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Scale development of value co-destruction behavior in tourism☆

Xinhua Guan[a], Jinhong Gong[b], Lishan Xie[c], Tzung-Cheng Huan[d,*]

[a] School of Geography and Tourism, Guangdong University of Finance and Economics, 21 Luntou Road, Haizhu District, Guangzhou 510320, China
[b] College of Humanities and Law, South China Agricultural University, 483 Wushan, Tianhe District, Guangzhou 510642, China
[c] School of Business, Sun Yat-sen University, 135, Xingang West Road, Guangzhou 510275, China
[d] Department of Hotel Management, Tainan University of Technology, No. 529, Zhongzheng Rd., Yongkang District, Tainan City 71002, Taiwan

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ABSTRACT

Value co-destruction has received widespread attention from the tourism academic community. This article uses the employees and customers of tourism service providers as the main research objects and employs interviews and questionnaires to develop an employee-customer perspective measurement scale of value co-destruction behavior in tourism. The reliability analysis, exploratory factor analysis, confirmatory factor analysis, and structural equation model testing results show that the measurement scale of value co-destruction behavior in tourism consists of 5 dimensions (bad interpersonal communication behavior, bad information interaction behavior, irresponsible customer behavior, employee contract violation behavior, and irresponsible employee behavior) and a total of 29 items with high reliability, convergent validity, and discriminant validity, which can be used to evaluate the extent to which a subject abuses his or her own resources or the resources of others in tourism interactions, resulting in tourism value reduction or destruction. Finally, the research results and future research are discussed.

1. Introduction

To achieve results that are beneficial to both customers and service providers, many tourism and hospitality companies create opportunities for customers to participate in value creation (Busser & Shulga, 2018). In fact, the value realization in tourism or other industries, whether it is corporate value or customer value, is itself a co-creation process (Prahalad & Ramaswamy, 2004; Vargo & Lusch, 2016). Only if the tourism enterprise strictly abides by the contract, the employees provide services in accordance with the norms, the customers are civilized and courteous, the local residents are friendly and hospitable, and the government is properly supervised can we achieve satisfactory results for multiple entities. However, the nature of multi-party participation has increased the complexity of tourism services and the difficulty of resource integration, and the original intent of value co-creation cannot always obtain positive results. In many situations, value is not co-created, but co-destructed (Plé & Chumpitaz Cáceres, 2010; Prior & Marcos-Cuevas, 2016). For example, the mandatory consumption of tour guides, the overcharging of catering companies in destinations, the low hygienic quality of high-star hotels, the uncivilized behavior of tourists, the unrealistic expectations of customers, the delinquent conduct of user networks, etc., will definitely cause value destruction. As a high-contact service industry, there are many contact points between actors (tourists and service providers) in tourism services, and value co-destruction is more likely to occur. Managers need to identify whether the actors on the interactive interface are value co-creating or co-destructing. Understanding the specific performance of value co-destruction is an important issue for tourism and hospitality enterprises that are committed to co-creating value with customers, other companies and stakeholders.

In terms of theoretical research, scholars have begun to pay attention to the value co-destruction. Current research topics mainly focus on the following aspects: (1) definition of value co-destruction (e.g., Lefebvre & Plé, 2012; Plé, & &ChumpitazCáceres, R., 2010; Vafeas, Hughes, & Hilton, 2016); (2) the internal mechanism of value co-destruction from the perspective of resource abuse and process misalignment (e.g. Lefebvre & Plé, 2012); (3) the process of value co-destruction from the perspective of organization and employees abusing

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* Corresponding author.
E-mail addresses: guanxinhua2006@126.com (X. Guan), kina_gjh07@scau.edu.cn (J. Gong), mnsxls@mail.sysu.edu.cn (L. Xie), tchuan@mail.ncyu.edu.tw (T.-C. Huan).

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resources (e.g. Plé, 2016; Smith, 2013), customers abusing resources (e.g., Dolan, Seo, & Kemper, 2019; Kashif & Zarkada, 2015) and the interaction between two parties (e.g., Echeverri & Skålén, 2011; Zhang, Lu, Torres, & Chen, 2018); (4) value co-destruction in online interactions (e.g. Carù & Cova, 2015; Quach & Thaichon, 2017), business to business interactions (e.g., Prior & Marcos-Cuevas, 2016; Vafeas et al., 2016) and technical applications (e.g. Čaić, Odekerken-Schröder, & Mahr, 2018; Uppström & Lönn, 2017).

There is no denying that the research of value co-destruction has made some achievements. However, compared with value co-creation, there are two shortcomings in academic research on value co-destruction. The first is that the research is not insightful enough. The current research on value co-destruction mainly focuses on the connotation and formation processes (Xie, Liu, Guo, & Li, 2020), most of the research methods are qualitative (Guan & Xie, 2019), and only a few quantitative studies have been based on value co-destruction (e.g., Xie et al., 2020; Yeh, Fotiadis, Chiang, Ho, & Huan, 2020). What activities cause value co-destruction and how to take effective measures to intervene in value co-destruction are issues that both academics and industry urgently need to solve. Second, there are fewer quantitative studies and a lack of effective scales for measuring value co-destruction. There are some studies regarding a customer value co-creation behavior scale (Yi & Gong, 2013), a value co-creation scale (Neghina, Caniels, Bloemer, & van Birgelen, 2015; Ranjan & Read, 2016), a co-created value scale (Busser & Shulga, 2018), a co-creation experience scale (Mathis, Kim, Uysal, Sirgy, & Prebensen, 2016), and value-creation for the experience of the tourist destination (Jamilena, Peña, & Molina, 2016); however, a scale related to value co-destruction is severely lacking, which is the key reason that the research cannot be deepened.

In summary, the goal of this study is to develop the value co-destruction behavior scale. “Value co-destruction can be defined as an interactional process between service systems that results in a decline in at least one of the systems' well-being” (Plé, & &ChumpitazCáceres, R., 2010, p. 431). Well-being is defined as “the quality of a person's life” (Laud et al., 2019, p. 872) when the system is an individual, or the organization's interest. In this research, we position value co-destruction behavior as a behavior construct defined as the act of abusing one's own or other's resources in the process of interaction, resulting in value reduction or destruction. Both customers and employees may cause value co-destruction, so this study starts from the perspective of both employees and customers, and focuses on the tourism service scenario, gives the value co-destruction behavior corresponding to the value co-creation behavior that is used to describe the specific activities of the interactive interface actors, and develops a measurement scale that provides theoretical support and practical inspiration for future researchers and practitioners to measure value co-destruction behavior and evaluate the effects of management approaches.

2. Literature review

2.1. The connotation of value co-destruction

Value formation is a complex process, and the final result may be value co-creation or value co-destruction (Echeverri & Skålén, 2011). Because the academic community pays too much attention to value co-creation (positive results of value formation), Plé, and & ChumpitazCáceres, R. (2010) proposed value co-destruction and defined it as the well-being decline of at least one of the participating entities (such as individuals or organizations) during the interaction process of a service system. Based on this, Echeverri and Skålén (2011) focused on the face-to-face relationships between service providers and customers, arguing that value co-destruction is the collaborative destruction or reduction of value caused by service providers and customers during the interaction process. In more complex B2B (Business to Business) scenarios, value co-destruction refers to the interaction process between focal actors and their networks that occurs through direct or indirect interactions via resource integration and application and results in the decline of the well-being of at least one focal actor and/or network (Lefebvre & Plé, 2012). Vafeas et al. (2016) argue that the term value diminution is more appropriate than value co-destruction, because the term co-destroyers is misleading (the situation where only one actor abuses resources also falls into the category of co-destruction). They define value diminution as the realization of a sub-optimal value due to insufficient resources or resource abuse by one or more interactive actors, so any or all of them are more or less the victims of diminished value. Although the arguments of Vafeas et al. (2016) have some truth, most scholars still adopt the concept of value co-destruction. This paper follows the view of most scholars.

In summary, the research on value co-destruction is still in the development stage, and scholars have not formed a unified view of its connotation. From the existing research, we consider the connotation of value co-destruction can be summarized by the following 4 points. (1) Value co-destruction causes the well-being of at least one actor not to be optimal, which may be a suboptimal state, and may be a loss of well-being. Therefore, value co-destruction is not simply the opposite of value co-creation. If a satisfactory positive output is regarded as value co-creation, an unsatisfactory positive output and negative output belong to the category of value co-destruction (Chen, Wu, & Xu, 2018). (2) Value co-destruction occurs during the interactions between actors, or between actors and their networks, which may be direct interactions (such as contacts between employees and customers) or indirect interactions (such as customers interacting with a business through goods). (3) The root cause of value co-destruction is the misuse of resources and the misalignment of processes; that is, the actors have failed to integrate their resource use or coordinate their processes in a manner that other actors consider “appropriate” or “expected” (Lefebvre & Plé, 2012). (4) Value co-destruction is a state, but this state is not fixed. In the interaction process, situations may range from value co-destruction to value co-creation or from value co-creation to value co-destruction (Echeverri & Skålén, 2011). In the interactive network of multiple actors, value co-creation and co-destruction can coexist (Plé, 2016). Co-destruction may be a stage in the path of co-creation, and co-creation may evolve into the final co-destruction.

2.2. Research on tourism value co-destruction

In a tourism service system, the participants are more complicated and include tourists, local residents, enterprises (such as scenic spots, travel agencies, hotels, and online travel agencies - OTAs), and governments (Malone, McKechnie, & Tynan, 2018). This complexity makes it very difficult for value formation, which is influenced by many factors, to achieve the goal of co-creation. The phenomenon of value co-destruction has attracted the attention of scholars in the tourism industry. Researchers have explored the process and the final impact of value co-destruction by interviewing customers and employees, analyzing the content of the online reviews of customers, and conducting questionnaire surveys with customers.

One type of research focuses on identifying practical activities in the value formation process, which may cause value co-destruction. For example, Camilleri and Neuhofer (2017) took Airbnb as an example and used qualitative online content analysis to find six interaction value practices in the value formation process, which included welcome, evaluating location and accommodation, expressing feelings, helping and interacting, recommending, and thanking. Dolan et al. (2019) analyzed the social media complaints of a large Australian airline and found that 3 types of online complaints, namely, solution-seeking, support-seeking and social engagement-seeking, have the potential for value co-destruction.

The other type of research focuses on the factors and consequences of value co-destruction. For example, studies into Airbnb and Uber customers found that insufficient communication (Sthapit & Jiménez Barreto, 2019), the bad behavior of employees, and poor customer

service on the platforms (Sthapit, 2018; Sthapit & Björk, 2019) are the main factors of value co-destruction, which ultimately leads to the loss of resources (such as time and money). Luo, Wong, King, Liu, and Huang (2019) found through a questionnaire survey that positive interactions among customers help co-create value for service quality, while negative interactions can reduce customers' perception of service quality and cause value co-destruction. Malone et al. (2018) used semi-structured interviews to show how customer emotions, as an operant resource, play a role in the value co-creation and value co-destruction processes. Baker and Kim (2019) found that the language style and emotion of reviewers affect customers' perception of the credibility of publishers, websites, and businesses and then affect the behavioral tendencies of websites and businesses; they found that exaggerated online reviews are a vehicle for value co-destruction. Yeh, Fotiadis, Chiang, Ho and Huan (2020) constructed a value co-destruction model consisting of negative emotion, desire for revenge, desire for recovery, and negative eWOM (Electronic Word of Mouth). Xie et al. (2020) analyzed the impacts of different types of value co-destruction on customer disappointment and negative word of mouth and the role of value recovery strategies.

Because the existing research mainly ignores tourism service providers and is based on the perspective of customers, many scholars have begun to analyze value co-destruction from a dual (customers and tourism service providers) perspective. For example, Järvi, Keränen, Ritala and Vilko (2020) used hotel services as the research objective and explored how the script misalignment between the customer and the service provider led to value co-destruction using dyadic insights from supplier interviews, customer diaries and online reviews. Among these, the service provider factors include inability to provide a service, contextual rigidity, and incoherent marketing communication, and the customer factors include excessive expectations, insufficient communication, and inappropriate behavior. Lund, Scarles and Cohen (2020) conducted a case study of TripAdvisor and Facebook netnography and destination management organization, pointing out that value creation is a process of brand value continuum flow, the complex interaction between co-creation and co-destruction occurs through user generated content, and marketers can use storytelling to offset brand co-destruction on social media.

Although the research on tourism value co-destruction has made some progress, at present, it has mostly used qualitative methods (such as case studies, interviews, and grounded theory) in an attempt to dig deeper into the reasons for value co-destruction to answer the questions of why value co-destruction occurs, how value co-destruction occurs and what its consequences are. There are only a few quantitative studies (e.g., Luo et al., 2019; Xie et al., 2020; Yeh et al., 2020) regarding value co-destruction. In response to the call of Plé, and & ChumpitazCáceres, R. (2010), this study develops a measurement scale of value co-destruction behavior in order to be a theoretical reference for future empirical research.

2.3. Value co-destruction behavior in tourism

Based on academic research on value co-destruction, we define value co-destruction behavior in tourism as the act of abusing one's own or other's resources in the process of tourism services, resulting in tourism value reduction or destruction. This concept differs from customer deviation behavior and employee deviation behavior in the following two points. First is the different subjects and different objects. The research on customer deviation behavior started from the jaycustomers proposed by Lovelock (1994), a term that mainly refers to customers who violate the generally accepted behavioral norms and engage in behaviors that disrupt the normal consumption order. Employee deviation behavior refers to violations of organizational rules and regulations by employees that affect the welfare of the organization or other members of the organization (Robinson & Bennett, 1995). According to research by Gong, Yi, and Choi (2014), the subject of customer deviation behavior is the customer, and the object of behavior is mainly the employees; meanwhile, the subject of employee deviation behavior is the employee, and the object is the organization and the individual employee (Robinson & Greenberg, 1998). The subject of the value co-destruction behavior in tourism proposed in this article is the actors of the interactive interface of the tourism service, which may be employees, customers, or other customers; and the object is mainly the other actors in the interactive interface. The second point is that the content (specific performance) is different. Taking a customer-oriented and employee-centric perspective, customer deviation behaviors include bullying, rough behavior, verbal assault, sexual harassment, uncivilized behaviors, and unfair treatment of employees; employee deviation behaviors manifest as idleness, theft, destruction of production tools, spreading rumors, and theft of company assets. In contrast, from the value formation perspective, value co-destruction behavior is due to the performance of the interactive interface actors, and this behavior points to value co-destruction rather than value co-creation. That is, the concept does not focus on whether the actor is an employee or a customer but focuses on the direction of the behavior.

Value co-destruction behavior in tourism has the following characteristics. First, the subject of the behavior is the actor, the object of the behavior is the value. The specific manifestation is the creation of unfavorable value in tourism by the actors in the interaction process and the behavior that causes the value reduction or elimination in tourism. Second, the value co-destruction behavior may be intentional or unintentional; the main reason for this kind of behavior is the mismatch between the actors; that is, the two parties to the interaction did not adhere to the behavior that the other party considered to be “suitable” or meet their “expectation” for using their resources (Lefebvre & Plé, 2012; Plé, & &ChumpitazCáceres, R., 2010). The bad use of resources and failed resource integration are the main manifestations of value co-destruction. Third, value co-destruction behavior and customer deviation behavior have a certain overlap, and both are related to the value reduction of service participants (Dootson, Johnston, Beatson, & Lings, 2016). However, the study of customer deviation behavior often takes a customer-centric perspective and cannot encompass the overall view of value co-destruction (Sigala, Benckendorff, Koo, & Tussyadiah, 2016). Therefore, in this study, subjects such as “employees” or “customers” were not added before “value co-destruction behavior”. First, the destruction can be performed by any actor on the interactive interface, including employees, customers, other customers, etc. Second, in response to the call of the service-dominant logic researcher, new labels and wordings are used to help researchers and practitioners rethink and define this phenomenon (Akaka & Vargo, 2015; Kohli, 2006).

3. Methodology

Because the research on tourism value co-destruction is very limited and value co-destruction behavior is not simply the opposite of value co-creation behavior, we use a combination of qualitative and quantitative research methods and adopt standard scale development process suggested by (Churchill, 1979; Liu, 2008).

Step one: qualitative research – interview. The purpose of step one is to generate and test the content validity of the initial measurement items. We systematically combed the literature of value co-destruction, but found no valuable measurement items. On the other hand, by collecting the scale of deviant behaviors of employees and customers, it is found that some of the items may belong to the category of value co-destruction behaviors. We focused most of our energy on interviews. First, this study conducts qualitative research by interviewing the relevant personnel (see Appendix A), analyzes the interview data with the content analysis method, and uses the induction method to generate the initial measurement items. We then perform a content validity check and delete some measurement items that do not meet the concept consistency conditions.

Step two: quantitative research – survey 1. The purpose of step two is to purify the measurement items. This step conducts the first survey (see Appendix B). Exploratory factor analysis is then used to purify the measurement items.

Step three: quantitative research – survey 2. The purpose of step three is to check the goodness of fit of the factor structure and data. This step conducts the second survey, performs confirmatory factor analysis to check the goodness of fit of the factor structure and data, and finally develops a scale with good statistical reliability and validity.

Step four: quantitative research – survey 3. The purpose of step four is to further verify the scale of value co-destruction behavior in tourism. This step conducts the third survey (see Appendix C), re-collects data, adds the perceived value as a result variable and then studies the predictive validity of the tourism value co-destruction behavior scale by testing the reliability and validity of the scale and structural equation modeling.

4. Development of the value co-destruction behavior in tourism scale

4.1. Generation and content validity of the initial measurement items

To summarize the content of value co-destruction behavior in tourism, identify its constituent elements, and provide a basis for the subsequent scale development and subsequent quantitative research, we use the semi-structured interview method to generate the initial measurement items. First, we select the service providers and customers of the tourism industry in China as the interview objects because they are the subjects most frequently interacted with in tourism services, and they are the ideal respondents. To obtain diversified information, we contacted managers of tourism and hospitality enterprises (mainly travel agencies and hotels) and conducted in-depth interviews with front-line employees. A convenient sampling method is adopted to conduct in-depth interviews with customers with tourism and hospitality consumption experience. Then, we designed the outline of the interview and asked the interviewees to describe in detail an impressive co-destruction event that they experienced in the context of tourism services (the time, place and occasion of the event; the specific behavior of oneself and the other party during the event; how you feel about this event), and to figure out questions such as what values were expected in the interaction that were not realized. Both customers and employees answer the same questions. After that, the field interviews began. The interview in Chinese was conducted from May 2019 to November 2019. The interview place is where the interviewee feels comfortable, such as coffee shop, home, office, etc. The number of interviews is based on the theoretical saturation principle; that is, samples are taken until the newly drawn samples no longer provide new important information. Based on this principle, a total of 57 tourists and 27 tourism service providers were interviewed, and each interview lasted approximately 30–45 min. Among the respondents, all of them are from Guangdong province in southern China; 55 were female; 37 under 25 years old, 28 between 26 and 35 years old, 13 between 36 and 45 years old and 6 over 45 years old; the education level is concentrated in college and bachelor's degree, 15 and 52 respectively.

Based on the content analysis of the materials from the 84 interviews and by summarizing the value co-destruction behavior mentioned by the tourism service providers and customers, we summarize the categories and connotations of tourism value co-destruction behavior. Through the coding and classification steps, five main categories were finally determined: bad interpersonal interaction behavior, bad information interaction behavior, employee contract violation behavior, and irresponsible employee and customer behaviors. The results of qualitative research show that the behavior of value co-destruction is manifested in interpersonal interaction, information interaction and responsibility fulfillment. When naming, we refer to the naming of the value co-creation behavior sub-dimension proposed by Yi and Gong (2013). However, it should be reiterated that the behavior of value co-destruction is not the simple opposite of the behavior of value co-creation.

Among these categories, bad interpersonal interaction behavior refers to a situation in which one actor is not polite to the other, does not consider the dignity of the other party, and does not respect the other party, etc., which is the antithesis of good personal interaction in the value co-creation behavior sub-dimension (Yi & Gong, 2013). Bad information interaction behavior refers to a situation in which one party's actor did not pass due information to the other party in the tourism reception services. Employee contract violation behavior refers to the violation of contract content and the abuse of customer resources in tourism reception services. Irresponsible behavior means that one of the actors in the tourism reception service has not realized their duties and responsibilities and has engaged in irresponsible behavior (such as poor service quality, non-cooperation, shirking responsibility, etc.).

Based on the results of the content analysis, we wrote 76 measurement items in Chinese from the perspectives of both sides (tourism service providers and customers) regarding the interactions and combined them with the interviewees' terms. After the initial measurement items were generated, we performed a content validity test to eliminate some measurement items that did not meet the consistency requirements of the concept. To achieve this goal of content validity, we first invited experts in related research fields (2 associate professors) to evaluate the degree of matching between the 76 initial measurement items and the concept of value co-destruction behavior in tourism. After reaching an agreement, the content and terminology of the items were repeatedly discussed and modified, and the items with the same meaning but different expressions were merged. Then, the scale was given to two tourism service providers and two customers to evaluate. They were asked if they had questions about the expressions of the measurement indicators and whether the items could well reflect value co-destruction behavior in tourism. After integrating the opinions of the tourism service providers and customers, we further modified and improved the questionnaire and finally determined 55 items which are measured by 7-point frequency scales. Based on the Likert-type scale response anchors of Vagias (2006), the 7-point frequency response anchors are as followings: 1 = never; 2 = rarely, in less than 10% of the chances when I could have; 3 = occasionally, in about 30% of the chances when I could have; 4 = sometimes, in about 50% of the chances when I could have; 5 = frequently, in about 70% of the chances when I could have; 6 = usually, in about 90% of the chances I could have; 7 = every time. For detailed information of questionnaire, please see Appendix B, the questionnaire of value co-destruction behavior in tourism.

4.2. Exploratory factor analysis for measurement scale purification

This article uses exploratory factor analysis to purify the measurement items of the scale and initially explores the dimensions of value co-destruction behavior in tourism. This data analysis method is often used for scale development (such as Busser & Shulga, 2018; Yi & Gong, 2013). To achieve this, we surveyed employees who provided tourism services and customers who received tourism services. First, the researcher developed a questionnaire on a professional sample service platform—www.wjx.cn. The instructions specifically emphasized that the content of the questionnaire was anonymous and did not involve personal privacy; there were no right or wrong answers, and the survey results would only be used for academic research and would not involve commercial use. We then purchased a sampling service from WJX. That is, the survey platform locates and sends questionnaires to target groups in various regions and invites customers with travel service experience and employees engaged in front-line tourism services to voluntarily fill in the questionnaires. Fourteen CYN (Chinese Yuan, Renminbi; 1 US Dollar = approximately 7 CYN in 2020) was paid to WJX platform (wjx.cn) for each validly completed survey. A total of 474 valid

Table 1
Sample characteristics.

Demographic variable	Survey 1 N = 474 (EFA)		Survey 2 N = 387 (CFA)		Survey 3 N = 307	
	n	%	n	%	n	%
Role						
Customer	291	61.4	216	55.8	307	100
Employee	183	38.6	171	44.2	–	–
Gender						
Male	174	36.7	127	32.8	121	39.4
Female	300	63.3	260	67.2	186	60.6
Age						
Below 26	141	29.7	125	32.3	69	22.5
26–35	235	49.6	195	50.4	177	57.7
36–45	57	12.0	45	11.6	46	15.0
46–55	24	5.1	11	2.8	13	4.2
Above 55	17	3.6	11	2.8	2	0.7
Education						
Junior high school	18	3.8	10	2.6	4	1.3
Senior high school	31	6.5	33	8.5	12	3.9
Associate degree	98	20.7	84	21.7	47	15.3
Bachelor's degree	292	61.6	238	61.5	220	71.7
Master's degree	35	7.4	22	5.7	24	7.8
Monthly income						
Below ¥3,001	93	19.6	88	22.7	32	10.4
¥3001–5,000	91	19.2	86	22.2	51	16.6
¥5,001–7,000	118	24.9	79	20.4	68	22.1
¥7,000–10,000	100	21.1	83	21.4	92	30.0
Above ¥10,000	72	15.2	51	13.2	64	20.8
Less than 1 year	107	22.6	91	23.5	47	15.3
Years of work						
1–3 years	82	17.3	69	17.8	36	11.7
4–6 years	124	26.2	77	19.9	85	27.7
7–9 years	85	17.9	70	18.1	66	21.5
10 and above years	76	16.0	80	20.7	73	23.8

Note: ¥ is CYN (Chinese Yuan, Renminbi; 1 US Dollar is approximately 7 CYN in 2020).

questionnaires were completed. As shown in Table 1, there are 183 tourism service providers and 291 customers. Women accounted for 63.3%, respondents aged 26–45 accounted for 61.6%, respondents with a college education or above accounted for 89.7%, respondents with a monthly income from 3,001 to 10,000 CNY accounted for 65.2%, and the respondents' number of working years were mainly more than 4 years (60.1%).

First, we check the correlation of the measurement items. If the absolute value of the correlation coefficient between one measurement item and the other measurement items is less than 0.3, the item is deleted. Then, exploratory factor analysis (EFA) was carried out on the measurement items of the value co-destruction behavior in tourism. The KMO value is 0.962 > 0.7, and Bartlett's sphericity test results are significant; therefore, the measurement items are suitable for factor analysis. EFA uses principal component analysis and orthogonal rotation. After 10 iterations, the 55 items are classified into 8 factors, which together explain 63.9% of the total variation. According to the suggestions of Straub (1989), we eliminated the items whose factor loadings were lower than 0.5 or the items that deviate from the original idea (if there is a cross loading), and performed EFA on the remaining 39 items again. The KMO value is 0.958, and Bartlett's sphericity test results are significant. As shown in Table 2, after 7 iterations, the 39 items are classified into 5 factors, which together explain 60.4% of the total variation.

The results of the data analysis show that five measurement items, "one party loses his/her temper at the other", "one party uses inappropriate body language", "one party threatens the other with words", "words of one party make the other party feel discriminated against", and "one party harasses the other using inappropriate words", all belong to the same factor, reflecting the problems in interpersonal communication, and that factor is named "bad interpersonal communication behavior".

Six other measurement items, "one party provides false information", "one party does not provide relevant important information in advance", "one party does not provide accurate information", "one party does not provide information in a timely manner", "one party does not provide complete information", and "one party intentionally

Table 2
Exploratory factor analysis for measurement scale purification.

Factor (variance, Cronbach's α)/Variable	Factor loading
Factor 1 Bad interpersonal communication behavior (BICB)(9.92%, 0.861)	
BICB2 One party loses his or her temper at the other	0.627
BICB3 One party uses inappropriate body language	0.748
BICB6 One party threatens the other with words	0.727
BICB7 The words of one party make the other party feel discriminated against	0.659
BICB8 One party harasses the other using inappropriate words	0.772
Factor 2 Bad information interaction behavior (BIIB)(9.53%, 0.873)	
BIIB1 One party provides false information	0.583
BIIB2 One party does not provide relevant important information in advance	0.720
BIIB3 One party does not provide accurate information	0.676
BIIB4 One party does not provide information in a timely manner	0.679
BIIB5 One party does not provide complete information	0.592
BIIB7One party intentionally provided misleading information	0.559
Factor 3 Irresponsible customer behavior (ICB)(17.37%, 0.928)	
ICB1Customers are not following the relevant information provided by employees	0.599
ICB2Customers have not carefully checked the information provided by the company	0.629
ICB3 Customers make unreasonable requests	0.630
ICB4 Customers do not cooperate with the staff to prepare for services	0.609
ICB5 Customers shift the responsibility for problems to employees	0.687
ICB6Customers did not purchase after multiple consultations	0.733
ICB7Customers make the same request to different employees for repeated services	0.719
ICB8 Customers treat the company's facilities rudely	0.620
ICB9 Customers waste the products or services provided by service provider	0.670
ICB10 Customers make false evaluations of products or services	0.572
ICB11 Customer does not follow the service rules	0.609
ICB12Customers show uncivilized behavior	0.622
ICB13Customers do not comply with time commitments	0.656
Factor 4 Employee contract violation behavior (ECVB)(8.85%, 0.886)	
ECVB1 Employees do not provide advertising services	0.568
ECVB2 Employees charge unreasonable fees	0.584
ECVB5 Employees violate their contracts(e.g., change itineraries)	0.544
ECVB6 Employees charge extra for services	0.616
ECVB7 Employees force customers to spend	0.685
ECVB8 Employees exaggerate recommended products	0.713
Factor 5 Irresponsible employee behavior (IEB)(14.90%, 0.915)	
IEB1 Employees are not thoughtful	0.695
IEB2 Employees do not provide timely services	0.725
IEB3 Employees do not provide complete services	0.720
IEB4 Employees unreasonably allocate service hours	0.663
IEB5 Employees make mistake in services	0.511
IEB6 Employees fail to meet customers' reasonable requirements	0.686
IEB7 Employees shift responsibility for problems to others	0.614
IEB8 Employees justify their misconduct	0.653
IEB9 Employees do not act to address problems	0.632

Note: Since the original language was developed in Chinese, a translation and retranslation approach was used. First, a bilingual expert is invited to translate all the Chinese scales into English scales according to the language habits of English. Then, ask another bilingual expert to translate from English to Chinese. We compared the original Chinese scale with the back translated Chinese scale, discussed the differences, and modified the English scale. After several repetitions, the translated English scale was consistent with the original Chinese scale.

provided misleading information", all belong to the same factor, collectively reflecting the problems in information transmission, and that factor is named "bad information interaction behavior".

Thirteen other measurement items, "customers make unreasonable requests", "customers do not cooperate with the staff to prepare for services", "customers shift responsibility for problems to employees", "customers treat the company's facilities rudely", "customers waste products or services provided by service provider", "customers make false evaluations of products or services", "customer does not follow service rules", "customers show uncivilized behavior", "customers do not comply with time commitments", "customers are not following relevant information provided by employees", "customers have not carefully checked the information provided by the company", "customers did not purchase after multiple consultation services", and "customers make the same request to different employees for repeated services", all belong to the same factor, reflecting the bad behavior exhibited by customers in the travel service process, and that factor is named "irresponsible customer behavior".

Six more measurement items, "employees violate contract (e.g., change itinerary)", "employees charge extra for services", "employees force customers to spend", "employees exaggerated recommend products", "employees do not provide advertising services", and "employees change unreasonable fees", all belong to the same factor, reflecting employees' violations of their contracts in the travel service process, and that factor is named "employee contract violation behavior."

The last nine measurement items, "employees are not thoughtful", "employees do not provide timely services", "employees do not provide complete services", "employees unreasonably allocate service hours", "employees make mistake in services", "employees fail to meet customers' reasonable requirements", "employees shift responsibility for problems to others", "employees justify their misconduct", and "employees do not act to address problems", all belong to the same factor, which is named "irresponsible employee behavior. ".

4.3. Confirmatory factor analysis for quantifying the final factor structure

Because EFA was unable to quantify the overall goodness of fit of the final factor structure, we re-collected 387 valid questionnaires through a professional sample service platform—www.wjx.cn (14 CYN was paid for each valid questionnaire). The AMOS 22.0 software was used to perform confirmatory factor analysis (CFA) on a total of 39 measurement items in 5 dimensions of the value co-destruction behavior in tourism. As shown in Table 1, of the collected questionnaires, 216 were completed by customers and 171 were completed by tourism service providers; 32.8% were male, 62% of the respondents were 26–45 years old, 88.9% of the respondents had a college education or above, 64.1% of the respondents had an income from 3,001 to 10,000 CNY, 17.8% of them had worked for 1–3 years, and 58.7% of them had worked for more than 4 years.

The analysis results show that the goodness of fit between the measurement model and the data did not reach the ideal level (χ^2 = 2114.617, df = 692, χ^2/df = 3.056, TLI = 0.848, CFI = 0.858, RMSEA = 0.073), and part of the factor loadings were lower than 0.7. According to the suggestions of Anderson and Gerbing (1988), Gefen, Straub, and Boudreau (2000) and Gefen (2003) and Hinkin (1998), 10 measurement items with factor loadings less than 0.7 were deleted, and 29 items were retained, and then CFA was performed again. As shown in Table 3, the analysis results show that the measurement model fits the data better (χ^2 = 984.703, df = 367, χ^2/df = 2.683, TLI = 0.905, CFI = 0.914, RMSEA = 0.066).

The Cronbach's α values of all measurement items of each dimension of value co-destruction behavior in tourism are between 0.850 and 0.933, which are all greater than 0.7, so the scale has high reliability. As shown in Table 4, the composite reliability of each dimension in the model is between 0.852 and 0.934, which is greater than 0.7, indicating

Table 3
Confirmatory factor analysis for quantifying the final factor structure.

Factor/Items	Factor loading	*Z*-value
Factor 1 Bad interpersonal communication behavior (BICB)		
BICB2 One party loses his or her temper at the other	0.731	–
BICB3 One party uses inappropriate body language	0.707	13.309
BICB6 One party threatens the other with words	0.746	14.028
BICB7 The words of one party make the other party feel discriminated against	0.792	14.407
BICB8One party harasses the other using inappropriate words	0.758	13.673
Factor 2 Bad information interaction behavior (BIIB)		
BIIB1 One party provides false information	0.707	–
BIIB2 One party does not provide relevant important information in advance	0.799	14.685
BIIB3 One party does not provide accurate information	0.812	14.845
BIIB4 One party does not provide information in a timely manner	0.799	14.658
BIIB5 One party does not provide complete information	0.800	14.747
Factor 3 Irresponsible customer behavior (ICB)		
ICB3 Customers make unreasonable requests	0.722	–
ICB4 Customers do not cooperate with the staff to prepare for services	0.733	13.778
ICB5 Customers shift the responsibility for problems to employees	0.748	13.877
ICB8 Customers treat the company's facilities rudely	0.732	13.599
ICB9 Customers waste the products or services provided by service provider	0.701	12.758
ICB10 Customers make false evaluations of products or services	0.745	13.823
Factor 4 Employee contract violation behavior (ECVB)		
ECVB5 Employees violate their contracts (e.g., change itineraries)	0.745	–
ECVB6 Employees charge extra for services	0.742	14.334
ECVB7 Employees force customers to spend	0.804	15.005
ECVB8 Employees exaggerate recommended products	0.779	14.092
Factor 5 Irresponsible employee behavior (IEB)		
IEB1 Employees are not thoughtful	0.817	–
IEB2 Employees do not provide timely services	0.834	19.666
IEB3 Employees do not provide complete services	0.789	17.969
IEB4 Employees unreasonably allocate service hours	0.751	16.808
IEB5 Employees make mistakes in services	0.742	16.367
IEB6 Employees fail to meet customers' reasonable requirements	0.759	17.044
IEB7 Employees shift responsibility for problems to others	0.769	17.293
IEB8 Employees justify their misconduct	0.782	17.690
IEB9 Employees do not act to address problems	0.790	17.945

the ideal internal quality of the model. The goodness of fit between the measurement model and the data is very good. The factor loadings of all indicators in their respective measurement items are highly significant and are greater than or equal to 0.7, and the average variance extracted (AVE) values are greater than 0.5, indicating that the data have high convergent validity. As shown in Table 4, the AVEs are greater than the shared variance of each variable and other variables, indicating that there is a high degree of discriminant validity between each dimension (Fornell & Larcker, 1981). Finally, we compared the results with those of the single factor model (χ^2 = 2430.844, df = 377, χ^2 / df = 6.448, TLI = 0.692, CFI = 0.714, RMSEA = 0.119) and found that the 5-factor model fits better.

To sum up, value co-destruction behavior in tourism includes five dimensions: bad interpersonal interaction behavior, bad information interaction behavior, employee contract violation behavior, and the irresponsible behaviors of employees and customers. To explore the relationship between the five dimensions and overall tourism value co-destruction behavior, second-order confirmatory factor analysis was performed. The results show that the model fits the data well (χ^2 = 1001.580, df = 372, χ^2 / df = 2.692, TLI = 0.904, CFI = 0.912, RMSEA = 0.066). The factor loadings of the five elementary factors of

Table 4
Correlation coefficient matrix, reliability and validity.

Factor	Cronbach's α	CR	AVE	BICB	BIIB	ICB	ECVB	IEB
BICB	0.863	0.863	0.559		0.412	0.403	0.286	0.326
BIIB	0.887	0.889	0.615	0.566**		0.472	0.513	0.563
ICB	0.872	0.873	0.533	0.548**	0.607**		0.393	0.415
ECVB	0.850	0.852	0.590	0.458**	0.630**	0.538**		0.551
IEB	0.933	0.934	0.611	0.514**	0.689**	0.580**	0.667**	

Note: Note: BICB = Bad interpersonal communication behavior, BIIB = Bad information interaction behavior, ICB = Irresponsible customer behavior, ECVB = Employee contract violation behavior, IEB = Irresponsible employee behavior, CR = Composite reliability, and AVE = Average variance extracted. The lower left of the diagonal is the correlation coefficient matrix and the significance of the T value (** $p < 0.01$); the upper right is the shared variance between the constructs.

bad interpersonal interaction behavior, bad information interaction behavior, employee contract violation behavior, irresponsible customer behavior and irresponsible employee behavior on the higher-level factor of tourism value co-destruction behavior are 0.709, 0.881, 0.823, 0.782 and 0.852, respectively. The factor loadings of the measured factors in the first-order factor and the factor loadings of the first-order factor in the second-order factor are ideal, indicating that value co-destruction behavior in tourism is a second-order reflective construct including 5 dimensions.

4.4. Predictive validity test

To further verify the scale of value co-destruction behavior in tourism, this study re-collected data and added the perceived value as a result variable. Scholars have pointed out that the co-destruction of value will result in the reduction of well-being (e.g. Lefebvre & Plé, 2012; Plé, & &ChumpitazCáceres, R., 2010; Smith, 2013). Therefore, it is reasonable to assume that the behavior of value co-destruction will cause the decrease of individual perceived value. While testing the reliability and validity, the prediction validity of the value co-destruction behavior in tourism was studied.

First, based on the results of exploratory and confirmatory factor analyses, the scale of value co-destruction behavior in tourism was determined. Then, a link was generated through the professional sample service platform—www.wjx.cn—and the customers of travel service providers were invited to voluntarily participate and fill out the questionnaire through private messaging. In addition, those who filled out the questionnaire were asked to invite other customers they know to fill out questionnaires. After completing the questionnaires, interviewees have the opportunity to receive a certain amount of rewards (bonuses are randomly distributed). Convenience sampling was used in this study, and 307 valid questionnaires were finally collected. The descriptive statistics of the sample are similar to the samples of the former two exploratory and confirmatory factor analyses. As shown in Table 1, female tourists account for 60.6%, respondents aged 26–35 account for 57.7%, respondents with a college education or above account for 94.8%, tourists with income from 3,001 to 10,000 CNY account for 68.8%, respondents who had worked for 1–3 years accounted for 11.7%, respondents who had worked 4–6 years accounted for 27.7%, and respondents who had worked 7–9 years accounted for 21.5%.

Second, the factor analysis of value co-destruction behavior in tourism was carried out again. As shown in Table 5, both the Cronbach's α values and the composite reliability (CR) values are greater than 0.7, indicating that the scale has higher reliability. The measurement model fits the data well ($\chi^2 = 735.570$, df = 367, $\chi^2/df = 2.004$, TLI = 0.933, CFI = 0.939, RMSEA = 0.057). The factor loadings of all the items in their respective measurements are highly significant, and the average variance extraction (AVE) values are greater than 0.5, indicating that the data have high convergent validity. By combining the 5 dimensions in pairs, it is found that the chi-square value of the unrestricted model (the covariant relationship between latent constructs is not restricted, and the covariant parameters are freely estimated parameters) is always significantly lower than that of the restricted model (the covariant relationship between latent constructs is limited to 1, and the covariant parameters are fixed), indicating that the two models are significantly different and have high validity (Anderson & Gerbing, 1988). This study further used second-order confirmatory factor analysis and found that the data and the model are well matched ($\chi^2 = 743.575$, df = 372, $\chi^2/df = 1.999$, TLI = 0.933, CFI = 0.939, RMSEA = 0.057).

This study builds a structural model of value co-destruction behavior and perceived value and finds that the data fit the model well ($\chi^2 = 1599.930$, df = 770, $\chi 2$ / df = 2.078, TLI = 0.909, CFI = 0.914, RMSEA = 0.059). The value co-destruction behavior can enhance the reduction of customers' perceived quality (the standardized regression coefficient is 0.923, Z = 8.518, $p < 0.01$), cause negative emotions in customers (the standardized regression coefficient is 0.897, Z = 8.295, $p < 0.01$), and enhance the reduction of customers' perceived time value (the standardized regression coefficient is 0.880, Z = 8.313, $p < 0.01$) and perceived economic value (the standardized regression coefficient is 0.899, Z = 8.564, $p < 0.01$), indicating that the scale of tourism value co-destruction behavior has better prediction effectiveness.

5. Conclusion, contributions, limitations and future research

5.1. Conclusion

Combined with the related research (e.g. Lefebvre & Plé, 2012; Plé, & &ChumpitazCáceres, R., 2010; Vafeas et al., 2016), this article defines tourism value co-destruction as the well-being of at least one of the participating entities (such as an individual or organization) not reaching its optimal state due to the misuse/abuse of resources or process mismatches during the interaction of tourism service systems. This study defines value co-destruction behavior in tourism as the abusive behavior of one's own or another's resources during the interaction of tourism services, resulting in the reduction or destruction of tourism value.

This study used tourism service providers and customers as the research object. The tourism value co-destruction behavior scale was prepared through qualitative interviews, and the scale was modified and tested via three quantitative studies following the advice of Churchill (1979) and Liu (2008). The research results show that tourism value co-destruction behavior is a multi-dimensional concept including five dimensions: bad interpersonal interaction behavior, bad information interaction behavior, irresponsible employee behaviors, and irresponsible customer behaviors. It measures a total of 29 items to evaluate the specific value destruction of actors in the interactive tourism process. Regardless of what the actors do, they will reduce the individual's experience. The data analysis results also show that the tourism value co-destruction behavior scale has high composite reliability, convergent validity, discriminant validity, and predictive validity.

Table 5
Scale reliability and validity.

Factor	Cronbach's α	CR	AVE	BICB	BIIB	ICB	ECVB	IEB
BICB	0.876	0.876	0.576		44.391**	42.507**	39.817**	41.999**
BIIB	0.912	0.913	0.680	0.465**		26.096**	17.485**	19.702**
ICB	0.897	0.898	0.560	0.484**	0.619**		24.308**	18.814**
ECVB	0.849	0.851	0.588	0.432**	0.640**	0.567**		12.125**
IEB	0.932	0.932	0.606	0.468**	0.672**	0.671**	0.697**	

Note: The meaning of the letters is the same as in Table 4. The lower left of the diagonal is the correlation coefficient matrix and the significance of the T value; the upper right is the difference between the chi-square value of the restricted and unrestricted models consisting of two constructs and its significance level (** $p < 0.01$).

5.2. Theoretical and practical contributions

The realization of the value in the tourism industry is inseparable from the co-creation of customers, tourism companies, governments and other stakeholders (Malone et al., 2018). Identifying destructive behavior carried out by subjects is the prerequisite for improving the quality of the development of the tourism industry, enhancing customer satisfaction and trust, and realizing the co-creation of tourism value. We establish an evaluation system suitable for evaluating the value co-destruction behavior in the interaction of tourism services, which can theoretically make up for the lack of measurement scales in the current academic world. This study followed a standardized scale development procedure, designed a tourism value co-destruction behavior measurement scale, and responded to the call to "develop measurement tools (e.g., scales)" proposed by Plé, and &ChumpitazCáceres, R. (2010), p 435). The development of the scale helps to clarify the connotation and composition of tourism value co-destruction behavior in theory and lays the foundation for subsequent research on the antecedents and consequences of tourism value co-destruction behavior.

The research results have the following practical implications for tourism service providers. Managers can use this scale to evaluate the level of co-destruction behavior of the main body of the interactive interface. Data analysis at different levels (such as first-order or second-order) can be used to help managers identify behavioral problems between employees and customers and focus limited resources on preventing specific value co-destruction behavior. The scale can also be used to help managers develop appropriate employee training programs and customer education programs to improve their understanding of value co-destruction behaviors and consciously avoid these behaviors. Through the long-term tracking of data, managers can also understand the effectiveness of specific management measures at reducing value co-destruction behavior.

5.3. Limitations and future research

The following limitations in this research need to be further explored by future studies. First, the tourism value co-destruction behavior scale was developed in the context of Chinese culture, and whether it is applicable to other cultural contexts and countries, needs further verification. Since value itself is culturally related (Akaka, Vargo, & Schau, 2015), the specific manifestations of value co-destruction may differ from culture to culture, so future research must examine the structure and dimensions of tourism value co-destruction behavior in different cultures. Second, future research can use the tourism value co-destruction behavior scale developed in this article to determine which factors will induce a subject to perform value co-destruction behavior and what the impact of this behavior will be on a subject's perceived value and to clarify the antecedent and result mechanisms of this concept to achieve more comprehensive and systematic empirical research. For example, scholars can explore the influence of the personality of the interactive subjects and the characteristics of the relationships between different subjects (familiarity, relationship length, knowledge compatibility, and goal consistency) on value co-destruction behavior and what proactive interventions companies can take to reduce value co-destruction. Third, this study uses cross-sectional data, and it is more instructive to study the long-term and dynamic effects of subject behavior (Yi & Gong, 2013). Future research can use a vertical framework to collect time series data and explore the influencing factors and outcome mechanisms of tourism value co-destruction behaviors to draw more convincing causal conclusions. In addition, the tourism value co-destruction behavior scale was developed based on the offline interpersonal interaction background. Whether the value co-destruction behavior of online tourism services has different manifestations requires further investigation by follow-up scholars.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.tmp.2020.100757.

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Xin-Hua Guan is an Associate Professor at the School of Geography and Tourism, Guangdong University of Finance and Economics, China. < Email: guanxinhua2006@126.com > . Her research interests are service marketing and tourism enterprises management.

Jinhong Gong is an Associate Professor at the College of Humanities and Law, South China Agricultural University, China. < Email: kina_gjh07@scau.edu.cn > . Her research interests are tourism marketing, tourism management and tourist behavior.

Lishan Xie is a Professor at the School of Business, Sun Yat-sen University. She is also serves as Director of Research Center for Service Business Administration at Sun Yat-sen University, China. < Email: mnsxls@mail.sysu.edu.cn > . Her research interests are service marketing, hospitality management, and service brand management.

Tzung-Cheng Huan, (corresponding author) is a Professor at the Department of Hotel Management, Tainan University of Technology and the Department of Marketing and Tourism Management, National Chiayi University. He also serves as the President of Tainan University of Technology, Taiwan. < *E*-mail: tchuan@mail.ncyu.edu.tw > . His research interests are tourism research methodology. He has been chosen as a 2013 Highly Commended Award Winner, a 2017 Citations of Excellence Award Winner and a 2018 Outstanding Author Contribution Award at the Emerald Literati Network Awards for Excellence.