Core and supplemental elements of hospitality in the sharing economy: Insights from semantic and tonal cues in Airbnb property listings

Bonnie Canziani [a], Hamid R. Nemati [b,*]

[a] *Department of Marketing Entrepreneurship Hospitality and Tourism, Bryan School of Business and Economics, University of North Carolina at Greensboro, Box 26170, Greensboro, NC, 27412, USA*
[b] *Department of Information Systems and Supply Chain Management, Bryan School of Business and Economics, University of North Carolina at Greensboro, Box 26170, Greensboro, NC, 27412, USA*

ARTICLE INFO

ABSTRACT

Advances in peer-to-peer sharing, made popular by platforms like Airbnb, have altered previous conceptualizations of the lodging hospitality product. This study performs semantic and tonal analyses on a large-scale dataset collected from Airbnb. Our results support a concept of lodging hospitality that comprises core products and services, supplemental customer care, and a third factor we term 'host sharing.' Furthermore, the study offers insight into the topics and rhetorical tactics currently defining lodging hospitality marketing on the Airbnb platform. These findings can be used to provide guidance for Airbnb hosts to provide suitable information in their listings.

1. Introduction

As a pioneer in the sharing economy, Airbnb designed a platform that created collective value for stakeholders within the lodging industry. The sharing economy is a peer-to-peer exchange, supported by digital platforms, where asset owners and buyers communicate online. Airbnb permits hosts to list a rental property (e.g., a house or room) and makes money by charging fees to connect buyers and sellers (Dolnicar, 2017a). Despite having recently cut 25% of its workforce and in the middle of a pandemic, on December 10, 2020 Airbnb debuted its initial public offering (IPO). The price of its stocks soared to $146 per share. In the middle of the largest pandemic in more than a century, when people feared travel, a company whose business model is based on allowing strangers to share accommodations with one another was valued greater than the combined value of the three largest and most established hotel chains in the world. This high valuation of Airbnb's IPO justifies a closer look into how the sharing economy has impacted the lodging industry.

The peer-to-peer paradigm and its impact on tourism is a topic of interest for many researchers (e.g., Dogru, Mody, Suess, Line, & Bonn, 2020; Brotherton, 1999; O'Gorman, 2007). We see that new sales appeals are emerging in the lodging industry. The provision of 'home-like' amenities has been gaining importance (Guttentag, 2015; Paulauskaite, Powell, Coca-Stefaniak, & Morrison, 2017). "Renters who use the [Airbnb] website typically seek accommodations with a homey feel that hotels cannot provide" (Nath, 2018). Tourists who use lodging networks like to live like locals (Lombard & Ditton, 1997; Lim & Bouchon, 2017), to experience an 'authentic' homestay style experience (Lalicic & Weismayer, 2017; Tussyadiah & Florian, 2017). In response, Airbnb promises uniqueness and belonging to its guests (Liu & Mattila, 2017). Research also focused on seller motivations in the sharing economy (Kim, Lee, Koo, & Yang, 2018; Xie & Chen, 2019) and concomitant selling practices (Xie & Kwok, 2017).

Despite continuing interest in sharing economy research, there remain gaps in knowledge regarding host sharing as a construct relevant to the lodging sector. In particular, assumptions about hospitality in its traditional conceptualization as accommodation plus customer care services (Lovelock, 1992, 1995, 1996) have yet to be investigated in the sharing economy context. Therefore, a more thorough examination of Airbnb host communications would enable us to assess and possibly update theoretical explanations of lodging hospitality and its relevant dimensions within the sharing economy setting. Hospitality by definition is something offered by a lodging host, but its supplementary service component has normally been limited to strategies of customer care and hospitableness that complement core product attributes (Lovelock,

1992, 1995, 1996). Supplemental hospitality has been depicted as a consumer centric attitude linked to commercialized visions of customer care and expectations of deference from hospitality staff. We believe such assumptions have been potentially altered due to advancements in sharing technology. In the sharing economy, many Airbnb hosts are residential property owners rather than traditional hospitality employees working for large hotel companies owned by commercial lodging investors. The platform assists destination residents to exchange communications with incoming tourists (Guttentag, 2015). However, there is limited data on exactly what Airbnb sellers communicate online in their listings and whether there are added definitional components related to host sharing that need to be included in to characterize the holistic hospitality product (Jaeger, Sleegers, Evans, Stel, & van Beest, 2019).

Researchers have long viewed hospitality as a key factor in services marketing (Lovelock, 1992, 1995, 1996). A critical consideration in re-conceptualizing hospitality in the lodging industry is the understanding of the shifting expression of power in host/guest relationships (Farmaki & Kaniadakis, 2020; Eckhardt et al., 2019; Lin, Miao, Wei, & Moon, 2019). For example, sellers have broad control over the sharing conditions they set for visitors (Benoit, Baker, Bolton, Gruber, & Kandampully, 2017). Thus, the sharing of time and space (and personal information) become factors in defining hospitality. Airbnb states that sellers can decide key factors such as severity and type of house rules and levels of interaction with guests. Sellers also have the ability to communicate clearly that their home is a private residence and should be respected as such. Sharing becomes a salient aspect of the marketing communication when the listing involves making a person's home available to a stranger. In view of the lack of prior literature defining sharing as an emerging seller act, research is necessary.

Through this study, we contribute to existing literature about the characterization of a hospitality lodging offer from hosts on sharing economy platforms. Our method is consistent with Banerjee (2016) where a thorough analysis of user-generated data was proposed to include linguistic and related analyses. Moreover, from a management perspective, a general review of what hosts write in their property listings will enable individual hosts to identify the most important text and tonal components to incorporate into their property listings.

This exploratory study examined host content and tonal cues in digitally-mediated property listings accessed from Airbnb. The central purpose was to address a gap in extant literature, which neglects to define host sharing as a critical component of the lodging hospitality product. Therefore, we propose to study if host-communicated topics (Flanagin, Winter, & Metzger, 2020; Scerri & Presbury, 2020), and tones in Airbnb property listings give evidence to changes in the social construction of hospitality, i.e., expanding its definition beyond product elements, customer care and hospitableness to incorporate notions of host sharing and/or power/control. To frame the study, we stipulate the following research questions:

RQ 1. Are there discrete topics related to host sharing that characterize lodging hospitality in Airbnb property listings?
RQ 2. What does tonal analysis of the listings reveal about the construct of host sharing in Airbnb listings?

Guided by these questions, we rely on theory defining lodging hospitality as a mix of product elements and supplementary services as per Lovelock (1992, 1995, 1996). The literature review will move the reader from definitions of lodging hospitality in the historical milieu to a discussion of hospitality in the context of Lovelock's (1992, 1995, 1996) core and supplementary services framework. Then the authors will focus on the sharing economy and its contributions to the lodging hospitality product. We perform a qualitative analysis of online Airbnb listings with specific interest in understanding the complementary roles of *core product* and *supplemental services* as central communication foci of property listings. We then project an altered conceptualization of lodging hospitality, using concepts related to host sharing.

2. Background

2.1. Moving towards a core/supplementary services model of lodging hospitality

Research on the origins of lodging portrayed hospitality as a society's duty to visitors (e.g., Lashley, 2000; O'Gorman, 2005). Hospitality was viewed as a civic responsibility to assist strangers. It included concrete service acts such as housing, feeding, clothing, and generally looking after guests (Aramberri, 2001). A dominant motivator was that "the most supreme ancient gods, including Zeus himself … [would] mete out harsh punishment on those who transgress the rules of hospitality" (Isayev, 2017, p. 76).

Historically, hospitality was directed towards meeting basic human needs of sustenance and shelter, as well as social recognition through cultural rites of welcome (De Felice, 2001; O'Gorman, 2005). The Greco-Roman ethos of hospitality advanced through stages of formal stratification and codification of host and guest behaviors. A variety of services materialized, including food and lodging facilities. Early versions of commercial hospitality establishments were documented circa 400 BCE (De Felice, 2001). In addition, individuals became identified as formal tavern or hostelry operators; these were the precursors to the hospitality hosts of today.

Economic benefits to the host became an increasingly important rationalizing factor for offering hospitality to visitors (Lynch & MacWhannell, 2000). Even though hospitality services were becoming mechanized, early descriptions of hospitality-related services did not attempt to separate intangible or communicative aspects of hospitality from the provision of shelter and food to visitors in any meaningful theoretical way. Initial descriptions of lodging hospitality integrated tangible room and board services with linguistic and psychological elements, such as signs of welcome and gestures of respect. The flower of services concept (Lovelock, 1992, 1995, 1996) split these apart. It introduced a new way of looking at the hospitality product by labelling services that meet basic requirements of guests as *core* product elements and classifying services that facilitate or enhance the guest's experience as *supplementary* services (Lovelock, 1992, 1995, 1996). This model impacted later lodging research (e.g., Aldebi & Abdulhassan, 2017; Cinotti, 2012; Harrington & Akehurst, 1996; Hashem, 2018).

Core product elements are the primary solutions offered by a brand to its consumers (Lovelock, 1992, 1995, 1996). Supplementary services assist consumers in multiple ways: helping them obtain or use the core product more effectively, making them more confident about their purchases, or making their associations with the brand more pleasurable. In the accommodations industry, the physical sleeping room would be a core product (Lovelock, 1995). The core product will always be important to a business. Lodging operators continue to monitor physical elements of hotel design and operation to ensure customer satisfaction (e.g., Knutson, Beck, Kim, & Cha, 2009; Manhas & Tukamushaba, 2015; Poh & Cheng, 2017; Ruggless, 2007; Xu & Chan, 2010). When a hotel provides secure spaces, reliable HVAC, and expected room amenities, it speaks to a consumer's basic physiological or safety needs. However, in order to stand out in the competitive market and motivate consumer purchases, organizations are directly appealing to higher levels of needs (Powell, 2015). Naipaul and Parsa (2000) demonstrated that supplementary services are a critical differentiating factor for tourism destinations. For example, we have seen a push for personalization in hotel service experiences, so customers gain status through their encounters and relationships with a hotel (Rawsthorne & Elliot, 2016). Guests want a sense of personal recognition from their service encounters, so they can feel important and confident that they are being taken seriously.

Lovelock (1995) identified a number of supplementary services that could enhance the core products of many businesses, including hospitality. Hospitality in Lovelock's (1995, p. 35) framework included

regulative norms to guide staff behavior, i.e., "reflecting pleasure at meeting new customers and greeting old ones when they return … courtesy and consideration for customers' needs." His depiction of core and supplementary services permitted a theoretically-based conceptual break between (a) lodging services focused on serving guests' practical needs and (b) hospitable communication codes or behaviors. Hospitality researchers have moved in similar directions, e.g., Brotherton (1999, p. 9), who stressed that "concern should perhaps be shifted away from an emphasis on the product elements of hospitality towards one more focused on the nature and implications of the hospitality exchange." Like Brotherton (1999), this paper treats lodging hospitality as the larger product concept of the industry under study; for that reason, Lovelock's (1995) version of supplemental hospitality will be called 'customer care' moving forward. Customer care has been an important service addition in the hotel field; it includes elements such as hospitable language, recognition, superior customer service, personalization, and service recovery (Frow, Ngo, & Payne, 2013). In tourism, displays of customer care can include verbal components, nonverbal features, and image symbols (Fraser, 2015).

Lodging organizations have invested in education and training in communication and behaviors that are deemed normally representative of a hospitable person. Organizational staff members enact roles of "an interpreter, recipient and sensory negotiator of welcome" (Lynch, 2017, p. 178). Employees are taught to use preferred phrasing, such as "You are very welcome" rather than "No problem" and "Will you be dining with us tonight?" instead of "Just one in your party?" Two documented examples of organizational hospitality training programs are Marriott's program "Spirit to Serve our Guests" (Marriott rolls out new spirit to serve, 2006, p. 12) and the codified behaviors underlying Disney "Magic" (Barnes, 2012). Thus far, based on Lovelock (1992, 1995, 1996), two principal hospitality elements are distinguished: (1) core services and (2) supplementary customer care acts, including hospitable language and the creation of more valuable experiences for guests.

2.2. Conceptualizing lodging hospitality in the era of the sharing economy

Ultimately, the online Airbnb offer is a form of virtual hospitality marketed by the seller (Hanchuk et al., 2020). Based on the literature considered so far, the offer is expected to contain a promise of core services as well as text and tone that coincide with conventions of customer care - denoting welcome and customer centric attitudes. We now turn to an additional influence on the offer of hospitality to a guest: the sharing economy itself and its inference of controlled access to residential homes and hosts.

Lashley (2000) addressed hosting in the private domain. There has been a growing area of research on quasi-commercial or alternative lodging involving private residences, including bed and breakfast (B&B) (Lynch, 2005; Kline, Morrison, & St. John, 2004), couchsurfing (Hanchuk et al., 2020), farm stays (Di Domenico & Miller, 2012), and other home stays (Lynch, 2005; Tavakoli, Mura, & Rajaratnam, 2017). While many of these could be treated as traditional commercial businesses, McIntosh, Lynch, and Sweeney (2011) stated that "in focusing on the host–home relationship, the researcher moves beyond tourism as purely an economic exchange" (p. 511). These authors are urging us to better grasp what sharing means in the lodging industry.

The literature has yet to grapple with whether acts of 'sharing' are extending the theoretical concept of lodging hospitality in new directions. Essentially, we argue that additional elements of hospitality related to sharing can be construed from the sharing economy or similar industries, such as home stays and B & B's. Types of host sharing include sharing personal space with strangers, sharing personal host background or information, and sharing time with guests. Whether these sharing elements are part of the economic exchange or not remains to be seen. At the very least, they need to be acknowledged as theoretically distinct, meaning that 'sharing' does not fall neatly into the core product or the customer care categories.

Sharing personal space. Many hosts are evolving from protected resident into something else (Lampinen, 2016). This is not always easy. Hosts can and will reject booking requests or restrict access within their homes by marking certain areas as private due to feelings of 'attachment' (Hardy & Dolnicar, 2017; Karlsson, Kemperman, & Dolnicar, 2017). Contractual and role ambiguities on the parts of peer Airbnb hosts and guests prompt a need to investigate the concept of shared space and the assignment of guest privileges in the sharing economy.

Sharing personal time. Multiple styles of host engagement are seen across Airbnb hosts. Some hosts use social media or Airbnb applications to expand interactions online with buyers. Hardy and Dolnicar (2017) report three types of hosts: capitalist (motivated by income generation), befriender (socially minded individuals); and ethicists (believers in sharing space as part of their commitment to sustainability). The Airbnb platform permits individual hosts to opt in to their preferred levels of engagement with guests. Researchers have noted that B&B operators with highly proactive personalities creatively organize experiences on behalf of their guests, which generates lasting customer social capital (Tang, 2015).

Sharing personal background. The Airbnb platform is distinguished from traditional media or company websites due to many sellers being unknown peers rather than commercial brands. Property listings convey information about the hosts to potential buyers as part of their tactics to entice users to book Airbnb properties (Ert, Fleischer, & Magen, 2016; Ma, Hancock, Mingjie, & Naaman, 2017). Buyers make inferences regarding the credibility of the host and the quality of the rental space based on demographic host characteristics, such as gender and race (Edelman, Luca, & Svirsky, 2017; Ert et al., 2016). Dolnicar (2017b) stresses the significance of host communications in her chapter on socializing first-time Airbnb users. Xie and Mao (2017) demonstrated that sharing personal information is necessary for Airbnb hosts to build trust among users and support listing performance. Airbnb host attributes found to be important include: (1) being a local host; (2) being a Superhost; (3) service responsiveness; (4) length of operating experience; and (5) identity verification (Xie & Mao, 2017). Wu, Ma, and Xie (2017) found that disclosing a personal profile page positively influenced renters to purchase short-term rentals online.

Few studies have specifically examined what is shared about the host in Airbnb listings. One relevant work has determined eight topics typically present in Airbnb host profiles in order of magnitude: origin or residence (68.8%), work or education (60.3%), interests and tastes (57.8%), hospitality or welcome messaging (52.8%), travel background (47.9%), relationships (27.9%), personality (26.6%), and life motto and values (7.9%) (Ma et al., 2017, p. 2401). However, we respectfully suggest that these studies did not consider the greater picture of the host profile in the context of defining hospitality. Instead, they subordinated hospitality under the host profile, as one of its elements, which the present study does not do. The current authors expect that customer care and host sharing are distinct conceptual entities, which coexist as complementary supplementary services communicated on the sharing economy platform. Fig. 1 depicts this thinking. Moving forward, the authors will seek to further refine understanding of host sharing by both topical and tonal analysis.

3. Methods

The authors analyzed textual data using qualitative analysis. Property listing content and related variables were downloaded from a public Internet domain (Inside Airbnb, 2017). The decision was made to isolate material that approximated one-way 'advertised' content. Host/guest reviews to each other were not studied. Analysis of dyadic encounters and the influences of host and guest metadata on encounters were beyond the scope of the present paper.
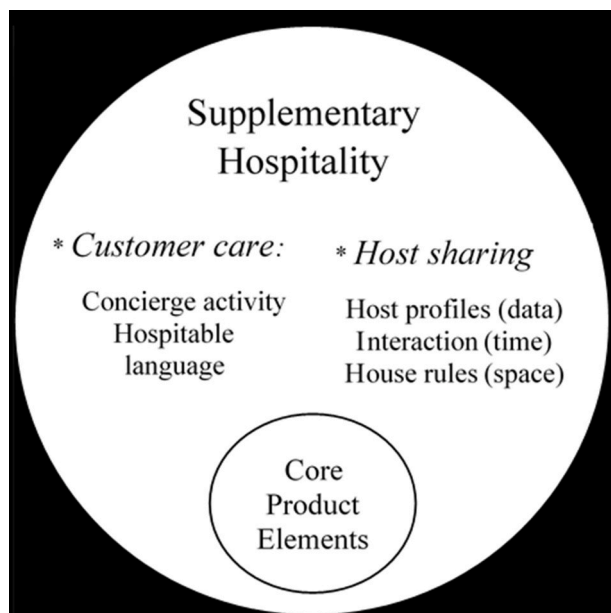
Fig. 1. Depiction of core and supplementary lodging hospitality in sharing economy.

3.1. Host definition

In this study, we narrowed focus to sharing economy hosts. Airbnb hosts can be commercial enterprises or individual residents. The definition of host for the present study is not an actual individual, but rather is the virtual persona alluded to in the property listing, who is recognized through the operation of a variety of computer-mediated linguistic tonal and semantic devices. This definition does not require that the Airbnb host inhabit the property or physically engage with a buyer.

3.2. Data employed

Our data comprised 9663 listings for Austin, Texas in the United States. A spreadsheet was downloaded from Inside Airbnb. Primary data comprised ten columns corresponding to ten property listing sections: property descriptions, summaries, about host section, space content, house rules, property access, transit information, guest interaction methods, neighborhood, and explanatory notes. Each row in the spreadsheet represented an individual property's written content for each of the listing sections.

Austin being a sizable city, the dataset was deemed satisfactory for the points examined in this paper. Austin had numerous rentals; it had been studied previously (Dinges & Novak, 2013; Xie & Mao, 2017). The data was collected under normal economic conditions. The data lacked any personally identifiable attributes of the guests or hosts.

3.3. STM analysis

Structural Topic Modeling (STM) provides researchers with the ability to identify topics and model their relationships contained in textual documents such as social media contents, postings, or customers' reviews (Roberts, Stewart, & Airoldi, 2016). Identification of topics and modeling the structural relationships among them can reveal the true nature and meaning of a given corpus under study (Roberts, Stewart, & Tingley, 2019; and; He, Han, Zhou, & Qu, 2020). A topic is defined as a distribution of words such that each word that makes up the topic has a probability of belonging to that topic (Roberts et al., 2019). A document is composed of multiple topics that are structurally related to one another within the scope of the corpus. As a general framework for topic modeling, STM enables researchers to discover useful information from

document corpus by estimating their proportional presence and their relationship to its metadata (Roberts et al., 2019). Document-level metadata is used to generate co-variate information to improve inference and qualitative interoperability of topical prevalence, topical content or both (Roberts et al., 2016). Accordingly, STM computes statistical measures of semantic coherence and exclusivity to determine the best model. Semantic coherence is based on the idea that words of a given topic should frequently co-occur together (Roberts et al., 2019) whereas exclusivity is a measure of uniqueness of words to their corresponding topics (Fischer-Preßler, Schwemmer, & Fischbach, 2019).

The robustness of STM in discovering topical patterns from large textual documents by incorporating metadata has made STM one of the important text analytics methods used by researchers and practitioners alike (Debortoli, 2016; and; Sbalchiero & Eder, 2020). In the present study, STM is used to analyze host writing to extract syntactic patterns and semantic meanings to reveal hidden topics from the hosts' perspectives. A comprehensive analysis was performed to explore the proportional breakdown of topics in each listing's content areas. Sections were analyzed independently to confirm where different types of information were located. We believe that the extracted information could be very useful for business owners to improve their services.

3.3.1. Topics selection

Users can specify the number of topics in STM (Roberts et al., 2019). Although, there is not a "right" number of topics that is appropriate for a given corpus (Grimmer & Stewart, 2013), the choice is an important decision with significant impact on the resulting analyses (Sutherland, Sim, Lee, Byun, & Kiatkawsin, 2020; Roberts, 2016). Kiatkawsin, Sutherland, and Kim (2020) argue that the number of topics specified by the user is the most crucial parameter that an LDA based method such as STM needs. The "right" number of topics should be set to a value near to the true number of topics that are naturally present in the corpus (Guo, Barnes, & Jia, 2017). In effect, by selecting the "right" number of topics, the researcher is primarily selecting the right model intrinsic in the data (He et al., 2020). However, since this natural number of topics is not known *a-priori* and given the importance of choosing the "right" number of topics in STM, researchers have suggested various methods using a variety of metrics to decide the number of topics (Kiatkawsin et al., 2020; He et al., 2020; Fischer-Preßler et al., 2019; Sutherland et al., 2020).

Good topics are understandable, meaningful and are distinguishable from other topics. In selecting the number of topics, the goal should be to maximize "substantive interpretation of the outcomes rather than for the maximization of the fit" (He et al., 2020). Additionally, according to Fischer-Preßler et al. (2019), validation by "humans" is the most important way to evaluate topic models. This implies that the deciding on the number of topics is not just an algorithmic or statistical exercise, it is also an interpretive and subjective endeavor. Broadly speaking, the decision to choose the "right" number of topics should consider statistical measures as well as practical considerations. Accordingly, in deciding the number of topics, we use a two-prong approach. First, we calculate semantic coherence and exclusivity outcomes for different numbers of topics. Second, we select the most appropriate value that results in the outcome with the most substantive practical relevance. This approach of selecting the number of topics and validating the selection is similar to the procedures outlined in Sutherland et al. (2020) as well as Fischer-Preßler et al. (2019). Broadly speaking, using this approach, the number of topics are chosen in such a way as to yield the most practical results that are endorsed by a panel of experts in an iterative process. Our method is also consistent with what is presented in Guo et al. (2017) and Debortoli, Müller, Junglas, & vomBrocke (2016) where, the validity of the extracted topics is corroborated by comparing them to those generated by human analysis.

The *single hold-out* statistical sampling method was used to develop 10 validation datasets each containing a 90% random subset of the entire corpus (Duda, Hart, & Stork, 2001). The sampling is done without

replacement. We selected this method to construct our validation datasets since it has been shown that if a sufficiently large subset of the entire data is used to construct the validation set, the observed errors associated with the validation set are reliable estimates of the true error of the model based on the entire data set including unseen cases (Berrar, 2018). STM was then applied to each of 10 validation datasets with the number of topics K set to 5, 10, 15 and 20 respectively. In total, 40 sets of topics were generated. The coherence and exclusivity of the outcomes of the 40 sets of topics were recorded and presented to a panel of 3 experts. The panel of experts consisted of one professor of hospitality and tourism management, one professor of information systems and one doctoral student. The panel was asked to qualitatively evaluate the cohesiveness of the resulting topics. Each member of the panel individually assessed the 10 outputs for 5, 10, 15, and 20 topic models based on semantic coherence and exclusivity of the outcomes (He et al., 2020; Sutherland et al., 2020). As expected, the panel noted that the 20 and 15 topic models produced near-duplicate topics, while the most coarse-grained model, i.e., 5 topics, failed to clearly discriminate among topics. The panel unanimously selected the 10 topic model for our final analyses because it yielded the most intuitive model for our research and provided a greater degree of accuracy to articulate managerial recommendations (Fischer-Preßler 2019).

3.4. Diction 7 analysis

For tonal analysis, the ten listing sections were concatenated in Excel, generating an 'aggregate listing text' result for each respondent. In topical analysis, the authors wanted to gain the fullest picture of topics in the different sections. In contrast, the authors argue that tone is generated by the whole listing, not by a single section. Excel data was converted to individua txt files using a self-authored macro in R. Tonal analysis was facilitated with Diction 7 - a computer-aided text analysis (CATA) program using embedded dictionaries (Hart & Carroll, 2013). Diction searches a passage for words that its proprietary algorithms associate with five general tonal features (certainty, optimism, realism, activity, and commonality) as well as thirty-five sub-features (e.g., aggression, cooperation, praise, rapport). It outputs standardized scores for each feature (to numeric files) for later comparison to norms and statistical analysis. Comparison norm ranges for commercial advertisements were used; norms were established against product categories including computer hardware, security systems, insurance services, financial investments, beauty aids, travel agencies, automobiles, snack foods, pharmaceuticals, kitchen appliances, stereo systems, and cat food.

4. Results

Property and host characteristics of the sample are profiled in Table 1. Most listings offered private houses and apartments, as opposed to unusual or commercial properties. About 70% of listings were for the entire residence rather than private or shared rooms. This parallels other U.S. Airbnb data as well as other studies (Xie & Mao, 2017). Median listings per host was one, with a median rate of $127.00.

Table 1 depicts what type of content Airbnb hosts publish. Most provided a host picture. Of 9663 listings, all had *property descriptions*, while 97% had *summaries*, 86% had an *about host* section, 68% had *space* content, 63% had *house rules* content, 59% had content about *property access*, 58% had *transit* information, 58% offered guest *interaction methods*, 57% had descriptions of the *neighborhood*, and 39% offered additional explanatory *notes*. Of the total sample, 80.9% of hosts are local Austin residents, 18.0% are Superhosts, and 30% are verifiable to the buyer through Facebook.

4.1. Topic analysis of property listing sections

Topic proportions for each listing content area are presented in

Table 1

Property and host characteristics in sample (n = 9663).

Property type		Frequency		Percent
House or villa		5616		58.2
Apartment, loft, dorm		3022		31.3
Condo or townhouse		584		6.0
Atypical or outdoor property		175		1.8
Commercial property		190		2.0
Other		70		.7
Room type		Frequency		Percent
Entire house		6690		69.2
Private room		2761		28.6
Shared room		212		2.2
Listing information		Median		
Number of listings per host		1		
Listing nightly rate		$127.00		

	Yes	Percent	No	Percent
Property description	9663	100	0	0
Host picture provided	9637	99.7	24	.2
Summary section	9325	96.5	338	3.5
About host description	8326	86.2	1337	13.8
Space content	6559	67.9	3104	32.1
House rules specified	6123	63.4	3540	36.6
Access content	5702	59.0	3964	41.0
Transit information	5602	58.0	4061	42.0
Host describes interaction	5597	57.9	4066	42.1
Neighborhood information	5543	57.4	4120	42.6
Additional notes on stay	3837	39.7	5826	60.3
Host is Austin resident	7816	80.9	1847	19.1
Host is Superhost	1740	18.0	7921	82.0
Verifiable by Facebook	2901	30.0	6762	70.0

Table 2a, b. Each column represents the analysis of a unique listing section such as the 'property description' or the 'about host' portion. Expected proportions of topics move downward in each column from highest to lowest. Three researchers jointly assigned names based on topic output resulting from STM analysis. We reviewed the highest frequency words in each topic cluster for a term that best captured the nuance of the topic.

There are clearly differences in focus among the various listing sections, which suggest suitable face validity of section content (Table 2a, b). The property description, summary, space content, and notes had predominantly core-product descriptors reflecting *location* and *furnishings*, which are dominant characteristics of the lodging product. The about host section was focused on the host profile and communicated details about hobbies, personality, origins, Airbnb entrepreneurship and other work or occupational background. Interaction content included host availability schedule, best contact methods, promised level of access to hosts, as well as indications of willingness to greet guests personally at the property. Access content was concerned with convenience and use privileges for spaces, equipment, and supplies.

In Table 3, topics are classified by the authors using the core/supplementary framework based on Fig. 1. *Property descriptor* portrays core product attributes, e.g., property and unit features as well as location mapping, Airbnb itself, and contractual issues. Table 3 also presents two main classes of supplementary hospitality elements: *customer care* and *host sharing*. Hospitable language and provision of concierge like information are under customer care. The host sharing category subsumes three main types of Airbnb listing information: host profiles, host interaction explanations, and house rules. In Tables 4–6, sample statements offer concrete insights into the topics found in STM analysis.

4.2. Tonal analysis of property listings

Table 7 compares property listing average scores to the commercial ad norms supplied within the software. Diction norms encompass 68

Table 2a
Proportional estimates for topics in selected property listing sections.

N	Description		Summary		Host about		Space		House rules	
	9663		9325		8326		6559		6123	
Topic 1	Location	0.22	Furnishings	0.17	Host love	0.20	Furnishings	0.20	Help offer	0.17
Topic 2	Furnishings	0.14	Location	0.15	Sharing	0.17	Location	0.12	Respect	0.15
Topic 3	Privacy	0.12	Recreation	0.14	Hobbies	0.13	Property	0.11	Rule	0.13
Topic 4	Help offer	0.11	Locale	0.13	Personality	0.11	Attractions	0.10	Smoking	0.11
Topic 5	Design/décor	0.09	Property	0.10	Recommend	0.09	Respect	0.10	Pet	0.10
Topic 6	Property	0.07	Shops	0.08	Origins	0.09	Unit details	0.09	Use level	0.09
Topic 7	Locale	0.07	Design/décor	0.07	Host history	0.08	Ambience	0.09	Access	0.08
Topic 8	Background	0.07	Host love	0.06	Events	0.05	Amenities	0.08	Quiet	0.07
Topic 9	Contract	0.06	Clean place	0.06	Contract	0.04	Design/décor	0.07	Cleaning	0.06
Topic 10	Unit type	0.05	Amenities	0.04	Work	0.04	Internet	0.04	Contract	0.04
		1.0		1.0		1.0		1.0		1.0

Table 2b
Proportional estimates for topics in selected property listing sections.

N	Access		Locale		Transit		Interaction		Notes	
	5702		5543		5602		5597		3837	
Topic 1	Access	0.21	Quiet	0.16	Bus	0.20	Recommend	0.16	Pet	0.25
Topic 2	Privacy	0.18	Neighbors	0.15	Options	0.14	Schedule	0.14	Furnishings	0.14
Topic 3	Property	0.11	Downtown	0.14	Fares	0.13	Available	0.13	Location	0.11
Topic 4	Help offer	0.09	Shops	0.12	Parking	0.10	Help offer	0.13	Respect	0.10
Topic 5	Use details	0.09	Recreation	0.09	Biking	0.10	Contact	0.12	Use details	0.09
Topic 6	Recreation	0.08	North	0.08	South	0.08	Greet/Meet	0.09	Price	0.08
Topic 7	Attractions	0.07	East	0.08	Public	0.07	Level	0.09	Cleaning	0.08
Topic 8	Parking	0.07	Recommend	0.07	Shops	0.07	Host love	0.07	Contract	0.06
Topic 9	Locks	0.06	South	0.06	Time	0.06	Transfers	0.04	Airbnb	0.05
Topic 10	Supplies	0.04	Enjoy	0.05	Stations	0.05	Expert	0.03	Amenities	0.04
		1.0		1.0		1.0		1.0		1.0

Table 3
Alignment of discrete listing topics with core/supplementary perspectives of hospitality.

Core Hospitality Elements			Supplementary Hospitality Elements		
Hospitality Product	Customer Care		Host Sharing		
Property Descriptors	Concierge & Information	Hospitable Language	Host Profile	Host Interaction	House Rules
Airbnb	Attractions	Enjoy	Background	Availability	Access
Ambience	Biking	Help offer	Hobbies	Contact	Cleaning
Amenities	Bus	Host love	Host history	Greet/Meet	Pets
Clean facilities	Downtown		Local knowledge	Level	Quiet
Contract	East		Origins	Schedule	Respect
Design/décor	Events		Personality	Sharing home	Rules
Furnishings	Fares		Work		Smoking
Internet	North				Supplies
Locale	Public transit				Use details
Location	Recreation				
Locks	Recommend				
Parking	Shops				
Price	South				
Privacy	Stations				
Property	Transit time				
Unit type	Transport				

percent of their tested data. Any score outside the normal range is considered statistically significant (Hart & Carroll, 2013). The table also provides a brief description of each measure. Characteristics that were below the norm range in this sample comprised: activity, aggression, cognition, complexity, familiarity, human interest, inspiration, and variety. Regarding measures above the norm range for commercial ads, Airbnb listings generally made greater references to motion, social interaction, and numerical and spatial terms. They used more concrete wording than the ad copy upon which Diction 7.0 is standardized. Listings also conveyed stronger tones of certainty and insistence as well as heavier use of adjectives (embellishment) to make their points. Generally, the listings showed higher use of positive tones in the form of optimism, praise, and satisfaction.

5. Discussion

In the first research question, we explored what property listings communicate about 'sharing' as a potential supplementary element of lodging hospitality. The expectation was that listings would address core product attributes and would also communicate supplemental messages about customer care and host sharing as outlined in the literature section.

5.1. Core and supplementary topics in property listings

Topical analysis provided evidence that these listings had face validity in that the majority of content in each listing section was suitable to

Table 4
Sample content phrasing relevant to core product topics in Airbnb listings.

	Core Product
Airbnb	Airbnb does not allow 'third party bookings.'
Ambience	Guests will be sure to love the ambiance and convenience of XXX.
Amenities	You get amenities like TV, Wi-Fi, fire-pit, outdoor movie theatre, outdoor shower, full kitchen.
Clean facilities	Modern clean and comfy 1 bedroom w/private elegant bath.
Contract	Guest need to sign a written contract and email to Host along with a copy of a valid ID.
Design/decor	Decorated in exotic mounts, bookshelves, and stained glass windows.
Furnishings	New contemporary furnishings and beautiful original hardwoods throughout.
Internet	There is high speed wireless internet available to guests.
Locale	This is one of Austin's most charming neighborhoods and convenient central locale.
Location	My place is close to XXX Street. You will love my place because of the location.
Locks	Digital door lock where you will use your unique code to enter (no need to meet for keys).
Parking	Free Street Parking is available.
Price	I'm negotiable on total price depending on the time you want to rent and size of the group.
Privacy	You will love our place for the vibe, location, privacy, lush garden and the coziness.
Property	The property additionally features over 1000 square feet of outdoor living space.
Unit type	Full access to Condo unit for the days you booked.

Table 5
Sample content phrasing relevant to customer care topics in Airbnb listings.

	Customer Care
Concierge & Information	
Attractions	Here you can walk and shop all day as it holds more than two miles of attractions.
Biking	Everything you'll want to experience in Austin is within walking or biking distance.
Bus	Public transportation with the nearest bus stop three blocks away.
Downtown	Easy walking distance to many downtown eateries and entertainment options!
East	If you stay on the East side as long as possible it is easier to get to any downtown destination.
Events	My house is available for Austin downtown special events.
Fares	A typical Lyft fare to downtown is between 4 and 10$ and a Lyft to the airport ranges from 12 to 15$.
North	Popular eateries on the Manor Restaurant Row are just minutes North of the home.
Public transit	Public transit available at the end of the street. About 2 miles to metro rail.
Recreation	Our neighborhood's western border is filled with great water recreation opportunities.
Recommend	I would provide to you any recommendation on how to enjoy your stay in our unit.
Shops	Lots of shops, restaurants, and other businesses in the area.
South	It's a charming two story South Austin style townhouse.
Stations	There is a bus station nearby, but it is about a 10 min walk to the station.
Transit time	A SIX MINUTE DRIVE TO DOWNTOWN (10–15 min with traffic).
Transport	Close to public transportation, but there's a wide range of ways to get around the city.
Hospitable Language	
Enjoy	We greet our guests and then are happy to provide advice as necessary. Enjoy your stay!
Help offer	I try to be helpful to my guests!
Host love	I love hosting guests and am always happy to give tips for exploring the city!

Table 6
Sample content phrasing relevant to host sharing topics in Airbnb listings.

	Host Sharing
Host Profile	
Background	I have a teaching background and enjoy working with children and people.
Hobbies	My hobbies are reading, exercising, playing sports, and hanging out with friends.
Hosting history	Listing my property and finding my way to be a new Airbnb host is even more fun.
Local knowledge	I'm happy to share my local knowledge with visitors.
Origins	Austin resident of 5+ years, originally from Houston.
Personality	I love a design challenge and am obsessed with details.
Work	I am currently working in Christian ministry.
Host Interaction	
Availability	I will be in town. If there are any needs or questions I will be available.
Contact	Guests are more than welcome to phone or text me in my cell at any time.
Greet/Meet	We will greet the guest and orient them to the place, the neighborhood and the town if desired.
Level	I feel most comfortable with a free flow of communication with my guests.
Schedule	I would prefer someone who does not have a noisy morning routine.
Sharing home	We love this city and are excited to share our home and recommendations with our guests.
House Rules	
Access	You'll have access to 1 bedroom and 2 bathrooms, entire kitchen, living room, and dining area.
Cleaning	Simple things like leaving the property tidy and taking out the trash are expected of our guests.
Pets	Pets are allowed - but please only small animals. Cats, or small dogs under 30 pounds.
Quiet	Quiet Time is after 10pm. Loud music and parties are discouraged.
Respect	I simply ask that you treat my home and community with respect and leave it as you found it.
Rules	10 House Rules: 1. I love my home, please treat it as your own … 2–10.
Smoking	Smoking isn't allowed inside, but I have a little porch area that you're welcome to smoke on.
Supplies	Guests are welcome to use kitchen supplies.
Use details	Outdoor patio and pool use hours are 7 a.m.–10 p.m.

amenities. We also see some regularities across these listings in terms of highlighting design/décor, describing the locale or neighborhood, and listing of amenities. Cleanliness, parking, and the provision of internet services round out types of core elements described by these Airbnb hosts.

Customer care was exhibited in two ways. First, through provision of concierge-like information in the property access, locale (neighborhood), transit information, and summary sections. Secondly, topics relevant to intangible hospitable behavior were found, including love of hosting, offers to help guests achieve their trip goals (relaxation, recreation, tourist sightseeing, business objectives), and expressed hopes overall that guests would enjoy their stay at the Airbnb property. Such offers of help are beneficial in nudging buyers to form positive impressions about the host and the offer, thereby influencing propensity to book. This is a key goal of supplementary services in the lodging product mix.

Host sharing was demonstrated in a number of ways. In the About Host section, hosts expressed their love of sharing their homes with visitors. In the Interaction section, hosts signalled willingness to share 'time' by providing host schedules, time availability, and contact modes/information. Sharing local knowledge as a resident expert was also a minor topic in the Interaction section. Such expertise helps to meet the sharing economy guests' desire for authenticity in their travel experiences. Experienced authenticity has been seen to increase as the traditions, hospitality norms and lifestyles of destination locals are revealed to visitors (Simeon, Buonincontri, Cinquegrani, & Martone, 2017). Finally, sharing 'space' was denoted by topics ranging from

its aims. Topics also aligned with the core product, customer care, and host sharing hospitality model suggested by the authors. Core product topics such as location and furnishings were primarily loaded into the property description, listing summary, and space description sections and also reinforced in the notes, i.e., via expanded descriptions of

Table 7
Tonal measures of property listings compared to commercial print advertisements.

Variable Measured by Diction	Ad Norm Low	Ad Norm High	Average Listing Score	Norm Status	Abbreviated summary of lexical dictionary focus.
Accomplishment	4.96	23.7	6.77	Normal	Task completion and organized human behavior.
Ambivalence	6.49	19.21	6.79	Normal	Expresses hesitation or uncertainty.
Blame	0.06	4.16	0.24	Normal	Social inappropriateness, evil, or denigrations.
Centrality	1.18	7.54	3.3	Normal	Institutional regulations; agreement on core values.
Collectives	4.04	14.46	4.2	Normal	Singular nouns connoting plurality.
Commonality	46.86	52.23	49.97	Normal	Highlighting the agreed upon values of the group.
Cooperation	0.36	8.44	4.19	Normal	Behavioral interactions resulting in group outcomes.
Denial	2.57	10.35	3.28	Normal	Standard negative contractions, or null sets.
Diversity	0.07	3.81	1.28	Normal	Refers to individuals or groups that are unique.
Exclusion	−0.03	4.31	3.11	Normal	Sources and effects of social isolation.
Hardship	1.26	10.48	1.36	Normal	Refers to natural disasters, hostile actions, and fears.
Levelling Terms	5.02	12.76	9	Normal	Terms that build a sense of belonging or joining. Assurance
Liberation	−0.46	4.72	2.04	Normal	Maximizing of individual choice and agency.
Passivity	2.1	8.08	8.08	Normal	Words ranging from neutrality to inactivity.
Past Concern	0.97	6.19	1.75	Normal	The past tense forms of verbs in present concern list.
Present Concern	7.03	16.66	12.34	Normal	A selective list of present-tense verbs.
Rapport	0.42	4.26	3.14	Normal	Attitudinal similarities or agreement among groups. Of people.
Realism	46.1	52.62	51.76	Normal	Describing everyday occurrences or matters.
Self-reference	−1.18	15.1	7.76	Normal	All first-person references. Referring to the self.
Temporal Terms	8.36	21.82	10.72	Normal	Fixing something within a specific time period.
Tenacity	23.32	39.76	24.76	Normal	All uses of the verb "to be."
Activity	46.74	55.48	45.85	Low	Indicating movement, change, or avoiding inertia.
Aggression	1.07	9.79	0.98	Low	Human competition and forceful action.
Cognition	4.43	14.27	3.24	Low	Refers to cerebral processes, intuition, or imagination.
Complexity	4.62	5.4	4.58	Low	Average number of characters per word.
Familiarity	117.87	147.19	100.46	Low	Using common words in English.
Human Interest	18.13	45.49	16.48	Low	Include personal pronouns and relationship terms
Inspiration	1.56	11.12	1.54	Low	Abstract virtues deserving of universal respect.
Variety	0.45	0.53	0.40	Low	Number of unique words compared to total words.
Certainty	46.9	51.96	53.60	High	Indicates resoluteness, inflexibility, and completeness.
Communication	2.21	11.79	21.97	High	Terms referring to social interaction.
Concreteness	10.7	28.5	41.78	High	Words inferring tangibility or materiality.
Embellishment	0.27	0.94	2.29	High	A measure of the ratio of adjectives to verbs.
Insistence	9.4	99.67	250.30	High	Use of repeated words or "semantic "contentedness."
Motion	0.17	4.35	6.10	High	Terms connoting human movement and journeys.
Numerical Terms	0.3	15.04	18.24	High	Any sum, date, or similar concepts.
Optimism	46.37	52.25	55.27	High	Language endorsing people, concept, or event.
Praise	2.77	9.59	11.07	High	Affirmations of people, groups, or abstract entities.
Satisfaction	0.47	6.09	9.29	High	Terms associated with positive affective states.
Spatial Terms	4.17	19.85	30.18	High	Referring to geography or physical distance.

allowing access to various areas of the home, to kitchen supplies and use of home equipment, to actually physically meeting with guests to exchange keys or information.

Findings show that sellers on these platforms are mindful of describing tangible elements of the property as well as being customer-care oriented in their communications to consumers. Topical results also suggest that host sharing can be explained in terms of at least three dimensions: rules governing access to physical space, equipment, and supplies; interaction time with a host; and access to a host's personal background information or authentic knowledge. Given that consumers have limited direct experience with the specific Airbnb residences that they are considering through this online platform, hosts can reduce perceived risks for buyers by deploying supplementary elements in the property listing. We suggest that additional explicit messages about host sharing and strategical uses of personal branding might be appropriate tactics in sharing economy platforms, as previously noted by Abrate and Viglia (2019).

5.2. Tonal cues in property listings

Regarding research question 2, this section examines tone from two perspectives. First, we compared listings to commercial ad norms. Secondly, we inferred how tone interacted with core and supplementary hospitality aspects, and in particular, with the concept of host sharing. In general, Airbnb listings are more concrete, certain, and insistent in tone,

accompanied by greater use of spatial, motion (travel), and time specifications relevant to lodging bookings. Listings provide clear information about property attributes and amenities, with tangible wording and descriptive adjectives modifying furnishings and decor. In addition, we find that listings were quite positive in sentiment cues, tending to be more optimistic in tone with greater use of terms relevant to praise and positive affective states (satisfaction). This connotes an attitude consistent with an ethic of hospitable behavior and customer care. One possible indicator of willingness to share was a significantly higher score for communication and social interaction vocabulary.

There are opportunities for improvement based on the items that were lower than ad norm ranges. One such item was human interest. A low score on human interest diminishes the chance of relationship building through storytelling – an important marketing tactic (Mao & Lyu, 2017). The inspiration score was also low, which suggests that the hosts are not drawing upon shared values in marketing themselves to potential visitors. Finally, Table 7 shows that the number of unique to total words was low (variety score) and the use of repeated words was high (insistence). Thus, hosts are repeating themselves. Since repetition can be a useful rhetorical device, it is not necessarily a bad tactic. However, future research should be conducted to gain a clearer sense of whether this redundancy truly is tactical. Are hosts reinforcing a positive message (e.g., offers of help), being controlling (e.g., house rules), or merely engaging in excessive verbiage?

5.3. Hospitality in the sharing economy – a mixed bag

The sharing economy has enlarged the public's interpretations as to what the lodging host owes the guest and vice versa. In terms of value-added supplemental elements being communicated in Airbnb listings, results are mixed. Firstly, this study found no evidence of tactical sharing of private residences by hosts. Homey lodging alternatives and home-like privileges alluded to in previous studies were not dominant topics within this sample of property listings. The only topics that resembled any sort of privileges granted to guests were presented in the Access section - in the form of permitted uses of home equipment, e.g., washers/dryers or irons, sports or recreational equipment, and kitchen supplies, e.g., cleaning agents, dishware, spices, and other pantry items. There was no significant marketing message that drove home the appeal of home-like attributes to the buyer. This would appear to be a missed opportunity for hosts to strengthen this particular promotional tactic and the perception of host sharing of personal space.

Secondly, it is worth revisiting Lynch's (2017, p. 176) perspective that "when we think about hospitality and welcome, we must also always be thinking about their opposites, inhospitality and non-welcome." The host is motivated to make money, yes, but simultaneously, wants to protect personal assets by laying down house rules regarding pets, smoking, and cleaning the property. There is a strong expectancy that guests should treat the Airbnb property as their own home (inferring a high standard of care). Hence, sharing economy hosts sit in judgment over guest behaviors (Karlsson et al., 2017).

Thus, the Airbnb platform supports mixed messaging whereby the seller, on the one hand, is a host, yet on the other hand is able to exercise restraints on guests through house rules. Airbnb sellers are clearly motivated to protect their reputation as a good neighbor, given that 'respecting rights of neighbors' was a topic with the second highest expectancy in the Locale section of the listings and 'respect' and 'quiet' were important topics found in the House Rules section. Ultimately, these findings reveal a potential discord between the concepts of 'sharing' and building host/guest trust, due to the host's self-interest in protecting one's property and neighborhood. The host strives to attract the buyer through cues in the property listing that incentivize bookings, i.e., property information and demonstration of customer care with some promises of host interaction/positive sharing. However, hosts also express strong expectations that guests adhere to house rules.

6. Conclusion

This exploratory study examined the topics and tonal cues embedded in 9663 property listings extracted from the Airbnb platform. We observed the use of core and supplemental advertising appeals to sell Airbnb lodging bookings, as would be suggested through prior work on defining lodging hospitality. Moreover, we introduced a supplemental 'host sharing' construct into the discussion of lodging hospitality because earlier work on B&B's, homestays, couchsurfing, and farm stays planted the seed for going in this direction. The critical gap in the lodging literature that we addressed was that up to now researchers have been using the term 'sharing' and 'sharing economy' without paying much attention to defining 'sharing' in any meaningful way.

Our goal was to formulate a reasonable conceptualization of 'host sharing' as a supplemental service in the context of the peer-to-peer economy. We offer exploratory findings that future researchers can build upon, by clarifying that 'sharing' is conceptually important as a measureable construct and is not just an adjective preceding the word 'economy.' We found that 'host sharing' is a definable supplemental service that can be communicated through both text-based topics and tonal cues of marketing messages. Host sharing is conceptualized in this study as three dimensional, comprising host visibility (host profile data), host interaction promises (through sharing of time and authentic knowledge), and the level of guest privilege embedded in house rules governing the use of space and property assets.

Platforms such as Airbnb have transformed local inhabitants into new types of hybrid hosts who fall somewhere between tourism service employees and independent local inhabitants. Hosts do not communicate unlimited willingness to share space, time, or personal information, which has potential impacts on the efficacy of their traditional advertising appeals, such as product specifications and customer care promises. Results may also apply to other sectors such as vendors who are using other vacation rental platforms as well as other online sharing economy services where personal property is shared with the public.

6.1. Limitations and future studies

The data was a convenience sample, available from a public entity. Like much public data, it carried only limited sampling background information. While based on a single city, the dataset itself was composed of listings from a large set of hosts, each of whom ultimately created the flavor of narrative that best suits him or her.

Future studies could ideally attempt to replicate these findings across additional regions as well as compare Airbnb to other more traditional commercial lodging websites. Although commercial properties were only two percent of this sample, hotels are continuing to enter the Airbnb space. Thus, future research could be conducted to examine how commercial properties communicate any form of host sharing through their property listings. It would be interesting to see if this is an important facet of their marketing on sharing economy platforms as compared to their traditional hotel websites.

More investigation is needed to determine how host sharing is evolving conceptually from the host perspective. Are sellers in the sharing economy sharing time, space, expertise, or background data intentionally as part of relationship building? What factors make a host more lenient, or oppositely, more controlling? Research on the latter could also attempt to assess the extent to which Airbnb host control over guests begins to approximate the specific emphasis on 'watching' which is seen to exist within the casino space, where employees 'police' customers (Guerrier & Bohane, 2013, p. 38).

An additional limitation as well as opportunity is that of explicitly analyzing the relationships between host sharing cues and buyer perceptions or ratings of these. Since the current ratings on Airbnb were influenced by many other factors than the property listing information itself, this study did not attempt to perform such tests. In future, an experimental study might be conceived to focus viewer attention on host profiles, interaction content, and house rules to extract their emotional and cognitive responses to such material using available scales, e.g., perceived trustworthiness of hosts.

Declaration of interest and funding

None.

Author contribution

Authors contributed equally to this manuscript.

Impact statement

The disruption of the hospitality industry in the era of peer to peer sharing or the "gig" economy, made popular by platforms like Airbnb, may require conceiving a new conceptualization of hospitality. This study aims to explore the development of such a new conceptualization by performing a thorough semantic and tonal analyses on a large scale and rich dataset collected from Airbnb. The result of our analyses revealed the evidence for changes to the socially constructed meaning of hospitality. We observed a philosophical shift away from the dominant position of the consumer in defining the concept of hospitality. This new version of hospitality establishes a balance of rights, if not power, between hosts and guests. We found that the host concept is specifically

altered through self-representations via peer to peer exchange of information, moving from mostly deferential emotional labor to more self-centered designs combining communications of hospitableness and privacy.

References

Abrate, G., & Viglia, G. (2019). Personal or product reputation? Optimizing revenues in the sharing economy. *Journal of Travel Research, 58*(1), 136–148.

Aldebi, H., Hassan Ali, N. N., & Abdulhassan, S. H. (2017). Evaluating the dimensions of service levels in chain hotels: From the perspective of top and middle managements (an empirical study in Jordan). *International Journal of Economics and Finance, 9*(12), 32–32.

Aramberri, J. (2001). The host should get lost. *Annals of Tourism Research, 28*(3), 738–761.

Banerjee, S., & Chua, A. (2016). In search of patterns among travellers' hotel ratings in TripAdvisor. *Tourism Management, 53*(6), 125–131.

Barnes, B. (2012). Letting the Disney magic rub off on businesses. *International Herald Tribune, 17*.

Benoit, S., Baker, T. L., Bolton, R. N., Gruber, T., & Kandampully, J. (2017). A triadic framework for collaborative consumption (CC): Motives, activities and resources & capabilities of actors. *Journal of Business Research, 79*, 219–227.

Berrar, D. (2018). Cross-validation. *Encyclopedia of Bioinformatics and Computational Biology, 1*, 542–545.

Brotherton, B. (1999). Towards a definitive view of the nature of hospitality and hospitality management. *International Journal of Contemporary Hospitality Management, 11*(4), 165–173.

Cinotti, Y. (2012). Hospitalité touristique : Conceptualisation et études de l'hospitalité des destinations et des maisons d'hoˆtes. *Mondes Du Tourisme*, 91–94.

Debortoli, S., Müller, O., Junglas, I., & vom Brocke, J. (2016). Text mining for information systems researchers: An annotated topic modeling tutorial. *Communications of the Association for Information Systems, 39*. Article 7.

DeFelice, J. F. (2001). *Roman hospitality: The professional women of Pompeii (Ser. Marco polo monographs, 6)*. Shangri-La Publications.

Di Domenico, M. L., & Miller, G. (2012). Farming and tourism enterprise: Experiential authenticity in the diversification of independent small-scale family farming. *Tourism Management, 33*(2), 285–294.

Dinges, G., & Novak, S. (2013). *Austin's coming hotel boom is one of the largest in the US*. Last accessed April, 2020 https://skift.com/2013/10/06/austins-coming-hotel-boom-one-of-the-largest-in-the-u-s/.

Dogru, T., Mody, M., Suess, C., Line, N., & Bonn, M. (2020). Airbnb 2.0: Is it a sharing economy platform or a lodging corporation? *Tourism Management, 78*.

Dolnicar, S. (2017a). Chapter 1 – unique features of peer-to-peer accommodation networks. In S. Dolnicar (Ed.), *Peer-to-peer accommodation networks: Pushing the boundaries* (pp. 1–14). Oxford, UK: Goodfellow Publishers.

Dolnicar, S. (2017b). Chapter 17 – socializing new guests. In S. Dolnicar (Ed.), *Peer-to-peer accommodation networks: Pushing the boundaries* (pp. 194–205). Oxford, UK: Goodfellow Publishers.

Duda, R., Hart, P., & Stork, D. (2001). *Pattern classification*. John Wiley & Sons.

Eckhardt, G. M., Houston, M. B., Jiang, B., Lamberton, C., Rindfleisch, A., & Zervas, G. (2019). Marketing in the sharing economy. *Journal of Marketing, 83*(5), 5–27.

Edelman, B., Luca, M., & Svirsky, D. (2017). Racial discrimination in the sharing economy: Evidence from a field experiment. *American Economic Journal: Applied Economics, 9*(2), 1–22.

Ert, E., Fleischer, A., & Magen, N. (2016). Trust and reputation in the sharing economy: The role of personal photos in Airbnb. *Tourism Management, 55*, 62–73.

Farmaki, A., & Kaniadakis, A. (2020). Power dynamics in peer-to-peer accommodation: Insights from Airbnb hosts. *International Journal of Hospitality Management, 89*.

Fischer-Preßler, D., Schwemmer, G., & Fischbach, K. (2019). Collective sense-making in times of crisis: Connecting terror management theory with twitter reactions to the Berlin terrorist attack. *Computers in Human Behavior, 100*, 138–151.

Flanagin, A. J., Winter, S., & Metzger, M. J. (2020). Making sense of credibility in complex information environments: The role of message sidedness, information source, and thinking styles in credibility evaluation online. *Information, Communication & Society, 23*(7).

Fraser, S. M. (2015). To receive guests with kindness: Symbols of hospitality, nobility and diplomacy in Alexander Seton's designed landscape at Fyvie castle. *Architectural Heritage, 26*(1), 121–140.

Frow, N., & Payne. (2014). Diagnosing the supplementary services model: Empirical validation, advancement and implementation. *Journal of Marketing Management, 30* (1–2), 138–138.

Grimmer, J., & Stewart, B. (2013). Text as data: The promise and pitfalls of automatic content analysis methods for political texts. *Political Analysis, 21*(3), 267–297.

Guerrier, Y., & Bohane, G. (2013). Someone to watch over me: Surveillance within a UK casino. *Hospitality & Society, 3*(1), 25–42.

Guo, Y., Barnes, S., & Jia, Q. (2017). Mining meaning from online ratings and reviews: Tourist satisfaction analysis using Latent Dirichlet Allocation. *Tourism Management, 59*, 467–483.

Guttentag, D. (2015). Airbnb: Disruptive innovation and the rise of an informal tourism accommodation sector. *Current Issues in Tourism, 18*(12), 1192–1217.

Hanchuk, O., Bondarenko, O., Varfolomyeyeva, I., Lohvynenko, T., Pakhomova, O., & Lohvynenko, T. (2020, May 20). Couchsurfing as a virtual hospitality network and a type of sustainable youth tourism. In *International conference on sustainable futures:*

Environmental, technological, social and economic matters, ICSF 2020, E3s web of conferences (Vol. 166).

Hardy, A., & Dolnicar, S. (2017). Chapter 15 –Types of network members. In S. Dolnicar (Ed.), *Peer-to-peer accommodation networks: Pushing the boundaries* (pp. 170–181). Oxford, UK: Goodfellow Publishers.

Harrington, D., & Akehurst, G. (1996). An exploratory investigation into managerial perceptions of service quality in UK hotels. *Progress in Tourism and Hospitality Research, 2*(2), 135–150.

Hart, R., & Carroll, C. (2013). *DICTION 7.0: The text analysis program. Developer: Wouter van Atteveldt*. Austin, TX: Digitext, Inc.

Hashem, T. N. (2018). The flower of service concept and its influence on the customer satisfaction: Case study of Jordanian private hospitals sector. *International Journal of Business and Management, 13*(2), 122–137.

He, L., Han, D., Zhou, X., & Qu, Z. (2020). The voice of drug consumers: Online textual review analysis using structural topic model. *International Journal of Environmental Research and Public Health, 17*(3648), 1–18.

Inside Airbnb. (2017). Last accessed April 2021 http://insideairbnb.com/.

Isayev, E. (2017). Between hospitality and asylum: A historical perspective on displaced agency. *International Review of the Red Cross, 99*(1), 75–98. https://doi.org/10.1017/S1816383117000510

Jaeger, B., Sleegers, W., Evans, A. M., Stel, M., & van Beest, I. (2019). The effects of facial attractiveness and trustworthiness in online peer-to-peer markets. *Journal of Economic Psychology, 75*(Part A). Article 102125.

Karlsson, L., Kemperman, A., & Dolnicar, S. (2017). May I sleep in your bed? Getting permission to book. *Annals of Tourism Research, 62*, 1–12.

Kiatkawsin, K., Sutherland, I., & Kim, J. (2020). A comparative automated text analysis of Airbnb reviews in Hong Kong and Singapore using Latent Dirichlet Allocation. *Sustainability, 12*(16).

Kim, S., Lee, K. Y., Koo, C., & Yang, S.-B. (2018). Examining the influencing factors of intention to share accommodations in online hospitality exchange networks. *Journal of Travel & Tourism Marketing, 35*(1), 16–31.

Kline, S. F., Morrison, A. M., & St John, A. (2004). Exploring bed and breakfast websites: A balanced scorecard approach. *Journal of Travel & Tourism Marketing, 17*(2/3), 253–267.

Knutson, B. J., Beck, J. A., Kim, S., & Cha, J. (2009). Identifying the dimensions of the guest's hotel experience. *Cornell Hospitality Quarterly, 50*(1), 44–55.

Lalicic, L., & Weismayer, C. (2018). A model of tourists' loyalty: The case of Airbnb. *Journal of Hospitality and Tourism Technology, 9*(1), 78–90.

Lampinen, A. (2016). Hosting together via couchsurfing: Privacy management in the context of network hospitality. *International Journal of Communication, 10*, 1581–1600.

Lashley, C. (2000). Towards a theoretical understanding. In C. Lashley, & a. Morrison (Eds.), *In search of hospitality, theoretical perspectives and debates* (pp. 1–17). Oxford, UK: Butterworth Heinemann.

Lim, S. E. Y., & Bouchon, F. (2017). Blending in for a life less ordinary? Off the beaten track tourism experiences in the global city. *Geoforum, 86*, 13–15.

Lin, M., Miao, L., Wei, W., & Moon, H. (2019). Peer engagement behaviors: Conceptualization and research directions. *Journal of Service Research, 22*(4), 388–403.

Liu, S. Q., & Mattila, A. S. (2017). Airbnb: Online targeted advertising, sense of power, and consumer decisions. *International Journal of Hospitality Management, 60*, 33–41.

Lombard, M., & Ditton, T. (2006). At the heart of it all: The concept of presence. *Journal of Computer-Mediated Communication, 3*(2).

Lovelock, C. (1992). Cultivating the flower of service: New ways of looking at core and supplementary services. In P. Eigler, & E. Langeard (Eds.), *Marketing, operations and human resources insights into services* (pp. 295–316). Aix-en-Provence, France: Institute d'Administration des Enterprises.

Lovelock, C. (1995). Competing on service: Technology and teamwork in supplementary services. *Planning Review, 23*(4), 32–47.

Lovelock, C. (1996). Adding value to core products with supplementary services. C. Lovelock. In *Services marketing* (2nd ed., pp. 337–359). Englewood Cliffs, NJ: Prentice Hall.

Lynch, P. (2005). Reflections on the home setting in hospitality. *Journal of Hospitality and Tourism Management, 12*(1), 37–49.

Lynch, P. (2017). Mundane welcome: Hospitality as life politics. *Annals of Tourism Research, 64*, 174–184.

Lynch, P., & MacWhannell, D. (2000). Home and commercial hospitality. In C. Lashley, & A. Morrison (Eds.), *Search of hospitality: Theoretical perspectives and debates* (pp. 100–117). Oxford, UK: Butterworth-Heinemann.

Ma, X., Hancock, J., Mingjie, K., & Naaman, M. (2017). Self-disclosure and perceived trustworthiness of Airbnb host profiles. In *Proceedings of the ACM conference on computer supported cooperative work* (pp. 2397–2409). CSCW.

Manhas, P. S., & Tukamushaba, E. K. (2015). Understanding service experience and its impact on brand image in hospitality sector. *International Journal of Hospitality Management, 45*, 77–87.

Mao, Z., & Lyu, J. (2017). Why travelers use Airbnb again? An integrative approach to understanding travelers' repurchase intention. *International Journal of Contemporary Hospitality Management, 29*(9), 2464–2482.

Marriott rolls out new spirit to serve. (2006). *Hotels, 40*(2), 12–12.

McIntosh, A. J., Lynch, P., & Sweeney, M. (2011). 'My home is my castle': Defiance of the commercial homestay host in tourism. *Journal of Travel Research, 50*(5), 509–509.

Naipaul, S., & Parsa, H. G. (2000). Supplementary services as a differentiation strategy. *Journal of Quality Assurance in Hospitality & Tourism, 1*(1), 67–80.

Nath, T. (2018). *How Airbnb makes money*. Last accessed February 2021 https://www.investopedia.com/articles/investing/112414/how-airbnb-makes-money.asp#ixzz5GFk40n21.

O'Gorman, K. D. (2005). Modern hospitality: Lessons from the past. *Journal of Hospitality and Tourism Management, 12*(2), 141–151.

O'Gorman, K. D. (2007). Dimensions of hospitality: Exploring ancient origins. In C. Lashley, A. Morrison, & P. Lynch (Eds.), *Hospitality: A social lens*. Oxford, UK: Elsevier.

Paulauskaite, D., Powell, R., Coca-Stefaniak, J., & Morrison, A. (2017). Living like a local: Authentic tourism experiences and the sharing economy. *International Journal of Tourism Research, 19*(6), 619–628.

Poh, W. C., & Cheng, L. T. (2017). Factors influencing poor experience quality in 2-to-5-star hotels: A content analysis of guest reviews on trip advisor. *Global Business and Management Research, 9*(4), 409–425.

Powell, W. (2015). Marketing matters: Maslow's hierarchy of needs has modern-day applications. *The Gazette*, (January 7).

Rawsthorne, L. J., & Elliot, A. J. (2016). Achievement goals and intrinsic motivation: A meta-analytic review. *Personality and Social Psychology Review, 3*(4), 326–344.

Roberts, M., Stewart, B., & Airoldi, E. (2016). A model of text for experimentation in the social sciences. *Journal of the American Statistical Association, 111*(515), 988–1003.

Roberts, M., Stewart, B., & Tingley, D. (2019). stm: An R package for structural topic models. *Journal of Statistical Software, 91*(2), 1–40.

Ruggless, R. (2007). Going far beyond room service: Upscale restaurants checking into boutique lodging venues strive to incorporate a high-end experience into hotel food service. *Nation's Restaurant News, 41*(23), 29–32.

Sbalchiero, S., & Eder, M. (2020). Topic modeling, long texts and the best number of topics: Some Problems and solutions. *Quality and Quantity, 54*, 1095–1108.

Scerri, M. A., & Presbury, R. (2020). Airbnb superhosts' talk in commercial homes. *Annals of Tourism Research, 80*.

Simeon, M. I., Buonincontri, P., Cinquegrani, F., & Martone, A. (2017). Exploring tourists' cultural experiences in Naples through online reviews. *Journal of Hospitality and Tourism Technology, 8*(2), 220–238.

Sutherland, I., Sim, Y., Lee, S., Byun, J., & Kiatkawsin, K. (2020). Topic modeling of online accommodation reviews via Latent Dirichlet Allocation. *Sustainability, 12*(5).

Tang, T.-W. (2015). Competing through customer social capital: The proactive personality of bed and breakfast operators. *Asia Pacific Journal of Tourism Research, 20*(2), 133–151.

Tavakoli, R., Mura, P., & Rajaratnam, S. D. (2017). Social capital in Malaysian homestays: Exploring hosts' social relations. *Current Issues in Tourism, 20*(10), 1028–1043. Technologies, Journal of Computer-Mediated Communication, 25 (1), 32–43.

Tussyadiah, I., & Florian, Z. (2017). Identifying salient attributes of peer-to-peer accommodation experience. *Journal of Travel & Tourism Marketing, 34*(5), 636–652.

Wu, J., Ma, P., & Xie, K. L. (2017). In sharing economy we trust: The effects of host attributes on short-term rental purchases. *International Journal of Contemporary Hospitality Management, 29*(11), 2962–2976.

Xie, K. L., & Chen, Y. (2019). Effects of host incentives on multiple listings in accommodation sharing. *International Journal of Contemporary Hospitality Management, 31*(4), 1995–2013.

Xie, K. L., & Kwok, L. (2017). The effects of Airbnb's price positioning on hotel performance. *International Journal of Hospitality Management, 67*, 174–184.

Xie, K., & Mao, Z. (2017). The impacts of quality and quantity attributes of Airbnb hosts on listing performance. *International Journal of Contemporary Hospitality Management, 29*(9), 2240–2260.

Xu, J. B., & Chan, A. (2010). A conceptual framework of hotel experience and customer-based brand equity. *International Journal of Contemporary Hospitality Management, 22*(2), 174–193.

Dr. Bonnie Canziani: Dr. Canziani is a Professor of Hospitality Management at The University of North Carolina at Greensboro. She is the founding Director of the Hospitality and Tourism Program at UNCG. She holds Masters and Doctorate in Hotel Administration (with training systems and organizational behavior) from Cornell University. Her research primarily focuses on hospitality and tourism. She has published more than 35 articles in journals such as Tourism Management, International Journal of Contemporary Hospitality Management, as well as editing/authoring two books and 8 book chapters. In the past five years she has received seven best paper awards for her research.

Dr. Hamid Nemati: Dr. Hamid Nemati is a Professor of Information Systems at the University of North Carolina at Greensboro. He received his PhD from the University of Georgia in Information Technology and Management Science and his MBA from The University of Massachusetts. He is internationally recognized for his research in Information Technology, including data analytics, big data, information security and privacy, organizational and behavioral aspects of Information Technology development and use. He has extensive professional experience and has consulted for numerous major corporations. He has published nine books and over 120 peer reviewed academic publications in premier journals and conference proceedings.