

Original scientific paper

UDC: 658.89:159.9:338.48(597)

<https://doi.org/10.18045/zbefri.2022.1.97>

The Big Five personality traits and co-production behaviour of Vietnamese tourists: An extension of the theory of planned behaviour*

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Abstract

In the framework of Ajzen's theory of planned behaviour (TPB), the study is conducted to evaluate the association between The Big Five personality traits and the three types of tourists' co-production behaviour: co-production behaviour before the trip, co-production behaviour during the trip, and co-production behaviour after the trip. The mediating type of co-production attitude is also clarified in this TPB model. The online and in-person survey methodologies have been used from January to May 2021. The study's survey subjects are Vietnamese tourists who live and work in Vietnam and have travelled within the last two years. The research results reveal that all three personalities: Extraversion, Openness, and Agreeableness, positively affect the three categories of co-production behaviours, whereas Consciousness and Neuroticism only influence production behaviour during the trip. Two types of mediation: complementary and indirect-only effect of co-production attitude, is clarified. This study contributes to broader TPB theory by analyzing Big Five personality traits in tourist co-production behaviour. Our findings assist tourism businesses in better understanding how visitors' personalities impact their co-production and assist them in building effective co-production methods. Tourism practitioners should develop different approaches for groups of customers with distinguished characteristics in each stage of their co-production processes.

* Received: 27-11-2021; accepted: 20-06-2022

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Key words: *Co-production behaviour, TPB theory, The Big Five personality traits*

JEL classification: *M3, M10, M31*

1. Introduction

In the service industry, tourism is characterized by high levels of engagement with tourists, and co-production becomes an important engagement in the tourist-enterprises relationship. The key concern is, thus, how to encourage customers to engage *actively* in the co-production process, as it is a conscious decision. The topic of customer behaviour, especially tourist behaviour, is highly attractive and widely studied by experts. Nevertheless, most research focused on studying tourists' behaviour on destination choice or visit intention. There is a need for a deeper understanding of tourists' behaviour in co-production, especially when developing a co-production plan with customers' engagement in the tourism sector becomes difficult in today's diverse and turbulent market environment (Arica & Kozak, 2019).

Although TPB has shown to be a valuable framework for examining human behaviour, some researchers argue that the theory should be expanded further, either by including additional relevant factors or by determining how to adjust causality based on specific conditions (e.g. Ajzen, 1991; Han, 2015; Meng & Choi, 2017; Cheung & To, 2016; Meng & Cui, 2020). Furthermore, Ajzen (1988) also demonstrated a substantial association between an individual's personality and attitude and behaviour.

The Big five personality qualities are a set of five personality qualities: extraversion, openness, agreeableness, conscientiousness, and neuroticism, widely known and utilized in psychology and tourism research (Ying & Norman, 2014; Wu & Mursid, 2019). Many studies have demonstrated that the big five personality traits influence people's attitudes and behaviours: for example, personality affects work performance (LePine & Van Dyne, 2001), business status (Zhao & Seibert, 2006), psychological resilience (Fayombo, 2010), and counterproductive behaviour (Salgado, 2002). In tourism, studies related to personality are also quite diverse. Prior studies examined the relationship between these five personalities with information seeking and sharing behaviour (Tan & Tang, 2013; Jani, 2014), scuba diving participation behaviour (Ong & Musa, 2012), social network structure (Ying & Norman, 2014), eco-friendly travel behaviour (Kvasova, 2015), choice of entertainment types (Tran et al., 2015), achieving sales records (Kuo et al., 2016), customer engagement (Wu & Mursid, 2019), choice of travel software usage (Akhrani & Najib, 2020).

In the light of Ajzen's TPB framework (1991), our study was among the first to explore the connection between The Big five personality traits and tourists' co-production behaviour. Each quality of the Big five personalities influences tourists'

coproduction behaviour at each stage: before, during, and after the trip. At the same time, the study examined tourist co-production behaviour based on each stage of their travel consumption: *co-production behaviour before the trip* (information seeking and information sharing), *co-production behaviour during the trip* (personal interaction, helping, and tolerance), and *co-production behaviour after the trip* (feedback and advocacy) based on prior validated scales (Zolfagharian & Sheng, 2012; Yi & Gong, 2013; Vega-Vázquez et al., 2015; Arica & Kozak, 2019; Roy et al., 2019).

The findings reveal that all three personality qualities, *Extraversion*, *Openness*, and *Agreeableness*, positively influence co-production behaviours in the three stages as listed above, which is consistent with prior research (Ong & Musa, 2012; Wu & Mursid, 2019), whereas *Consciousness* and *Neuroticism* only have an effect on co-production behaviour during the trip. Our study also examined the mediation effect of Co-production attitude in two different types: complimentary indirect effect and indirect-only effect in this model.

Our study contributed to the literature by investigating tourists' personalities affecting tourists' co-production behaviour and the mediating role of co-production attitude in these relationships of TPB theory. Tourists' co-production behaviour is categorized into three different types, reflecting three stages of travel consumption. The research results help tourism enterprises better understand how tourists' personalities affect their co-production and benefit them in developing effective co-production strategies.

This paper consists of four main sections. The first part introduced the theory base and research model, the second section explained the applied methodology, and the third section described the research results. The discussion, limitation, contributions, and conclusion is at the end.

2. Literature review

Tourism is a service industry that involves tourists in every stage of travel their experience. Customers co-producing tourism products have a decades-long history of research in the marketing field as the shift in thinking pattern to the role of tourists from passive to active engagement and involvement. This part provides a literature review and the theory base that explains the co-production behaviour of tourists.

2.1. Tourists' Co-production behaviour

Dellaert (2018) separated the customer decision-making phases of a typical product into four categories: (1) search, (2) purchase, (3) experience, and (4) reflect. Concerning tourism products, Mathieson & Wall (1982) stated that the purchasing

decision of the tourists is a sequential process that begins when the tourists have the desire or demand. They look for information, evaluate the information and decide to travel. Caldito et al. (2015) divided the process from when tourists decide to travel till they come back home into three stages. Each stage contains behaviours that contribute to the whole journey experience of visitors. The options in the three stages are Pre-consumption (Searching, Planning, Expectations, Decisions, Buying, Anticipation, Preparation), Consumption (Experiencing, Enjoying, Navigating, Searching, Short-term decisions, On-site buying, On-site evaluation), and Post-consumption (Sharing, Memories, Evaluation, Loyalty building, Advocating). Zhang et al. (2018) claim that value creation or co-creation is the ultimate consequence of the customer consuming process; hence, service consumption happens predominantly in the interaction process between the buyer and supplier. The authors classified the role of value co-creation in economic sharing into three phases: (1) Pre-consumption stage (communications, interactions, and transactions among users, service providers, and other stakeholders), (2) Mid-consumption stage (social interaction, perceive functional values), and (3) Post-consumption stage (subjective or emotional feedback). Furthermore, based on service-dominant logic developed by Vargo & Lusch (2004), a customer is not only a passive receiver but also an active participant in the determination of value. Service providers and customers cooperate in the value creation process based on the customer's position as a partner (Vargo & Lusch, 2008). The changing position of the customer in the production process from passive to active also differentiates consumer-oriented roles. Urban (2014: 27) said that *"since the customers are considered a component of the production process, they can contribute to all phases of the production process and, therefore, get the co-producer role"*. Tourists can be involved in all stages of the tourism product creation process provided by agencies, from planning to evaluating the travel experience (Arica & Kozak, 2019). Therefore, the customers participate in co-production in various forms and degrees. The type and extent of customer involvement in co-production influence their engagement behaviour (Flores & Vasquez-Parraga, 2015).

According to Lusch & Vargo (2006), value co-creation consists of two components: co-creation of value and co-production. As a result, co-production research frequently stems from value co-creation behaviour. Yi & Gong (2013) defined value co-creation behaviour as having two components: (1) customer participation behaviour (including information seeking, information sharing, responsible behaviour, and personal interaction) and (2) customer participation behaviour (including feedback, advocacy, helping, and tolerance). In the field of tourism, Xie et al. (2020) expanded the research of Yi & Gong (2013) to explain the value co-creation behaviour of tourists through two main groups of behaviours: 1) Tourists' physical behaviour (personal interaction, responsible behaviour, feedback, and tolerance), (2) Tourists' mental co-creation behaviour (personal interests in the experience reflect the mental co-creation). The research of Arica & Kozak (2019) on the co-production behaviour of tourists with travel agencies was also expanded

from the study of Yi & Gong (2013), which included two major types of behaviours: (1) customer participation behaviour (personal interaction, information sharing and information seeking), (2) customer citizenship behaviour (advocacy, helping, adaptation and feedback). Antón et al. (2017) considered the experience price of tourists when visiting the museum as a co-creation process. It is separated into three particular stages: (1) Co-creation before the visit (planning and knowledge), (2) Co-creation during the visit (participation and interpersonal interaction), and (3) Co-creation after the visit (intensification of the experience and content generation).

Although of the survival of several studies on value co-creation and co-production behaviour, there is still a scarcity of research concentrating on consumer behaviour at each step of co-production, particularly in tourism products. Based on the prior research, tourists' co-production behaviour in this study will consist of three major types of actions, which are co-production behaviour before the trip (information seeking and information sharing), co-production behaviour during the trip (personal interaction, helping, and tolerance), co-production behaviour after the trip (feedback and advocacy).

Co-production behaviour before the trip

Information seeking is the behaviour of tourists, searching for useful information from friends, other travellers, and service providers for planning and designing their travel. Customers may also seek information to clarify service requests and satisfy other perceived needs (Zolfagharian & Sheng, 2012; Yi & Gong, 2013; Vega-Vázquez et al., 2015; Arica & Kozak, 2019; Roy et al., 2019). According to Yi & Gong (2013), they can obtain information from the company through various methods, such as directly asking others for information or observing the behaviour of experienced employees to gather information.

Information sharing is known as the behaviour of tourists, providing and sharing their information and demands with service providers to obtain satisfactory tourism products. If the customer fails to provide the necessary information, the employee will be unable to begin or finalize their tasks. Customers can ensure that employees provide services that satisfy their specific needs by sharing information (Zolfagharian & Sheng, 2012; Yi & Gong, 2013; Vega-Vázquez et al., 2015; Arica & Kozak, 2019; Roy et al., 2019). In the context of the development of social media, tourists can share information indirectly with service providers through social media instead of the direct method.

Co-production behaviour during the trip

Personal interaction refers to the relationship between customers and customers or employees, including many aspects of interaction such as politeness, friendliness,

and respect that are required for successful co-product (Ennew & Binks, 1999; Zolfagharian & Sheng, 2012; Yi & Gong, 2013; Vega-Vázquez et al., 2015; Arica & Kozak, 2019; Roy et al., 2019).

Helping refers to customer behaviour that is performed to assist other customers. Furthermore, during co-production, customers frequently tend to support other customers rather than employees (Groth et al., 2004; Zolfagharian & Sheng, 2012; Yi & Gong, 2013; Vega-Vázquez et al., 2015; Arica & Kozak, 2019; Roy et al., 2019).

Tolerance refers to a customer's patient when service delivery does not fulfil their expectations, such as a delay or a lack of equipment (Lengnick-Hall et al., 2000; Zolfagharian & Sheng, 2012; Yi & Gong, 2013; Vega-Vázquez et al., 2015; Arica & Kozak, 2019; Roy et al., 2019)

Co-production behaviour after the trip

Feedback is the evaluation of products and employee attitudes arising from customer co-production results to provide better service (Groth, Mertens, & Murphy, 2004; Zolfagharian & Sheng, 2012; Yi & Gong, 2013; Vega-Vázquez et al., 2015; Arica & Kozak, 2019; Roy et al., 2019).

Advocacy explains customers' consent attitude and behaviour towards successful co-production activities. Advocacy customers tend to introduce service providers to other people, such as friends or family (Groth et al., 2004; Zolfagharian & Sheng, 2012; Yi & Gong, 2013; Vega-Vázquez et al., 2015; Arica & Kozak, 2019; Roy et al., 2019).

2.2. The extended theory of planned behaviour (TPB)

According to TPB, behavioural intention is determined by three important predictors: attitude towards behaviour, subjective norms, and perceived behavioural control (Ajzen, 1991). Although TPB has proven a useful framework for forecasting human behaviour, some scholars insist that the theory needs to be extended further. Much prior research by sociologists or psychologists predicted and explained human behaviour by proposing concepts referring to behavioural tendencies, such as social attitudes and personality traits (Ajzen, 1988; Campbell, 1963; Sherman & Fazio, 1983). This study is developed from the TPB framework and supplemented personality traits to verify the relationship between personality traits and specific behaviour, which is the co-production behaviour of tourists.

The Big Five personality traits

Ying & Norman (2014) investigated that the Big Five personality traits have been recognized and widely used in psychology and tourism research. There

have been many studies demonstrating that the big five personality traits affect attitudes and behaviours of people; for example, personality affects job performance (LePine & Van Dyne, 2001), entrepreneurial status (Zhao & Seibert, 2006), psychological resilience (Fayombo, 2010), counterproductive behaviours (Salgado, 2002). Moreover, in tourism, the studies related to personality are also quite diverse because employees must have direct contact with customers when providing services to understand the customer's personality and have appropriate behaviours. Studies have focused on examining the relationship between Big Five and information behaviour (Jani, 2014), SCUBA divers' underwater behaviour (Ong & Musa, 2012), tourism information search and feedback behaviour (Tan & Tang, 2013), social network structure (Ying & Norman, 2014), eco-friendly tourist behaviour (Kvasova, 2015), recreation types (Tran et al., 2015), strong sales records (Kuo et al., 2016), customer participation (Wu & Mursid, 2019), soft-adventure travelling type (Akhrani & Najib, 2020).

Based on Wu & Mursid's study (2019), this research uses The Big Five personality traits, including five personality types: extraversion, openness, agreeableness, conscientiousness, and neuroticism.

Extraversion refers to open-minded people who like to communicate with others (Wu & Mursid, 2019). Another study describes this personality as the degree of an individual's confidence, prominence, energy, talkativeness, and passion for innovation (Zhao & Seibert, 2006). LePine & Van Dyne (2001) found that extroverts like to be the centre of attention.

Openness is the characteristic of people who are always curious to improve knowledge, enjoy new challenges and present innovative ideas (Zhao & Seibert, 2006). They are innovative, imaginative, inquisitive and original (Zhao & Seibert, 2006; Wu & Mursid, 2019; Kvasova, 2015; Kuo et al., 2016; Costa & McCrae, 1992).

According to Kuo et al. (2016), *agreeableness* refers to reliable, harmonious, generous, and kind people. People with a high degree of agreeableness tend to be trusting, sympathetic, kind, tolerant and cooperative (Wu & Mursid, 2019; Jani, 2011). In contrast, people with low agreeableness tend to be egotistical, distrustful, and hostile (Costa & McCrae, 1992).

Conscientiousness refers to people who are detail-oriented, well-organized, and prone to regulatory compliance, consistency, and accountability (Fayombo, 2010). This type of person prefers to arrange a systematic, planned scheme rather than perform impulsive actions (Wu & Mursid, 2019; Zhao & Seibert, 2006; Kvasova, 2015).

Neuroticism is a negative emotion representing emotional instability (Wu & Mursid, 2019). People with high neuroticism tend to experience several negative emotions, including anxiety, hostility, depression, impulsivity and vulnerability

(Zhao & Seibert, 2006), have negative, uncomfortable behaviours and are less socially integrated (LePine & Van Dyne, 2001).

With qualitative research, Malone et al. (2017) explored how emotions play a part in customer value co-creation in the tourist sector. Taheri et al. (2017) also claim that mood monitoring and repair directly impact customer participation. (Chen et al., 2016) discovered and highlighted that distinct consumer *personality* factors influenced customer *engagement behaviour* positively or negatively.

Recently, Wu & Mursid (2019) also demonstrated that The Big Five personality traits influence the participation behaviour of tourists (Information seeking, Information sharing, Personal interaction, and Responsible behaviour).

Hence, following hypotheses are set:

H1(a); (b); (c): Extraversion positively affects tourists' co-production behaviour.

H2 (a); (b); (c): Openness positively affects tourists' co-production behaviour.

H3 (a); (b); (c): Agreeableness positively affects tourists' co-production behaviour.

H4 (a); (b); (c): Consciousness positively affects tourists' co-production behaviour.

H5(a); (b); (c): Neuroticism negatively affects tourists' co-production behaviour.

Components of TPB

The general premise of TPB is that an individual has many possibilities to perform a behaviour (such as co-production) when they have a favourable attitude towards the behaviour, realize that important people think they should perform the behaviour, and control more than expected barriers (Ajzen, 1991). Attitude towards behaviour is defined as how the individual positively assesses the mentioned behaviour. According to TPB (Ajzen, 1991; Fishbein & Ajzen, 1975), an individual's attitude towards a particular behaviour is one of the most important predictors of the intention to engage in behaviour and their actual behaviour. Fishbein & Ajzen (1975) identified two other important factors that influence behaviour: subjective norms or perceived social pressure on the individual to engage in a perceived behavioural control regarding an individual's perception of the ease of engaging in a particular behaviour. All three elements of the TPB model, which are individual attitudes toward value co-production, subjective norms, and perceived behavioural control, have positive effects on co-creation or co-production behaviours (Cheung & To, 2016; Shamim et al., 2017; Chen, 2020). Furthermore, Ajzen (1991) also demonstrated that subjective norms and perceived behavioural control indirectly influence behaviour through attitude towards that behaviour.

Perceived behavioural control: According to Ajzen (1991), perceived behavioural control is defined as the resources and opportunities available to a person that can determine the likelihood of a behaviour being achieved. Cheung & To (2016) suggested that consumers' perception of the ease of service co-production, including low cost, sufficient time, ease and free access to social media, may promote consumer co-creation service with providers. And consumers consider it as a means of customizing the service for themselves. Therefore, we explore the following hypothesis:

H6 (a); (b); (c) Perceived behavioural control positively affects tourists' co-production behaviour.

Subjective norms: Subjective norms are the perceived social pressures from important people of an individual, such as family, friends, and co-workers, whose approval of decisions is important (Chen, 2020). Bai et al. (2014) and Cheung & To (2016) also emphasized that subjective norms have a strong influence on an individual's intention to engage in a specific behaviour (like co-production behaviour). The following hypotheses are formulated:

H7 (a); (b); (c): Subjective norms positively affect tourists' co-production behaviour.

Co-production attitude of tourists: Value co-creation or co-production, according to service logic (SL), occurs when the customer and the service provider engage in direct interaction (Grönroos, 2011; Grönroos et al., 2015), and the customer can decide whether to perform the interaction or not. According to the constructive theory of attitude on attitude formation, customers' attitude towards engaging in interaction for value co-creation/co-production is spontaneous rather than performed from customers' memory (Shamim et al., 2017). Therefore, the customers' value co-creation/ co-production attitude is the willingness to interact directly with the company to co-create value or product. In the studies of Cheung & To (2016); Shamim et al. (2017); Khrystoforova & Siemieniako (2019); Ahn et al. (2019), all the authors propose a co-creation attitude/co-production attitude consisting of three components, namely (1) Interaction Attitude, (2) Knowledge Sharing Attitude Service, and (3) Responsive Attitude. For this study, the co-production attitude of tourists also includes the above three components, in which, *Interaction Attitude* refers to the willingness of customers to engage in interactions with service providers to facilitate co-production. *Knowledge sharing attitude* is the customer's willingness to share knowledge with service providers during co-production interactions. *Responsive Attitude* is the tendency of customers to effectively respond to the requests of company to engage in dialogue for co-production.

As a general rule, the more favourable the attitude and subjective norm, and the greater the perceived behavioural control, the stronger should be an individual's

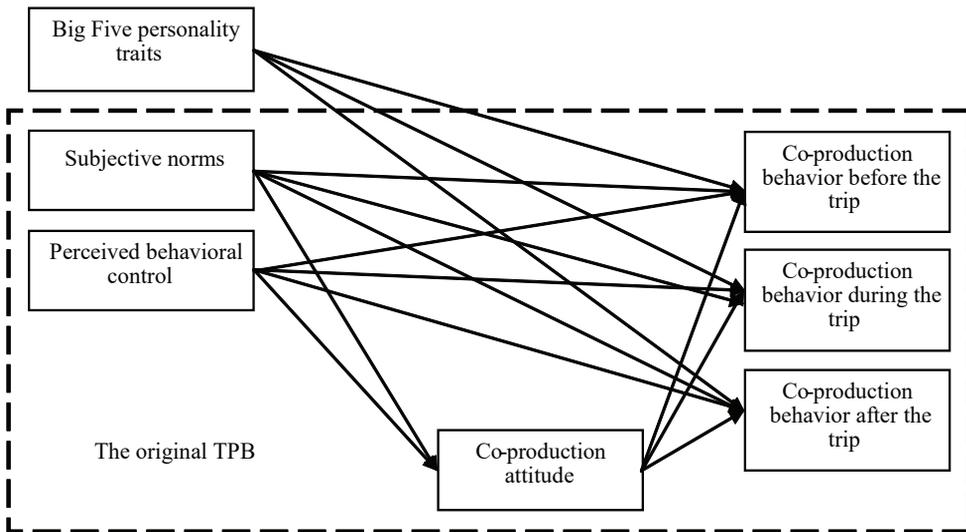
intention to perform the behaviour under consideration (Ajzen, 1991). Consumer attitudes toward value co-creation are impacted by the business’s brand experience (Shamim et al., 2016), resulting in customer value co-creation. Customers’ attitudes about value co-creation greatly impact their value co-creation behaviour (Khrystoforova & Siemieniako, 2019). In this light of literature, (Ahn et al., 2019) confirmed that co-creation/co-production attitudes, including interaction, information sharing, and responsive attitudes, impact co-creation/co-production behaviour. Based on the reasons mentioned above, these hypotheses are developed as follows:

H8 (a); (b); (c): Co-production attitude positively mediates the relationship between Perceived behavioural control and tourists’ co-production behaviour.

H9 (a); (b); (c) Co-production attitude positively mediates the relationship between subjective norms and tourists’ co-production behaviour.

The proposed research model (Figure 1) is as follows.

Figure 1: The theoretical model of the study



Source: Authors’ concept

3. Research methodology

3.1. Sample of the study

The study sample was selected according to the nonprobability convenience sampling technique, a popular sampling method in tourist behaviour research because the population is too large (Meng & Choi, 2016). The study applied online and in-person survey methods because of some objective factors during Covid 19 outbreaks in the world and Vietnam. The entire survey period is from January to May 2021. The survey respondents are Vietnamese tourists currently living and working in Vietnam and have participated in travelling in the past two years. After the questionnaire was completed, a pilot test was conducted with a small sample of $n = 30$ to evaluate the clarity of the questions. The total number of survey samples in online and offline forms is 632 responses (250 are offline surveys and 382 are online surveys). The data was processed by excluding missing data ($n=23$), outliers ($n=32$, $z\text{-score}>1.96$) and multivariate normality ($n=24$, according to Mahalanobis distance value). Hence, the data used for the formal study with a sample size of 553. This study applied Structural Equation Modeling, also known as SEM (Structural Equation Modeling), a second-generation statistical analysis system developed to analyze multidimensional relationships between variables in a model (Haenlein & Kaplan, 2004). Since the model of this study is complicated with many different relationships, therefore, PLS-SEM selection method is suitable.

3.2. Measures for study variables

The measures for the concepts in the research model synthesized from previous studies will be adjusted to suit the current research context.

The Big Five personality traits used from the research of Wu & Mursid (2019) are extraversion (EXTR), including three items; openness (OPEN), including three items; agreeableness (AGR), including three items; consciousness (CONS), consisting of three items; neuroticism (NEUR) consisting of three items.

Co-production attitude in the study is a second-order measurement, which consists of three components: Interaction Attitude (INAT), Knowledge Sharing attitude (KSAT), Responsive Attitude (REAT) synthesized from studies of Cheung & To (2016), Shamim et al. (2017), Khrystoforova & Siemieniako (2019), Ahn et al. (2019). Subjective norms (SUNO) are used in the study of Shamim et al., 2016. Perceived behavioural control (PBCO) is synthesized from the studies of Han (2015), Cheung & To (2016), and Meng & Choi (2017).

Co-production behaviour of tourists is three second-order measurements, including co-production before the trip, explained by two concepts: information seeking (INSE) and information sharing (INSH); Co-production behaviour during the trip

includes three concepts, which are Personal interaction (PEIN), Helping (HELP), Tolerance (TOLE); Co-production behaviour after the trip includes two concepts: Feedback (FEBA) and Advocacy (ADVO). Measures for these concepts are summarized from studies by Yi & Gong (2013); Vega-Vázquez et al., 2015; Ahmad (2016); Shamim et al. (2017); Merz et al. (2018); Roy et al. (2019); Assiouras et al. (2019); Arica & Kozak (2019).

All items were measured with a scale of Likert 7, ranging from 1 = very strongly disagree to 7 = very strongly agree. At the same time, the research sample was also analyzed for demographic characteristics such as age, gender, education level, income, occupation, and the number of travels per year.

4. Empirical data and results

4.1. Descriptive statistics

The detailed sociodemographic profile of respondents, including gender, age, educational level, living area, occupation, income and frequency of travel, are shown in Table 1 below:

Table 1: Sociodemographic profile of survey participants

Feature	Category	N	%	Feature	Category	N	%
Gender	Male	263	47.6	Income	Under 7,000,000 VND	313	56.6
	Female	287	51.9		7,000,000 - 15,000,000 VND	144	26.0
	Others	3	0.5		16,000,000 – 20,000,000 VND	52	9.4
					21,000,000 VND and over	44	8.0
Age	18 – 21 years	218	39.4	Frequency of travel	Once time per year	232	42.0
	22 – 28 years	120	21.7		Twice times per year	157	28.4
	29 – 40 years	117	21.2		Three times per year	96	17.4
	41 – 50 years	86	15.6		Four times and over	68	12.3
	< 50 years	12	2.2				
Occupation	Student	156	28.2	Educational level	Higher Secondary	234	42.0
	Public sector employees	84	15.2		Undergraduate	251	45.0
	Private sector employees	111	20.1		Postgraduate	68	13.0
	Public sector management	34	6.1	Living area	Northern	149	26.9
	Private sector management	47	8.5		Southern	313	56.6
	Own business	28	5.1		Central	91	16.5
	Others	93	16.8				

Source: Authors’ calculation

Females made up the majority of respondents (51.9%), and the main age group 22-28 and 29-40 years old. Many participants have the educational level of higher secondary (42%) and Undergraduate (45%). More than half of the participants, 56.6%, have a low income of less than 7 million VND per month.

4.2. Measurement model

The data were processed and analyzed by Smart PLS 3.3.3 software. The study used partial least squares structural equation modelling (PLS-SEM) to test the research model.

The reliability and validity of constructs using factor loadings, composite reliability (CR), average variance extracted (AVE), and correlation among constructs were tested (see Table 2 and Table 3). The results of the test of the indicators are satisfactory, in which the loading factor of each item is greater than 0.7; composite reliability (CR) is all greater than 0.6; average variance extracted (AVE) is all greater than 0.5 (Chin, 2010). The VIF (Variance Inflation Factor) values of each observed variable are less than 5. Furthermore, discriminant validity was evaluated by comparing the square root of AVE and correlations among the latent variables (see Table 3). So this can be concluded with exact discriminant validity (Fornell & Larcker, 1981) (Table 3). The HTMT criterion shows that all HTMT coefficients reach the threshold below 0.85, with confidence intervals of 95% (table 4), indicating discriminant validity of research variables (Hair et al., 2013).

4.3. Hypotheses testing

Results of the structural path model with the direct effects

For testing the hypotheses (with the direct effects), bootstrapping using Smart PLS, which is recommended by (Chin, 2010; Hair et al., 2011), was employed. In this approach, we have considered 5,000 resamples with 553 cases (Henseler et al., 2009). Table 5 shows the entire results.

The inner model suggests that The Big Five personality traits have three characteristics: Extraversion, Openness, and Agreeableness that have a lucrative influence on all three groups of Tourists' co-production behaviour (co-production behaviour before the trip, co-production behaviour during the trip, and co-production behaviour after the trip) with positive impact coefficients statistic, p-value < 0.05 and t values > 1.96 (detailed in Table 4). Consciousness only had a positive effect on co-production behavior during the trip (H4b: $\beta = 0.11$, p-value = 0.00, t = 2.83), the remaining two groups of co-production behavior before the trip (H4a: $\beta = 0.07$, p-value = 0.08, t = 1.70) and co-production behavior after the trip (H4c: $\beta = 0.03$, p-value = 0.39, t = 0.87) had no effect.

Similarly, Neuroticism only negatively affects co-production behavior during the trip (H5b: $\beta = -0.05$, p-value = 0.04, $t = 1.99$), remaining two groups of co-production behavior before the trip (H5a: $\beta = 0.00$, p-value = 0.93, $t = 0.09$) and co-production behavior after the trip (H5c: $\beta = -0.05$, p-value = 0.07, $t = 1.81$) had no effect. The remaining hypotheses in the research model from H6a, H6b, H6c effect coefficients are all positive (p-value < 0.05, $t > 1.96$). However, all hypotheses from H7a, H7b, H7c had no effect (seen Table 5).

Results of the structural path model with the mediation effects

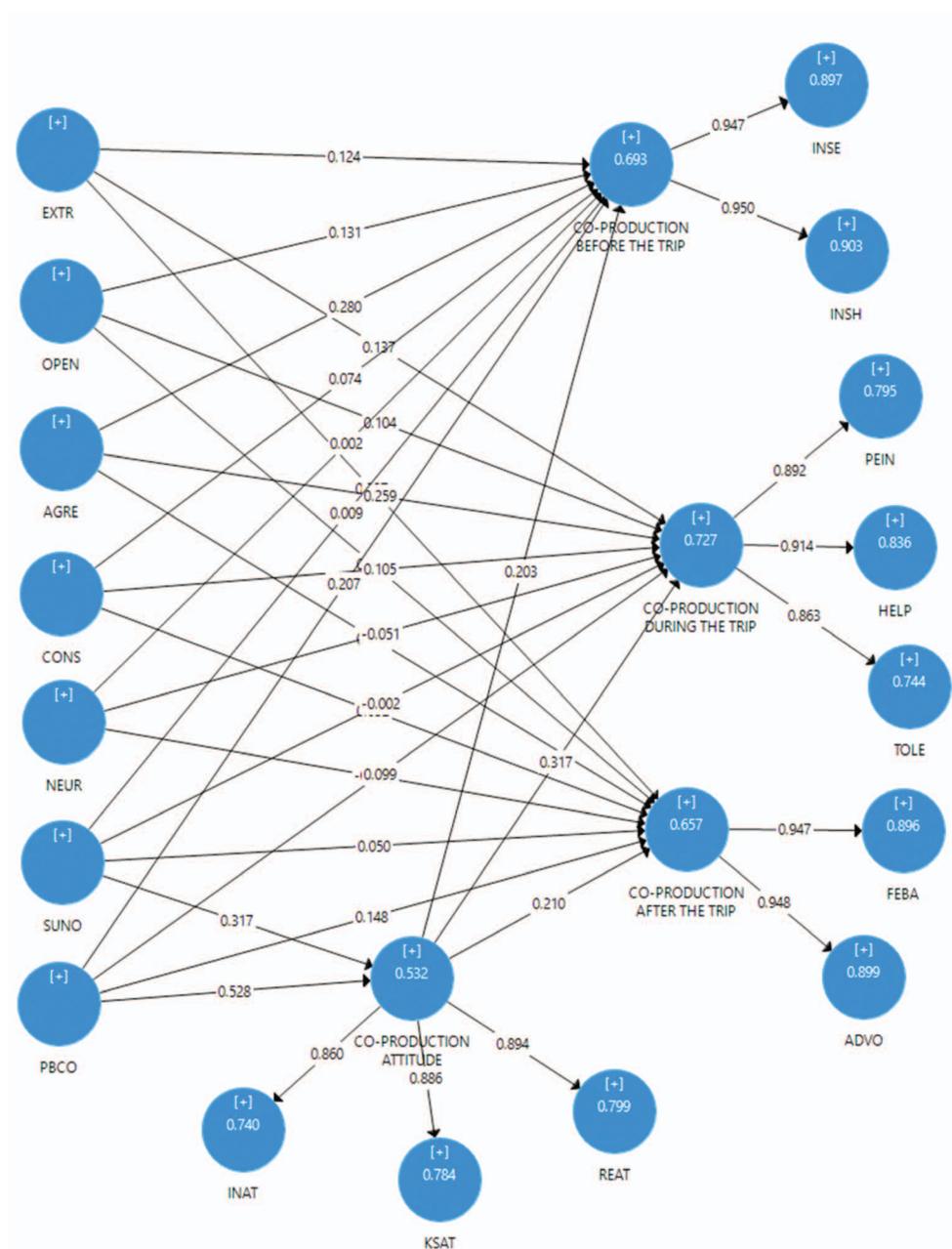
For the direct effect, the confidence interval is [0.064; 0.231], meaning that the direct effect's population value will be somewhere between 0.064 and 0.231 with a 95% probability. As this confidence interval does not include the value zero, the direct effect of H8a is significant (Hair et al., 2013).

For the indirect effect, the confidence interval is [0.053; 0.170], meaning that the direct effect's population value will be somewhere between 0.053 and 0.170 with a 95% probability. The indirect effect of H8a is also confirmed. The same results of significant direct and indirect effects for hypotheses H8b and H8c are also confirmed, indicating a complementary type of mediation effect (Hair et al., 2013).

For hypotheses H9a, H9b, and H9c, the results for indirect effects are also confirmed for the indirect-only types of mediation effects. However, the direct effects are not significant as they have confidence interval include the value zero (confidence interval [-0.054; 0.068], [-0.062; 0.058], [-0.009; 0.105]). All are illustrated in table 6.

Furthermore, the R^2 coefficients are very high (Figure 2) in terms of coefficients of determinants, EXTR, OPEN, AGRE, CONS, NEUR, and PBCON can explain co-production behaviour during the trip to the extent of 72.7% ($R^2 = 0.727$). Co-production behaviour before the trip can be explained by EXTR, OPEN, AGRE, and PBCO to the tune of 69.3% ($R^2 = 0.693$). Besides, EXTR, OPEN, AGRE, and PBCON can explain co-production behaviour after the trip to the tune of 65.6% ($R^2 = 0.656$). It also appears that SUNO and PBCON can explain INAT to the tune of 53.2% ($R^2 = 0.532$).

Figure 2: Validated research model



Source: Authors' calculation

5. Results and discussion

The study accredited the relationship between The Big Five personality traits and three groups of Tourists' co-production behaviour, namely co-production behaviour before the trip, co-production behaviour during the trip, and co-production behaviour after the trip, developed from TPB theory. The Extraversion, Openness, and Agreeableness of the personality traits (H1, H2, H3) positively influence the three stages of co-production behaviours. This result is consistent with the previous studies (Ong & Musa, 2012; Wu & Mursid, 2019) and somewhat with the study of Kvasova (2015) on eco-friendly tourists' behaviour, where Kvasova's study did not support the "Openness" effect. Extraversion personality has the strongest influence on co-production behaviour (at all three stages), followed by Agreeableness and Openness personality. The research of Ying & Norman (2014) on personality in social relationships also concluded that individuals with a high degree of openness may be more open to different networking opportunities and are more likely to create new social relationships. Open-minded tourists who are always curious to improve their knowledge, imaginative, and eager to experience will be very active in finding and sharing. Thus, it also reinforces the view that openness, agreeableness and conscientiousness directly influence customer co-product behaviour, especially in tourism services.

Hypothesis H4 and H5 are not accepted. Consciousness and Neuroticism only affect co-production behaviour during the trip, but not for two other stages of travel consumption. Neuroticism has a detrimental effect on co-production behaviour during the trip, which was also partially consistent with the study by Wu & Mursid (2019). Thus, it reveals that Consciousness and Neuroticism customers are very reluctant to interact and exchange information and provide feedback to service providers unless they are required to participate during the trip. Thus, their willingness to interact, help and tolerate when the service provided has not met the expectations partly explains their respectful and responsible personality (Wu & Mursid et al., 2019; Zhao & Seibert, 2006; Kvasova, 2015). Ying & Norman (2014) stated that conscientious people are very attentive to strong and lasting relationships. Thus, a conscientious traveller is interested in responding to feedback on his experience with the trip and recommending to others to the service provider they feel satisfied and connected. Consciousness person exhibits anxiety, impulsiveness, and vulnerability, or behaves negatively, uncomfortable, and socially poorly. Therefore, it is understandable that when customers have sensitive personalities, it is difficult to participate in product co-creation. While the behaviours of participating in tourism product co-creation require a high level of interaction, such as friendly communication, expressiveness, creativity, imagination, and dynamism, these are completely absent in people with the following characteristics: personality is sensitive (Wu & Mursid, 2019).

Subjective norms, attitude, perceived behavioural control, and co-production attitude achieve the expected relationship as the original TPB model. Thus, hypotheses H6 and H7 are accepted. These research results re-confirm the positive role of attitude towards co-productive behaviour, behavioural control, and subjective norm in explaining co-productive behaviour in a specific context is tourism. These are consistent with the relationships in the TPB model (Ajzen, 1991). Hence, the tourists with specific resources or opportunities, such as travel information and knowledge, will be willing to participate in the co-product.. Generally, the more favourable the attitude, subjective norms, and perceived behavioural control are, the stronger the individual's intention to perform the considered behaviour. The relative importance of attitudes, subjective norms, and perceived behavioural control in predicting expected intention varies across behaviours and situations. The subjective norm in this research only indirectly influences co-production behaviour through attitude. Therefore, when tourists have specific resources or opportunities, such as travel information and knowledge, they will be willing to participate in product co-creation. Furthermore, our study also examined the mediation effect of Co-production attitude in two different types: complimentary indirect effect (perceived behaviour control and co-production behaviour) and indirect-only effect (subjective norm and co-production behaviour). As a complementary effect, the co-production attitude mediates the relationship between two variables and increases the total effect of this relationship. On the other hand, co-production attitude as mediation creates an indirect relationship between subjective norms and co-production behaviour. Thus, directly and indirectly, perceived behavioural control affects tourists' co-productive behaviour (all groups of behaviours before, during, and after the trip). And subjective norm does not directly relate to tourists' co-production behaviour, but only indirect relationship through the attitude to co-production behaviour. Thus, in the tourism context, the influence of relatives, friends, and other stakeholders leading to co-production occurs only through attitudes towards this behaviour.

6. Conclusion

This study aims to evaluate the relationship between The Big Five personality traits and the three types of tourists' co-production behaviour in different stages of tourists' consumption. In light of this research trend, this study has inherited and developed the concept of Tourists' Co-Production Behavior for a broader view of the tourism industry by reclassifying these behavioural groups according to each stage of tourists' co-creation process: Pre-Trip Co-Production, During the Trip Co-Production, and Post-Trip Co-Production Behavior. The study also further extends the original model of the theory of Planned Behavior (TPB) by the five personality characteristics of tourists. Our study results revealed that tourists' Big Five

personality traits influence their co-production behaviour in each stage of tourism consumption. However, each of these traits will affect or not affect co-production behaviour in each specific stage separately.

Apart from the mediating role of attitude in the relationship between subjective norms, the perceived behavioural control and tourism co-production behaviour in three stages of tourism consumption was also tested. Attitudes toward co-production behaviour indirectly mediate the relationship between subjective norms and tourists' co-production behaviour. Tourists with a co-production attitude tend to have co-production behaviour. On the other hand, attitude toward co-production behaviour works as complimentary mediation between perceived behavioural control and co-production behaviour. In general, the more favourable the attitudes and subjective norms towards behaviour, and the greater the perceived behavioural control, the stronger the individual's co-production behavioural intention.

This section will present the theoretical and practical contributions to developing marketing strategies.

6.1. Theoretical implications

Based on the co-production behaviour groups of tourists in previous studies the study has reclassified these behavioural groups according to each stage of tourist engagement with co-production, thereby found a new concept of measurement for tourists' co-production behaviour which includes three groups of behaviours, namely co-production behaviour before the trip, co-production behavior during the trip, and co-production behavior after the trip. This result provides a broader view of the co-production behavior of tourists because tourism products are experiential products.

Our research has further developed the original TPB theory model, which includes three main components: subjective norms, perceived behavioural control, and co-production attitude by adding The Big Five personality traits. Thus, it develops new components for TBP theory, namely *co-production behaviour*. Moreover, this paper also tested the mediation role of co-production attitude towards subjective norms, perceived behaviour control, and co-production behaviour and identified the different mediating effects by applying Smartpls SEM. This study contributes as a theoretical foundation to clarify specific types of mediation for co-production behaviour incorporating the TPB model in a tourism context.

6.2. Managerial implications

Tourists' involvement in the co-production process is vital to managers, especially in the tourism business. As mentioned above, tourists' consumption behaviour

does not stop only when they decide to travel, but throughout the three-stage process, they participate in co-production (before, during and after). Moreover, the researchers discovered that tourists' personalities influence their behaviour during these co-production stages. From the obtained research results, some managerial implications for tourism business managers are proposed as follows:

There should be different approaches and interactions for each group of customers with different personality characteristics to stimulate customers to participate the most in all co-production processes (before, during, and after). Thus, tourism business managers should have development orientations, marketing and services based on their products on each customer's personality group. Once suitable products and services are provided for each customer group, customer satisfaction will also be.

Marketing managers should strive to improve the relationship between customers and companies and develop appropriate marketing strategies for each customer co-production stage to enhance co-production activities further. Accordingly, many new products will be developed, improving the competitiveness of their businesses.

6.3. Limitations and opportunities for future research

This study has achieved some important results, but some limitations open suggestions for future research:

First, the survey participants in the study are Vietnamese tourists; the next research can choose the subjects as international and domestic tourists to increase the representativeness of the research sample. Second, tourists' co-production behaviour in the study is not specific to any tourism product that can be tackled in future research, such as smart tourism and green tourism. Third, it was recently proved how opinions expressed on social media shape travel expectations before embarking on a trip and their feedback after. These findings confirm that social media empowers consumers to be active collaborators in the interactive value creation process. Future studies may focus on looking at changes in customer co-production behaviour in the evolving context of social media.

Moreover, the moderator role of social media on the relationship between tourists' Big five personality traits and co-production behaviour can be examined in future. Last, this study focuses on co-production behaviour from the customer's point of view. However, co-creating a product is a collaborative work between customers and employees, and further research can examine co-production behaviour from the employee's point of view.

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Petofaktorski model ličnosti i koprodukcijско ponašanje vijetnamskih turista: proširenje teorije planiranog ponašanja

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Sažetak

U okviru Ajzenove teorije planiranog ponašanja, studija se provodi kako bi se procijenila povezanost petofaktorskog modela ličnosti i tri tipa koprodukcijскоg ponašanja turista: koprodukcijско ponašanje prije putovanja, koprodukcijско ponašanje tijekom putovanja, te koprodukcijско ponašanje nakon putovanja. U modelu teorije planiranog ponašanja pojašnjava se i medijacijski utjecaj koprodukcijскоg stava. Istraživanje je provedeno pomoću online i osobnog istraživanja u periodu od siječnja do svibnja 2021. Subjekti istraživanja su vijetnamski turisti koji žive i rade u Vijetnamu te su putovali u posljednje dvije godine. Rezultati istraživanja otkrivaju da sve tri osobine ličnosti: Ekstraverzija, Otvorenost i Ugodnost pozitivno utječu na tri kategorije koprodukcijскоg ponašanja, dok Savjesnost i Neuroticizam utječu samo na koprodukcijско ponašanje tijekom putovanja. Pojašnjeni su komplementarni i neizravni medijacijski učinak koprodukcijскоg stava. Ova studija pridonosi proširenju teorije planiranog ponašanja analizom petofaktorskog modela ličnosti u koprodukcijskom ponašanju turista. Nalazi istraživanja pomažu turističkim tvrtkama da bolje razumiju kako osobine ličnosti posjetitelja utječu na njihovu koprodukciju i pomažu im u izgradnji učinkovitih metoda koprodukcije. Osobe zaposlene u turizmu trebaju razviti različite pristupe za skupine kupaca s prepoznatljivim karakteristikama u svakoj fazi koprodukcijскоg procesa.

Gljučne riječi: koprodukcijско ponašanje, teorija TPB-a, osobine ličnosti Big Five

JEL klasifikacija: M3, M10, M31

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Appendices

Table 2: Measurement properties

Construct/Items	Loading Factor (>0.7)	Cronbach's alpha (>0.7)	Composite Reliability (>0.6)	Average Variance Extracted (>0.5)	Variance Inflation Factor (<5)
Extraversion (EXTR)		0.81	0.88	0.72	
EXTR1	0.84				1.75
EXTR2	0.85				1.76
EXTR3	0.85				1.78
Openness (OPEN)		0.79	0.88	0.71	
OPEN1	0.87				2.20
OPEN2	0.74				1.36
OPEN3	0.90				2.42
Agreeableness (AGRE)		0.74	0.85	0.65	
AGRE1	0.81				1.52
AGRE2	0.80				1.41
AGRE3	0.81				1.47
Consciousness (CONS)		0.89	0.93	0.82	
CONS1	0.88				2.33
CONS2	0.91				2.86
CONS3	0.91				3.05
Neuroticism (NEUR)		0.77	0.85	0.67	
NEUR1	0.71				1.54
NEUR2	0.91				1.73
NEUR3	0.81				1.54
Subjective Norms (SUNO)		0.83	0.90	0.75	
SUNO1	0.79				1.52
SUNO2	0.91				2.71
SUNO3	0.88				2.58
Perceived Behavioral Control (PBCO)		0.78	0.87	0.69	
PBCO1	0.79				1.46
PBCO2	0.87				1.88
PBCO3	0.83				1.71
Co-Production Attitude		0.92	0.93	0.59	
Interaction Attitude (INAT)		0.83	0.88	0.66	
INAT1	0.74				1.50
INAT2	0.81				2.20
INAT3	0.83				2.05
INAT4	0.86				2.79
Knowledge Sharing Attitude (KSAT)		0.90	0.93	0.83	
KSAT1	0.90				2.70

Construct/Items	Loading Factor (>0.7)	Cronbach's alpha (>0.7)	Composite Reliability (>0.6)	Average Variance Extracted (>0.5)	Variance Inflation Factor (<5)
KSAT2	0.93				3.60
KSAT3	0.90				2.62
Responsive Attitude (REAT)		0.92	0.95	0.86	
REAT1	0.92				3.28
REAT2	0.94				4.23
REAT3	0.93				3.48
Co-Production Behavior Before the Trip		0.93	0.95	0.76	
Information Seeking (INSE)		0.90	0.94	0.84	
INSE1	0.92				3.15
INSE2	0.93				3.55
INSE3	0.89				2.51
Information Sharing (INSH)		0.9	0.95	0.86	
INSH1	0.916				3.04
INSH2	0.945				4.23
INSH3	0.928				3.44
Co-Production Behavior During the Trip		0.93	0.94	0.67	
Personal Interaction (PEIN)		0.93	0.95	0.87	
PEIN1	0.92				3.08
PEIN2	0.94				4.61
PEIN3	0.94				4.26
Helping (HELP)		0.91	0.94	0.84	
HELP1	0.91				2.86
HELP2	0.93				3.51
HELP3	0.91				2.98
Tolerance (TOLE)		0.88	0.93	0.81	
TOLE1	0.86				2.00
TOLE2	0.93				3.63
TOLE3	0.91				3.31
Co-Production Behavior After the Trip		0.94	0.95	0.77	
Feedback (FEBA)		0.91	0.94	0.85	
FEBA1	0.91				2.91
FEBA2	0.93				3.43
FEBA3	0.92				3.15
Advocacy (ADVO)		0.92	0.95	0.87	
ADVO1	0.93				3.57
ADVO2	0.94				3.87
ADVO3	0.93				3.54

Source: Authors' calculation

Table 5: Results of the structural path model with the direct effects

Hypo.	Path	Estimate	t-value	P-value	Results
H1a	Extraversion → co-production behavior before the trip	0.28	6.93	0.00	Supported
H1b	Extraversion → co-production behavior during the trip	0.26	6.62	0.00	Supported
H1c	Extraversion → co-production behavior after the trip	0.23	5.13	0.00	Supported
H2a	Openness → co-production behavior before the trip	0.13	3.17	0.00	Supported
H2b	Openness → co-production behavior during the trip	0.10	2.68	0.00	Supported
H2c	Openness → co-production behavior after the trip	0.13	3.09	0.00	Supported
H3a	Agreeableness → co-production behavior before the trip	0.28	6.93	0.00	Supported
H3b	Agreeableness → co-production behavior during the trip	0.26	6.62	0.00	Supported
H3c	Agreeableness → co-production behavior after the trip	0.19	4.99	0.00	Supported
H4a	Consciousness → co-production behavior before the trip	0.07	1.66	0.09	<i>Not Supported</i>
H4b	Consciousness → co-production behavior during the trip	0.11	2.83	0.00	Supported
H4c	Consciousness → co-production behavior after the trip	0.03	0.87	0.39	<i>Not supported</i>
H5a	Neuroticism → co-production behavior before the trip	0.00	0.09	0.93	<i>Not supported</i>
H5b	Neuroticism → co-production behavior during the trip	-0.05	1.99	0.04	Supported
H5c	Neuroticism → co-production behavior after the trip	-0.05	1.81	0.07	<i>Not Supported</i>
H6a	Perceived behavioral control → co-production behavior before the trip	0.21	5.36	0.00	Supported
H6b	Perceived behavioral control → co-production behavior during the trip	0.10	2.44	0.02	Supported
H6c	Perceived behavior control → co-production behavior after the trip	0.15	3.432	0.00	Supported
H7a	Subjective norms → co-production behavior before the trip	0.01	0.276	0.78	<i>Not Supported</i>
H7b	Subjective norms → co-production behavior during the trip	-0.00	0.077	0.94	<i>Not Supported</i>
H7c	Subjective norms → co-production behavior after the trip	0.05	1.737	0.08	<i>Not Supported</i>

Source: Authors' calculation

Table 3: Discriminant validity test (Fornell and Larcker Criterion)

	ADVO	AGRE	CONS	EXTR	FEBA	HELP	INAT	INSE	INSH	KSAT	NEUR	OPEN	PBCO	PEIN	REAT	SUNO	TOLE
ADVO	0.935																
AGRE	0.628	0.811															
CONS	0.528	0.519	0.908														
EXTR	0.602	0.589	0.486	0.851													
FEBA	0.796	0.631	0.549	0.637	0.923												
HELP	0.714	0.669	0.59	0.605	0.738	0.921											
INAT	0.563	0.584	0.522	0.558	0.598	0.636	0.815										
INSE	0.672	0.667	0.538	0.58	0.68	0.708	0.666	0.917									
INSH	0.707	0.675	0.599	0.577	0.693	0.697	0.615	0.801	0.93								
KSAT	0.516	0.447	0.605	0.508	0.574	0.594	0.635	0.531	0.566	0.913							
NEUR	-0.225	-0.194	-0.237	-0.288	-0.255	-0.254	-0.206	-0.204	-0.167	-0.119	0.819						
OPEN	0.626	0.678	0.572	0.595	0.643	0.651	0.603	0.642	0.664	0.541	-0.216	0.843					
PBCO	0.548	0.488	0.514	0.421	0.587	0.571	0.536	0.612	0.614	0.627	-0.137	0.55	0.835				
PEIN	0.609	0.615	0.572	0.585	0.655	0.736	0.609	0.698	0.701	0.548	-0.217	0.609	0.534	0.936			
REAT	0.625	0.555	0.632	0.447	0.625	0.659	0.633	0.627	0.611	0.717	-0.091	0.604	0.617	0.631	0.932		
SUNO	0.466	0.459	0.426	0.423	0.477	0.434	0.497	0.438	0.481	0.517	-0.155	0.421	0.46	0.459	0.464	0.867	
TOLE	0.654	0.621	0.542	0.515	0.68	0.695	0.554	0.697	0.646	0.542	-0.199	0.599	0.534	0.631	0.598	0.425	0.904

Source: Authors' calculation

Table 4: Discriminant validity test (HTMT value)

	ADVO	AGRE	CONS	EXTR	FEBA	HELP	INAT	INSE	INSH	KSAT	NEUR	OPEN	PBCO	PEIN	REAT	SUNO	TOLE
ADVO																	
AGRE	0.756																
CONS	0.579	0.641															
EXTR	0.695	0.76	0.572														
FEBA	0.844	0.767	0.606	0.74													
HELP	0.777	0.814	0.654	0.704	0.809												
INAT	0.639	0.74	0.6	0.676	0.685	0.729											
INSE	0.733	0.815	0.596	0.675	0.748	0.78	0.766										
INSH	0.765	0.817	0.659	0.668	0.756	0.761	0.699	0.876									
KSAT	0.565	0.548	0.675	0.594	0.633	0.656	0.731	0.587	0.622								
NEUR	0.243	0.248	0.266	0.327	0.262	0.269	0.218	0.213	0.169	0.125							
OPEN	0.725	0.849	0.682	0.736	0.754	0.763	0.74	0.758	0.776	0.645	0.232						
PBCO	0.645	0.642	0.617	0.526	0.693	0.676	0.666	0.728	0.722	0.746	0.157	0.709					
PEIN	0.655	0.741	0.627	0.674	0.711	0.8	0.691	0.761	0.756	0.598	0.222	0.708	0.625				
REAT	0.675	0.672	0.695	0.516	0.681	0.719	0.719	0.685	0.662	0.785	0.099	0.71	0.727	0.68			
SUNO	0.53	0.581	0.498	0.512	0.546	0.496	0.592	0.504	0.549	0.591	0.176	0.512	0.56	0.52	0.526		
TOLE	0.721	0.766	0.607	0.607	0.756	0.773	0.643	0.778	0.714	0.607	0.203	0.718	0.642	0.694	0.66	0.492	

Source: Authors' calculation

Table 6: Results of the structural path model with the mediation effects

Hypo.	Path	Type of effect	Estimate	Percentile 95% confidence interval	t-value (>1.96)	p-value (<0.05)	Remark	Result
H8a	Perceived behavioral control → co-production before the trip	Direct	0.21	[0.064; 0.231]	5.36	0.00	Yes	Complimentary mediation
	Perceived behavioral attitude → co-production before the trip	Total indirect	0.06	[0.053; 0.170]	3.15	0.00	Yes	
H8b	Perceived behavioral control → co-production during the trip	Direct	0.10	[0.024; 0.180]	2.44	0.02	Yes	Complimentary mediation
	Perceived behavioral attitude → co-production during the trip	Total indirect	0.10	[0.119; 0.225]	5.05	0.00	Yes	
H8c	Perceived behavioral control → co-production after the trip	Direct	0.15	[0.135; 0.287]	3.43	0.00	Yes	Complimentary mediation
	Perceived behavioral attitude → co-production after the trip	Total indirect	0.07	[0.057; 0.169]	3.37	0.00	Yes	
H9a	Subjective norms → co-production before the trip	Direct	0.01	[-0.054; 0.068]	0.28	0.78	No	Indirect-only mediation
	Subjective norms → co-production attitude → co-production before the trip	Total indirect	0.064	[0.028; 0.108]	3.147	0.002	Yes	
H9b	Subjective norms → co-production during the trip	Direct	-0.00	[-0.062; 0.058]	0.08	0.94	No	Indirect-only mediation
	Subjective norms → co-production attitude → co-production during the trip	Total indirect	0.17	[0.064; 0.142]	6.14	0.00	Yes	
H9c	Subjective norms → co-production after the trip	Direct	0.05	[-0.009; 0.105]	1.74	0.08	No	Indirect-only mediation
	Subjective norms → co-production attitude → co-production after the trip	Total indirect	0.11	[0.032; 0.109]	3.89	0.00	Yes	

Source: Authors' calculation