223	3.902**	0.11, 0.3374	0.02	Supported
H2a	Credibility -> Perceived Usefulness	0.21	5.642**	0.138, 0.283	0.048	Supported
H2b	Credibility -> Info-Adoption	0.094	2.042*	0.001, 0.181	0.005	Supported
H3a	Perceived Usefulness -> Info-Adoption	0.303	6.495**	0.209, 0.393	0.048	Supported
H4a	Perceived Usefulness -> Decision Making	0.337	14.419**	0.291, 0.383	0.267	Supported
H4b	Info-Adoption -> Decision Making	0.606	27.257**	0.562, 0.647	0.867	Supported

**p< .001, *p <.05

Indirect relations among constructs:

For mediation analysis, the bootstrap approach provided by Zhao et al. (2010) was applied. Table 7 discloses the indirect effects of the constructs for travel information adoption and decision-making in OTCs. The table shows that PU has mediated the effect of argument quality ($\beta = 0.191$, $p < 0.001$, H3b supported) and credibility ($\beta = 0.064$, $p < 0.001$, H3c supported) on information adoption. Further, the influence of PU ($\beta = 0.183$, $p < 0.001$, H4c supported) on travel decision-making was mediated by information adoption in OTCs. Further, all the direct and indirect relations were significant and positive; thus, the mediation type was complementary partial mediation for the examined relations.

Table 7. *Results of Mediation Effects Hypothesis Testing*

	Mediation relation	Indirect effect (β)	t	95% CI	Direct Effects	β	Mediation Type	Decision
H3b	Argument Quality -> PU -> Info-Adoption	0.191	5.814**	0.127, 0.257	Argument Quality -> Info-Adoption	0.223**	Partial Mediation	Supported
H3c	Credibility -> PU -> Info-Adoption	0.064	4.445**	0.037, 0.094	Credibility -> Info-Adoption	0.094*	Partial Mediation	Supported
H4c	PU -> Info-Adoption-> Decision Making	0.183	6.545**	0.127, 0.238	Perceived Usefulness -> Decision Making	0.337**	Partial Mediation	Supported

**p<0.001, *p<0.05

Assessment of MICOM and MGA results

In order to evaluate the moderating influence of the decision-making stage, the "measurement invariance" for the information search and alternatives evaluation groups should be acceptable (Henseler et al., 2016). Hence, the measurement invariance for the two groups was evaluated using the MICOM procedure before conducting the PLS-MGA, as recommended by Henseler et al. (2016). A three-step MICOM procedure was run with the permutation of 5,000 samples. As for the two group-specific models, the same setup was used to establish the configural invariance. In step II of Table 8, none of the values of correlation c are significantly different from one, and it can be concluded that the compositional invariance has been established (Henseler et al., 2016). Further, results show that composites' mean values and variances do not significantly differ across both groups (MICOM step 3a, 3b). Thus the 3rd step of MICOM concludes that the variance measurement was also established (Henseler et al., 2016), and the PLS-MGA was applied (Table 9).

Based on the PLS-MGA and permutation results, significant differences were reported across the two groups (Table 9) in the effects of argument quality ($\Delta \beta = .250$, $p = .039$) and PU ($\Delta \beta = -.220$, $p = .030$) on information adoption and the effects of PU on DM ($\Delta \beta = -.100$, $p = .047$). Argument quality does not significantly influence information adoption for queries that sought alternatives evaluation. Specifically, the findings stated that the effect of information adoption on DM was higher for information search. The effect of argument quality on PU and PU's effect on information adoption and DM were lower for information search than for alternatives evaluation, but the difference was not statistically significant. One of the interesting findings is that the credibility influences the adoption of information insignificantly for both groups individually, but this effect is statistically significant in overall data.

Table 8. *Results of MICOM for DM Stage*

MICOM STEP 2					MICOM STEP 3a				MICOM STEP 3b			
Constructs	**Correlation c**	**5% quantile of the empirical distribution of C cu**	**p**	**Compositional invariance established?**	**Differences of composite's mean value (=0)**	**95%b CI**	**p**	**Equal mean values?**	**Logrithm of the composite's Variance (=0)**	**95%b CI**	**p**	**Equal variance?**
Argument Quality	0.99	0.981	0.307	YES	-0.059	0.136,0.142	0.412	Yes	-0.158	0.199, 0.206	0.13	Yes
Credibility	0.999	0.999	0.168	YES	-0.08	0.14, 0.139	0.261	Yes	-0.136	0.175, 0.177	0.133	Yes
DM	1	1	0.206	YES	-0.053	0.135, 0.145	0.447	Yes	-0.034	0.109, 0.119	0.555	Yes
Info-Adoption	1	1	0.428	YES	-0.048	0.141, 0.138	0.504	Yes	0.088	0.142, 0.147	0.227	Yes
PU	0.997	0.997	0.058	YES	0.021	0.143, 0.146	0.765	Yes	-0.167	0.203, 0.213	0.115	Yes

Table 9. *Results for PLS-MGA for DM stages*

		Path Coefficients		**t-value and Significance level**			**P-value differences (one-tailed)**		
Hypothesis	**Relationship**	**Information Search**	**Alternatives Evaluation**	**Information Search**	**Alternatives Evaluation**	**Path Coefficient Differences**	**Permutation p-Values**	**Henseler's MGA**	**Supported**
H5	Argument Quality ->PU	0.605	0.649	11.953***	12.355***	-0.044	0.572	0.547	**No**
H6	Argument Quality -> Info-Adoption	0.319	0.069	4.659***	0.680	0.25	0.029	0.039	**Yes**
H7	Credibility -> Info-Adoption	0.084	0.081	1.438	1.085	0.003	0.978	0.966	**No**
H8	Credibility -> PU	0.225	0.215	4.387***	3.963***	0.01	0.905	0.898	**No**
H9	PU -> Info-Adoption	0.231	0.451	4.059***	5.457***	-0.22	0.021	0.030	**Yes**
H10	PU -> Decision Making	0.299	0.399	10.031***	9.909***	-0.1	0.039	0.047	**Yes**
H11	Info-Adoption -> Decision Making	0.632	0.558	23.377***	13.98***	0.074	0.110	0.123	**No**

DISCUSSION

Online travel communities offer vast information for the users and provide a platform for the members to communicate with each other and get assistance for their travel planning. The OTCs work as a social media tool where information is generated by writing posts, replies, and questions on travel-related topics, and these enable information sharing on a large scale. This study has evaluated the consequences of the argument quality and credibility on the perceived usefulness of OTC content and information adoption in the OTCs. Lastly, OTC members' travel decision-making was also analyzed. The results show that argument quality has significantly influenced the PU and information adoption in OTC. The results support the previous findings (Chong et al., 2018). The comprehensiveness of the information offered by the repliers to the OP is the significant indicator for strengthening the argument quality of a thread, followed by the clarity and relevancy of information. The OTC members must carry on the discussion in a thread on the same topic started by the OP in the initial post, and the complete information given by the members becomes helpful in knowledge adoption and decision-making.

Further, the credibility of OTC content is an essential determinant for influencing the perceived usefulness of the OTC members, as also stated by Chung et al. (2015) and Chong et al. (2018). Travel postings containing consistent, reliable information supported by references, external links, and justification are perceived as more credible. The high outer loading values indicate that the credibility was high in the OTCs and it directly influences perceived usefulness and information. It was hypothesized that the perceived usefulness of information would influence information adoption and travel decision-making. The study findings have supported the proposed hypothesis, consistent with Cheung's (2014) and Wang and Li's (2019) results. The helpfulness, feasibility, and applicability of OTC information are influential in the adoption of the information by the OP and their intention to use the information for further travel decision making. Also, PU acts as a mediator for the influence of credibility and argument quality on UGC adoption and partially mediates the relationship between information adoption and travel decision-making positively. Thus, it becomes crucial for the OTCs to formulate guidelines for the community members to post useful information that can be applied in the specified condition. Also, the community members should be motivated to write clear, complete, and relevant information to be adopted by the OP to solve travel queries.

This study has also investigated the moderator effect of information search and evaluation on the specified path model. The decision-making of a tourist starts with "need recognition," followed by "information search and evaluation." The data in this research was categorized according to the two stages of travel decision-making. Results found that the path coefficients were significantly lower for the information search cluster than the alternatives evaluation for the influence of PU on travel decision-making and information adoption and path coefficients were significantly higher for information search for the influence of argument quality on information adoption in both OTCs. Kim et al. (2007) also found that information-seeking questions seek clarity and accuracy in responses and discussion-seeking questions pursue consensus in replies, and for opinion-type questions, questioners' rate highly for socio-emotional support.

This study has used data from two significant OTCs that offer travel solutions to Indians and foreigners for their travel in India, and in which Indians and foreigners also participate in the community to discuss issues regarding travel planning in India. The findings propose some practical guidelines for both OTCs.

Theoretical and Practical Implications

This research study is one of the initial attempts to analyze the online discourse in OTCs about travel in India. The study has investigated the factors influencing online discourse's perceived usefulness and consequences. The study offers imperative theoretical inferences that enrich the prior research on UGC in OTCs. The study has found that credibility and argument quality have been significant determinants influencing the perceived usefulness of the discourse and motivating the enquirers to adopt online information. Further, the study also implies that the perceived usefulness significantly influences the effect of its antecedents on information adoption, which are major factors determining travel decision-making. Finally, decision-making stages have been examined in this study. It was revealed that the effects of argument quality and PU on information adoption and the effects of PU on DM were significantly different between the two stages, thus significantly contributing to OTCs and travel decision studies. The argument quality was a higher and more significant factor of PU for information search, and the influence of PU on information adoption and decision-making was more significant for the alternatives evaluation stage.

This study is a base for studies aiming to investigate factors influencing the usefulness of UGC and its consequences on travel decision-making. Further, this study can also be used to understand how discourse in OTCs can be investigated and is a pioneer for researchers wanting to evaluate UGC on social networking sites. This study has tested a multifaceted research model that has investigated various types of relations among the constructs to understand how tourists use OTCs for travel planning and decision-making.

This research offers practical implications for online travel communities, travel sites generating eWOM, social media authorities, and the tourism industry. With the increasing number of social networking sites and internet users, our study provides OTC practitioners guidelines for determining the usefulness of OTC information and travel decision-making. The results suggest that the OTC designers should consider the credibility of the UGC while ensuring the accuracy, completeness, and relevance of UGC posted by members. The high-quality information shared by fellow members is considered more valuable and significantly influences their intention to adopt the proposed advice recommendations. The OTC managers should ensure that the members answering the OP should offer them applicable information, which the OP can adopt. The OTC managers need to set guidelines for members for writing a query or replying to any question. The guidelines should focus on high relevance and accuracy of information to be shared by community members. Specific consideration should be given to the reliability of information and the external references; links shared should be functioning and applicable. The increase of useful content generated in an OTC would significantly influence the members to accept the information and support their travel decisions.

Second, the use of social media by tourism service providers has been increasing regularly. They use social networking sites for promotional and marketing purposes and the sites act as the platform for service users to share their experiences and interact online about services consumed. The content shared on the social media platforms influences the PU of the site; thus, the e-service providers should consider the various alternatives of social media while deciding which platform is perceived as more useful and popular among its consumers. The findings reveal that the OTC is the platform used overseas to interact with tourists about any particular destination or city of a country. Thus, the worldwide approach of OTCs enables tourism service providers and destinations to utilize the travel forums to understand the needs and demands of the potential tourists at a destination. The online interactions provide clues about constraints

regarding any destination, accommodation, or transport service. The online interactions of the OTC members can provide suggestions to service providers on which areas of services need improvement and which are in demand. Further, the UGC in OTCs offers hints regarding travel trends. Service providers must explore the potential of SM sites to extend their markets and understand consumers' preferences.

CONCLUSIONS

The current article aimed to investigate online discourse posted by tourists on OTCs, in the context of perceived usefulness and decision-making. The study has offered significant findings regarding essential factors of the user-generated content that help the tourists in information adoption and decision-making. The users' perception of argument quality and source quality has been analyzed by prior researchers, while this study has investigated the UGC posted by actual tourists. The usefulness of shared information makes the tourists adopt the information and plan accordingly. The community members are significantly influenced by the information's usefulness and adoption intentions in finalizing their travel decisions. This study added to the existing research about travel decisions and UGC in OTCs. Further, the analysis of the two decision-making stages has added to the knowledge of the travel decision behavior of tourists.

The current study faces several limitations: first, this study has analyzed secondary data available on the online travel communities' sites in travel postings. So as to generalize the research model, future researchers can collect data from survey samples from actual tourists participating in OTCs and undertaking tourism activities. Also, this study has emphasized only those threads written on India; other country posts can also be studied; thus, it is suggested that future research can be replicated using OTC postings done from other cultural backgrounds to investigate whether there will be a difference in tourist’s perceptions.

Second, the study analyzed all UGC on various tourist needs; future studies could augment the inquiry model in precise travel needs, for example, accommodation or transportation or tour planning, to investigate the differences in the determinants and consequences of PU for various tourists' needs. Also, the determinants of information adoption and decision-making were limited in this study. Credibility and argument quality can be examined as multi-dimensional concepts (Chong et al., 2018). Finally, only two stages of decision-making were investigated in this study;

future research can be carried out with other moderators as OTC members' characteristics to enhance the study's usefulness.

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APPENDIX A. *Questionnaire relating to the research model*

Dimensions	**Measurement Items**	**References**
Argument Quality		
Accuracy	The repliers in OTC threads provided accurate and correct information.	(Cheung, 2014; Chung et al., 2015; Chong et al., 2018; Wang & Li, 2019; Fu & Oh, 2019)
Clarity	The repliers in OTC threads provided clear and unblemished information.	
Sidedness	The OTC members provide unbiased information to the initial poster, and both pros and cons are discussed in the thread.	
Comprehensiveness	The replies in a thread provide sufficient information for the task with adequate breadth and depth.	
Relevancy	The user-generated content in OTC threads is relevant to the initial query and the original poster's needs.	
Credibility		
CRED 1	The user-generated content in OTC threads is credible.	(Chung et al., 2015; Chong et al., 2018)
CRED 2	The user-generated content in OTC threads is consistent in the entire thread.	
CRED 3	The repliers in OTC threads justified their answers.	
Perceived Usefulness		
PU 1	The user-generated content in OTC was helpful for the initial poster.	(Davis, 1989; Cheung 2014; Chong et al., 2018)
PU 2	The user-generated content in OTC was appropriate for the initial poster.	
PU 3	The user-generated content in OTC was applicable for the initial poster.	
Information Adoption		
ADOPT 1	The initial poster intends to adopt the information shared in the OTC.	(Chung et al., 2015; Chong et al., 2018)
ADOPT 2	The initial poster intends to follow the information shared in the OTC for further decision.	
Decision-Making		
DM	After reading and participating in online discourse in OTC, the initial poster has made the final decision in the thread.	(Cheung 2014; Chong et al., 2018; Wang & Li, 2019)
Argument Quality (single-global item)		
	The replies in the thread have provided enough strength to their arguments while replying to a query. The overall argument quality of replies is good.	(Chong et al., 2018; Wang & Li, 2019)

NOTE: "The items of the Argument Quality dimension were rated on a five-point Likert scale ranging from *very low* to *very high*, and the items of the reflective constructs, e.g., UGC Credibility, Information Adoption, Perceived Usefulness, and Decision-making, have been rated on Five-point Likert scale ranging from *very* low to very high."