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Article

"Raising the Curtain": The service theater model as a tool of industrial tourism and effects on customer experience

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Abstract: The growing attention paid to industrial tourism can be seen as one of the major trends in cultural tourism and marketing and has given currency to the proposition that customer experience of industrial tourism acts as a direct personal source of information about their perceptions of companies visited and is essential for customer relationship management of companies. This study applies the service theater theory and proposes a model to explore the structural relationships among theatrical elements of industrial tourism (including setting, performance, and actor), the dimensions of customer experience (enjoyment, learning, and escape), and customers' behavior intentions. A survey of 500 industrial tourists in a transparent factory in the health food industry was conducted in Zhuhai, Guangdong, China. The results of structural equation modeling indicate that two theatrical factors (setting and performance) relate positively to all dimensions of customer experiences. In contrast, the theatrical factor "actor" only relates positively to the learning experience. Furthermore, all dimensions of customer experience, in turn, positively affect customers' behavioral intentions. This study will be helpful for corporate managers and tourism organizers who aim to develop and implement marketing strategies based on the service theatre theory to improve their services.

Keywords: service theater; customer experience; behavioural intention; industrial tourism; company tour

1. Introduction

The last two decades have seen significant growth in industrial tourism. Industrial tourism refers to tourist visits to industrial heritage sites or production facilities, providing tourists with the opportunity to experience economic activities from the past, present, and future (Otgaar et al., 2010; Montenegro et al., 2022). According to a recent report from Future Market Insights, the industrial tourism market is projected to reach US $1663.6 million in 2023. Currently, there are over 1100 industrial destinations available for tourists to visit, attracting more than 5 million people from all over the world.

China is promoting the growth of industrial tourism, including a new form of industrial cultural tourism that combines education and enjoyment. The Ministry of Culture and Tourism has identified 69 units as National Industrial Tourism Demonstration Bases in their '2023 National Industrial Tourism Demonstration Base List'. In addition to policy support, many cities have experimented with and developed industrial tourism. For instance, Beijing, the capital city of China, has launched seven industrial tourism routes that showcase intellectual, technological, and artistic aspects (Travel Sohu, 2023). Similarly, Shenzhen, known as China's 'First City of Industry', has introduced ten in-depth industrial tourism routes and 28 industrial tourism resources (Shenzhen Economic Daily, 2023).

According to Pine and Gilmore, companies could script and stage the experiences that will transform the value of what they produce by orchestrating memorable events for their customers (Pine and Gilmore, 1999). Therefore, the concept of service theaters suggests that companies could design settings where services provided are highly customized and performed in the full view of customers (Robson et al., 2015). How customers experience a particular service or a tourism attraction depends on the combination of service and theatrical factors to maintain a believable and enjoyable performance (Grove and Fisk, 1992). When visiting factories or plants, especially in the food and beverage industries, tourists interact with firms through myriad touch points in an industrial process. Experiences of industrial tourism could be purely cognitive, playful, learning, and, when possible, buying its products, which also allows tourists to consider social and environmental issues and then develop socially responsible tourism. However, only a few studies focus on the service theaters of industrial tourism.

It has been found that service theaters can influence tourist experiences; therefore, experiencing the framework of theaters could capture the dimensions of the tourist experience (Chen et al., 2023; Grove and Fisk, 1992; Kao et al., 2008). Tourist experience may contribute to the behavioral intention process in various factors of experiential appreciation. Tourists' behavioral intentions, such as positive word of mouth, re-patronage, brand loyalty, etc., may be enhanced through the abundant experience in active industrial tourism. However, most studies have only partly explored the effects of one or two factors of onsite experience on customer behavioral intention. Furthermore, limited studies have examined whether and how the dimensions of service theaters influence the factors of customer experience, which subsequently affect customer behavioral intention in the active industrial tourism context. To bridge this gap, this study examines the relationships among behavioral intention and its relevant constructs: actor, setting, performance, enjoyment experience, learning experience, and escape experience perceived by customers in an active industrial tourism context.

This study contributes to the literature on the design of service theaters and customer experience in an industrial tourism context from theoretical and practical perspectives. Theoretically, our research demonstrates that three dimensions of service theaters in an industrial tourism context can create and enhance three dimensions of customer experiences, respectively, and lead to positive customer behavioral intentions. From a practical perspective, this study will benefit industrial policymakers and various companies. Our findings can assist industrial tourism managers in developing and implementing service theaters and experiential strategies to enhance customer experience and increase positive behavioral intentions. Therefore, this study is significant for practitioners to consider service theaters as a tool for industrial tourism to enhance customer experience and consequently trigger customers' positive behavioral intentions.

2. Literature review

2.1. Industrial tourism

Industrial tourism began with the Grand Tour in the 17th century in the UK,

coinciding with the start of the Industrial Revolution (Otgaar et al., 2010). In the 1960s, many industries, such as textiles, mining, steel, and other heavy industries, faced structural imbalances, and some had to close down. As a result, many closed over time and even became abandoned, becoming what is known as "industrial heritage" (Hospers, 2002). Industrial tourism began to grow in Europe and the USA, with more and more factories opening their industrial environments for tourists to visit. These industrial attractions include current industrial processes and production facilities, such as factories and renewable energy sources (Martin and Haugh, 1999). For example, a typo-logical framework has been employed to develop industrial tourism, including productive attractions, processing attractions, transport attractions, and sociocultural attractions (Edwards and i Coit, 1996). The value of industrial heritage tourism includes not only its artistic importance but also witnessing an industrial process that has changed society.

Industrial tourism could be defined as such activities aimed at the knowledge and discovery of factories and product processes. In light of this statement, the attractions of industrial tourism are roughly composed of industrial heritage and active businesses (Badia et al., 2023; Szromek et al., 2021). Industrial heritage tourism employs sites with industrial processes from earlier periods as its main attractions. This includes industrial archaeology, conservation, and nostalgic aspects and mines, quarries, and other industrial installations (Edwards and i Coit, 1996). Apart from industrial heritage tourism, visiting active businesses has been a new perspective of industrial tourism. This not only provides opportunities for visitors to experience different stages of production processes and operations of various machinery but also constructs an approach by which tourists could be closer to firms, learning more about their identity in-depth (Badia et al., 2023; Xie, 2006).

Regarding research, industrial tourism primarily focuses on the economy, culture, architecture, archaeology, management, and sustainable development. When considering factory tourism, it is essential to examine the relationship between factories and tourists and the factors that influence this relationship. However, the impact of industrial tourism on the psychological states and behaviors of individual customers remains largely unexplored. As Timothy (2005) stated, tourists want to know product authenticity, including consumer goods' cultural and traditional background in their purchase behavior. Therefore, the service theater model can be a powerful tool for analyzing the performance and experience of industrial tourism.

2.2. The service theater model

The service theater model uses theater as a metaphor and provides a conceptual framework to describe services, which mainly consists of four dimensions: setting, performance, actor, and audience (Grove et al., 1998). It has been generalized and regarded as the most suitable theory for services that involve face-to-face encounters between the actor (service providers) and the audience (customers) within a controlled physical environment (Ali et al., 2017; Meiren and Burger, 2010). Setting plays a significant role in creating a great customer experience, giving the audience (customers) an idea of how well the service is delivered (Ryu et al., 2012). Actors, such as front-line employees, demonstrate the 'humanics' of service, depicting how

the service employees make the audience (customers) feel (Yuan and Wu, 2008). Performance is service quality at the transaction level, including everything service providers provide (Cole et al., 2004). The service theatre theory illustrates the process of service contact, focusing on emphasizing the overall impact of each element of setting, actors, and performance (Zhang and Zheng, 2019). Service delivery likes performance as if the consumer were watching a performance. However, to our knowledge, no previous research has explored the service theater model in the context of industrial tourism.

Service Theatre Theory has been widely applied to many service contexts as it provides a comprehensive conceptual framework for performance assessment. It effectively links ideas from various research streams (Ali et al., 2017). For instance, Chen et al. (2023) applied service theatre theory to immersive experiences in digital exhibitions. They explored the structural relationships between service theatre dimensions, immersive experience dimensions, mental imagery, and presence. Service theatre theory has been applied to improve the quality of library services, as shown by research on library service contacts (Zheng, 2019). Additionally, Service Theatre Theory has been used to demonstrate the interactive effects of in-factory experiences and customer roles on the perceived value of souvenirs within the scope of industrial tourism applications (Lin, 2020).

Industrial tourism is characterized by theatrical elements and encompasses service delivery and experiences. An attraction of industrial tourism is a setting where services are provided for tourists. Front-line employees in industrial tourism are the actors who have direct service interactions with visitors. At the same time, the performance of industrial tourism is viewed as the visitors' overall assessment of tourism services.

2.3. Customer experience

Companies should acknowledge that they create memories because customers now seek experiences. There are four realms of customer experience within services: education, aesthetics, escape, and entertainment (Pine and Gilmore, 1999). It is essential to understand that these experiences are subjective emotional states (Cole et al., 2004). This process involves perceiving, feeling, and sensing an object, integrating active sensation, emotion, and cognition, and then appraising the aesthetic pleasure (Cinzia and Vittorio, 2009). Kao et al. (2008) proposed that the tourism experience comprises four dimensions: fun, surprise, participation, and immersion. Subsequent research confirmed seven dimensions: Learning, novelty, local culture, enjoyment, refreshment, escape, and involvement (Luo et al., 2021). Kang and Gretzel (2012) considered tourism experiences to encompass three unique dimensions: learning, enjoyment, and escape. Acquiring knowledge while traveling is an inherent motivator for many travelers (Dodd, 1998; Manthiou et al., 2014; Radder and Han, 2015). A learning experience requires an individual's active participation since it is essential for increasing skills or knowledge. An enjoyment experience refers to the degree to which pleasure and practical value comprise the experience (Davis et al., 1992). Thus, the current study applied these three experience facets among volunteer tourists. Customers can experience a sense of escape by detaching themselves from reality,

being cognitively distracted, and being relieved from stressors (Orazi et al., 2023). Comparatively, industrial tourism includes theatrical factors. Its settings, actors, and performances could lead to different dimensions of the industrial tourism experience. The three primary roles of service theater (actors, settings, and performance) positively impact attendees' enjoyment experience. The experience context derived from service theaters leads consumers to escape the usual environment. The dimensions of service theaters are influential predictors of the dimensions of the learning experience in a factory tour. The service theater model highlights the active role of the audience (customers), demonstrating that customers seeking a satisfying experience actively in the theater (i.e., industrial tourism context) (Chen et al., 2023; Fisk et al., 2009; Grove et al., 1998; Meiren and Burger, 2010). Thus, we propose the following hypotheses:

- H1: Setting has a positive influence on the dimensions of customer experience (enjoyment, learning and escape).
- H2: Performance has a positive influence on the dimensions of customer experience.
- H3: Actor has a positive influence on the dimensions of customer experience.

2.4. Behavioural intention

Behavioral intention is an appropriate method to predict a customer's behavior in the tourism industry, defined as a stated likelihood to engage in a behavior (Chen and Chen, 2010; Oliver, 2014). More specifically, behavioral intention is partially planned and involves a level of commitment. According to Loi et al. (2017) and Fu et al. (2016), the most favorable indicators of pre-visit and post-visit behavioral intentions for tourism researchers and managers are the intention to revisit, recommend, and visit. However, there is a limited understanding of factors affecting behavioral intention in industrial tourism. Positive behavioral intentions often represent a customer's attitude of loyalty, which is a crucial goal for customer relationship management as it is a key component of a company's long-term development. In addition, customers who are loyal to a product or service are more likely to recommend it to others, acting as free word-of-mouth advertising agents (Chen and Chen, 2010; Shoemaker and Lewis, 1999). Several studies suggest customer experience influences behavioral intention (Chen and Chen, 2010; Lee et al., 2021). Therefore, we propose the following hypotheses:

- H4: The dimensions of customer experience (enjoyment, learning and escape) have a positive influence on behavioural intention.

3. Results and discussion

3.1. Measures

To obtain the necessary data to achieve the objectives, this study utilized items from pre-existing verified scales to create relevant items. Our study followed the guidelines proposed by Clark and Watson (2019) for selecting items. Firstly, this study conducted a comprehensive search of papers in Scopus using relevant keywords, such as 'learning experience,' to identify the variables proposed. After obtaining relevant literature, we reviewed the abstracts and selected all the review articles and

quantitative studies that are closely relevant to this study. Secondly, a pool of measurement items was built for these variables. Thirdly, we combined items with similar meanings and removed those unsuitable for our study's research context. Fourthly, we modified the selected items to be appropriate for examining industrial tourism.

There were 31 items remained. Specifically, this study adapted four items related to setting and three items about actors from Ali et al. (2017), Yung et al. (2021), and Chen et al. (2023), while an additional three items related to performance were taken from Ali et al. (2017) and Grove et al. (1997). Also, seven items related to enjoyment experience were identified based on research by Chen et al. (2023). In addition, the learning experience was evaluated using four items adapted from De Freitas et al. (2010) and Chen et al. (2023). Moreover, to measure escape experience, three items were adapted from Loureiro et al. (2021), Sobitan and Vlachos (2020), and Chen et al. (2023). All measurement items were scored on a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree). A questionnaire comprising the items above in English was translated into Chinese by native speakers. Back translation was used to verify its accuracy. We conducted a pretest of the questionnaire with 50 students who actively participated in industrial tourism. Participants were requested to provide feedback on the items' clarity, the questionnaire's design, and any challenges they faced. Based on their feedback, we made slight modifications to the questionnaire.

3.2. Sampling and data collection

A survey was conducted at a transparent factory in Zhuhai from 18 November to 9 December 2023, using a convenience sampling method. This transparent factory in the healthy food industry is open to the public, showcasing the entire production process. Visitors can observe every critical stage, from raw materials to finished products at the end of the production line, as well as laboratory facilities. We selected this factory to collect data as it is one of the first intelligent, transparent factories in China's health-food industry, aligning with the objectives of this study to measure and test the relationship model mentioned above. The questionnaire was distributed to attendees over the age of 18 and collected at the exit of the transparent factory. Trained investigators explained the study's purpose, which was to obtain consent from participants. Participants were free to choose paper questionnaires or electronic questionnaires. The anonymous questionnaire was self-completed by the participants. Research assistants provided clarification on whether the participants had any queries about the survey contents. A small gift was provided to participates as an expression of appreciation.

3.3. Data analysis

The data was processed, and the structural equations were estimated using the statistical programs SPSS 27.0 and AMOS 26.0. A two-step approach of structural equation modeling allows tests of the significance for all pattern coefficients and an assessment of whether any structural model would give acceptable fit (Anderson and Gerbing, 1988). An Exploratory Factor Analysis (EFA) was undertaken since the items in this study were mostly adapted and modified from the previous researchers.

The purpose of the EFA was to determine whether a single common factor or multiple factors were present in response to the items (Hair et al., 2017). Next, A Confirmatory factor analysis (CFA) was conducted using maximum likelihood estimation to validate the measurement scales of the constructs (Hair et al., 2017). The study also tested reliability and validity measures. Finally, the study concludes by testing the proposed model and hypotheses using structural equation modeling (SEM) to estimate the measurement and structural models. Model fit was assessed using commonly used fit indices.

4. Results

4.1. Sample description

A total of 500 questionnaires were distributed, and after deleting incomplete responses, 447 usable samples were obtained, resulting in a response rate of 89.40%. The majority of respondents were female (63.53%), married (74.27%), and between the ages of 35 and 44 (41.61%). Most respondents held a bachelor's degree (67.11%) and were employed in enterprises (30.87%). The monthly income for most respondents ranged between RMB ¥5001 and RMB ¥10,000 (approximately US $700 and US $1400; 38.70%). Detailed information about the sample profiles is provided in **Table 1.**

Table 1. Survey respondents' demographic profiles (N = 447).

Demographic profiles	Statistics	Frequency	%
Gender	Male	163	36.47
	Female	284	63.53
Marital status	Single	115	25.73
	Married	332	74.27
Age	18–24	67	14.99
	25–34	122	27.29
	35–44	186	41.61
	45–54	47	10.51
	55–64	11	2.46
	65 and above	14	3.13
Educational level	Secondary school or below	10	2.24
	High school College	94	21.03
	University Graduate school	300	67.11
	Postgraduate or above	43	9.62
Occupation	College student	54	12.08
	Retiree	25	5.59
	Enterprise staff	138	30.87
	Public Institution staff	111	24.83
	Others	119	26.62

Table 1. (*Continued*).

Demographic profiles	Statistics	Frequency	%
Place of Origin	Jinwan District	51	11.41
	Other District of Zhuhai	118	26.40
	Other city of Guangdong	135	30.20
	Other provinces	143	31.99
Monthly income before tax (RMB)	≤ RMB $5000 or less	124	27.74
	RMB $5001–RMB $10,000	173	38.70
	RMB $10,001–RMB $15,000	82	18.34
	RMB $15,001–RMB $20,000	39	8.72
	≥ RMB $20,001 or more	29	6.49

4.2. Exploratory factor analysis (EFA)

To determine the conceptual connections between the items used to measure the dimensions of the constructs, we applied Principal Component Analysis with varimax rotation and Kaiser Normalization to 31 scale items (Abdi, 2010). Only loadings of 0.50 or greater on one factor were considered in interpreting factors (Hair et al., 2017). **Table 2** shows that the KMO measure of sampling adequacy value is 0.91, indicating that the items are interrelated and share common factors. Bartlett's test of sphericity was also found to be significant (Chi-Square = 8938.49, $p < 0.001$), indicating the significance of the correlation matrix; therefore, exploratory factor analysis was deemed appropriate.

The first factor (eigenvalue = 5.03), with factor loadings ranging from 0.60 to 0.77, accounts for 16.23% of the variance in the data. Four items are related to each other and logically make sense for the factor "Setting". The second factor shows an eigenvalue of 3.41, with factor loadings ranging from 0.64 to 0.77, accounting for 11.01% of the variance in the data. This indicates that the factor "Performance" relates to three items that are logically connected. The third factor, "Actor" (eigenvalue = 2.94), with factor loadings ranging from 0.64 to 0.76, accounts for 9.48% of the variance in the data. The fourth factor shows an eigenvalue of 2.84, with factor loadings ranging from 0.57 to 0.67, accounting for 9.15% of the variance in the data. Seven items related to each other made logical sense for the "Enjoyment Experience" factor. The fifth factor, "Leaning Experience" shows a 2.56 eigenvalue with factor loadings ranging from 0.57 to 0.74, accounting for 8.26% of the variance. The sixth factor, "Escape Experience" (eigenvalue = 2.47), with factor loadings ranging from 0.63 to 0.84, accounts for 7.95% of the variance in the data. The seventh factor, "Behaviour intention" shows an eigenvalue of 2.28, with factor loadings ranging from 0.66 to 0.84, accounting for 7.34%.

Table 2. Exploratory factor analysis.

Construct	Factor loading	Mean	SD	α
Setting				
TS1: I felt the environment was clean and comfortable.	0.77*	6.44	0.69	
TS2: I felt the technology was advanced.	0.77*	6.34	0.71	0.81
TS3: I felt the production process was transparent.	0.70*	6.34	0.71	
TS4: I felt the factory tour route was clear.	0.60*	6.28	0.78	
Performance				
TP1: I felt it vividly showed the production process.	0.64*	6.14	0.86	
TP2: It was easy to understand the produce process.	0.74*	5.93	0.99	0.84
TP3: It was easy to obtain industrial information.	0.77*	5.70	1.07	
Actor				
TA1: I felt that the docent provided detailed information.	0.64*	6.33	0.74	
TA2: I felt that the staff were polite.	0.79*	6.52	0.62	0.78
TA3: I felt that the staff were helpful.	0.76*	6.34	0.76	
Enjoyment Experience				
AEE1: I felt that the experience was meaningful.	0.58*	6.17	0.83	
AEE2: I felt that the experience was pleasant.	0.58*	6.26	0.73	
AEE3: I felt that the experience was captivating.	0.67*	5.74	0.97	
AEE4: I was completely immersed in the factory tour.	0.67*	5.78	0.91	0.88
AEE5: I was attracted by the smart production.	0.58*	5.79	0.99	
AEE6: I was completely drawn in industrial beauty.	0.62*	5.77	1.03	
AEE7: I felt that factory showed the beauty design.	0.57*	6.09	0.82	
Enjoyment Experience				
EDE1: It helped me learn about industrial beauty.	0.57*	5.97	0.96	
EDE2: It enhanced my knowledge.	0.74*	6.13	0.81	0.81
EDE3: It helped me understand the production process.	0.61*	5.95	0.91	
EDE4: It contributed to my acquisition of new knowledge.	0.67*	5.97	0.92	
Escape Experience				
ESE1: I felt that I was away from the work.	0.82*	5.55	1.15	
ESE2: I felt that I completely escaped from my daily life.	0.84*	5.52	1.26	0.84
ESE3: factory tour was different from other tours.	0.63*	5.94	0.96	
Behavioural Intention				
BI1: I would recommend friends and family to visit the factory.	0.66*	5.84	0.92	
BI2: I would consider buying the product in the future.	0.70*	5.88	0.84	
BI3: I would recommend the brand to my relatives and friends.	0.70*	5.85	0.89	
BI4: I would begin to trust the brand.	0.69*	5.91	0.90	0.92
BI5: I would revisit when I have time.	0.83*	5.69	1.06	
BI6: I would return with my friends and relatives	0.84*	5.72	1.04	
BI7: I would recommend friends to visit the factory	0.84*	5.83	0.99	

Note: *0.05, α = Cronbach's alpha, SD = standard deviation, N = 447, KMO = 0.91, Bartlett's Test of Sphericity = 8938.49, Total Variance explained = 69.42%.

4.3. Confirmatory factor analysis (CFA)

To assess the effectiveness of the measurement model, we conducted a Confirmatory Factor Analysis (CFA) of the six measured constructs using maximum likelihood estimation in AMOS 26.0. Each item was linked to a single latent construct through CFA. The measurement in this study included six factors: actor, setting, performance, enjoyment, education, Escape, and behavioral intention. The factors demonstrated a solid factor structure, as shown in **Table 3**. All factors had significant loadings greater than the 0.50 criterion. The measurement items showed internal consistency as Cronbach's alpha values exceeded the cut-off value of 0.70 (Hair et al., 2017). The composite reliabilities ranged from 0.79 to 0.95, which exceeds the threshold value of 0.70. Additionally, Average Variance Extracted (AVE) scores ranged from 0.56 to 0.82, within the 0.50 criterion (Fornell and Larcker, 1981).

Table 3. Measurement model and confirmatory factor analysis.

Construct	Items	Standardized loading	S.E.	Skew.	Kurt.	C.R.	Composite reliability	AVE
Actor	TA1	0.69*	0.07	−1.206	2.079	13.17	0.78	0.55
	TA2	0.73*	0.06	−1.184	1.675	13.72		
	TA3	0.79*	N/A	−1.33	2.526	N/A		
Setting	TS1	0.72*	0.07	−1.167	1.32	13.78	0.82	0.53
	TS2	0.81*	0.07	−0.94	0.735	15.22		
	TS3	0.72*	N/A	−0.982	0.954	N/A		
	TS4	0.66*	0.08	−1.198	1.78	12.62		
Performance	TP1	0.80*	0.05	−1.134	1.443	16.13	0.85	0.65
	TP2	0.88*	0.06	−1.185	1.854	17.23		
	TP3	0.73*	N/A	−0.853	0.674	N/A		
Enjoyment experience	AEE1	0.51*	N/A	−1.882	7.68	N/A	0.88	0.53
	AEE2	0.55*	0.11	−1.094	2.671	8.82		
	AEE3	0.79*	0.17	−0.764	0.457	10.70		
	AEE4	0.80*	0.16	−0.593	-0.047	10.76		
	AEE5	0.86*	0.18	−0.674	-0.085	11.10		
	AEE6	0.83*	0.19	−0.758	0.384	10.97		
	AEE7	0.65*	0.13	−0.802	0.441	9.77		
Learning experience	EDE1	0.61*	N/A	−1.242	2.615	N/A	0.82	0.54
	EDE2	0.72*	0.09	−1.018	1.648	11.92		
	EDE3	0.80*	0.10	−0.658	−0.132	12.65		
	EDE4	0.79*	0.10	−0.767	0.188	12.61		
Escape experience	ESE1	0.90*	N/A	−0.897	0.775	N/A	0.85	0.66
	ESE2	0.86*	0.05	−0.995	0.999	21.34		
	ESE3	0.65*	0.04	−0.913	0.753	15.10		
Intention behavioural	BI1	0.74*	N/A	−0.941	1.373	N/A	0.92	0.62
	BI2	0.70*	0.06	0.655	0.418	14.80		
	BI3	0.71*	0.06	−0.916	1.411	14.99		
	BI4	0.69*	0.06	−0.695	0.178	14.68		
	BI5	0.88*	0.07	−0.788	0.44	18.99		
	BI6	0.89*	0.07	−0.835	0.649	19.24		
	BI7	0.88*	0.07	−0.818	0.522	18.99		

Note: *0.001, α = Cronbach's alpha, AVE = average variance extracted, and C.R. = critical ration. N/A., the first items of the construct in this study had to be fixed to 1 In AMOS, thus the C.R. and S.E. cannot be calculated for the item.

The CFA goodness-of-fit indicators were found to be acceptable (*CFI*, *GFI*, *IFI*, *NFI*, and *AGFI* ≥ 0.90; x^2/df < 3.00; *RMSEA* < 0.08; *SRMR* ≤ 0.10, *CFI* = 0.95; *GFI* = 0.90, *IFI* = 0.95, *NFI* = 0.91, *AGFI* = 0.87, x^2/df = 2.09, *RMSEA* = 0.05, *SRMR* = 0.05).

Thus, the validity and reliability tests produced positive results. Fornell and Larcker (1981) argue that potential variables have determinant validity when the square root of their Average Variance Extracted (AVE) value exceeds the correlation coefficient between potential variables. All correlations between latent constructs were below 0.90. This study demonstrated discriminant validity according to the calculation method (refer to **Table 4**).

Table 4. Descriptive statistics and correlation of study variables.

Constructs	M	SD	1	2	3	4	5	6	7
Setting	6.35	0.58	0.81						
Performance	5.92	0.85	0.49**	0.74					
Actor	6.40	0.58	0.54**	0.44**	0.73				
Enjoyment experience	5.94	0.69	0.52**	0.60**	0.46**	0.73			
Learning experience	6.00	0.71	0.59**	0.51**	0.48**	0.73**	0.73		
Escape experience	5.67	0.98	0.34**	0.39**	0.24**	0.61**	0.60**	0.81	
Intention behavioural	5.81	0.78	0.46**	0.46**	0.38**	0.71**	0.72**	0.55**	0.79

Note: Squared correlations of paired constructs are on the off-diagonal (**0.01).

4.4. Structural equation modeling (SEM)

Figure 1 displays the results of SEM hypothesis testing for the seven constructs. The structural model was assessed using the maximum likelihood estimate in *AMOS* 26.0, revealing a well-fitted model with overall model fitness indices of *CFI* = 0.98, *GFI* = 0.93, *IFI* = 0.98, *NFI* = 0.94, *AGFI* = 0.90, x^2/df = 1.56, *RMSEA* = 0.04, and *SRMR* = 0.04. SEM was employed to test hypotheses in the conceptual research model, and the complete model results are presented in **Figure 1.**

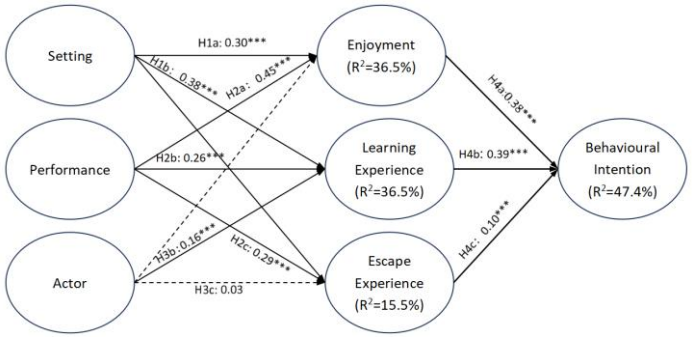

Figure 1. Estimates of structural model.

Note: *p < 0.05, **p < 0.01, ***p < 0.001. Solid line: significant path: Dotted line: insignificant path.

5. Findings

Hypotheses 1a, 2a, and 3a posit that setting, performance, and actor positively influence the aesthetic and enjoyment experience. The results support setting (β = 0.30, t = 2.80, p < 0.05) and performance (β = 0.45, t = 4.64, p < 0.01), indicating a positive influence on aesthetic and enjoyment experiences, thus supporting H1a and H2a. However, there is no evidence supporting the positive effect of the actor on the aesthetic and enjoyment experience (β = −0.07, t = −0.48, p = 0.638 > 0.05). Therefore, H3a is not supported. Hypotheses 1b, 2b, and 3b predict that setting, performance, and

actor positively influence the Learning experience. The results fully support the hypotheses, indicating significant positive effects of setting (β = 0.38, t = 4.43, p < 0.01), performance (β = 0.26, t =3.98, p < 0.01), and actor (β =0.16, t = 2.49, p < 0.05) on Learning experience are significant. Hypotheses 1c, 2c, and 3c propose that the actor, setting, and performance positively influence the experience of Escape. The results support the hypotheses, indicating that the setting (β = 0.20, t = 2.55, p < 0.05) and performance (β = 0.29, t = 4.39, p < 0.01) have a positive influence on the experience of Escape. In contrast, the actor (β = 0.03, t = 0.37, p = 0.71 > 0.05) does not have a significant effect on Escape. Hypothesis 4 posits that experience has a positive influence on behavioral intention. The hypotheses are fully supported, revealing that the positive effects of aesthetic and enjoyment experience (β = 0.38, t = 4.67, p < 0.01), Learning Experience (β = 0.39, t =4.40, p < 0.01), and Escape experience (β = 0.10, t = 1.62, p < 0.05) on behavioral intention are significant (refer to **Figure 1**).

6. Discussion

This study views factories as service theaters with actors, settings, and performances while tourists are the audience. Therefore, this study aims to identify the effects that visitors perceive the theatrical dimensions of a plant tour to have on their experiences in industrial tourism and how such experiences lead to their behavioral intentions. To achieve the aim of this paper, we collected data from visitors who had visited a dietary supplement factory in Zhuhai. Our exploratory factor analysis revealed three factors of service theater: setting, performance, and actor. Additionally, our analysis revealed three factors of industrial tourism experience: enjoyment, education, and Escape.

The first part of our model demonstrates that theatrical factors have positive effects on customer experience of enjoyment, education, and Escape. Specker et al. (2017) suggest that designing or decorating the environment of a visiting factory based on an industrial aesthetic approach can enhance attendees' aesthetic and enjoyment experience. However, the theatrical factor 'actor' did not significantly influence the experience of enjoyment and Escape, but did influence the education experience. This result shows that theatrical factors such as setting and performance are more important than the actor, whose effects are limited to Learning experience. The next part of our model measured the roles of different realms of customer experience in shaping their behavioral intention. The statistical result shows that the experiences of learning and enjoyment are found to be significant predictors of behavioral intention.

Apart from the established relationships, it is noteworthy that, in industrial tourism, performance is rated slightly higher than both the actor and the setting. This is illustrated as an essential driver of the experiences of enjoyment and escape. This means that performance, such as the expression of industry facilities and production processes, is the core sustainable competitiveness of industrial tourism. The study also found that the setting is rated more highly than the actors and performance in terms of its impact on the learning experience. This suggests that the design of the industrial tourism environment should be based on the industry's characteristics and the needs of tourists. This would enable industrial tourists to gain intensive knowledge, which

could help them develop favorable behavioral intentions, such as brand trust, positive word of mouth, and brand loyalty.

7. Conclusion

This study explores theatrical factors and experience dimensions in an industrial tourism context, providing valuable insights for both theoretical and practical progress. First, this study will likely be the first to introduce the service theater model to industrial tourism research and test the theatrical dimensions of other constructs (i.e., customer experience and behavior intention). The study demonstrates that the actors, settings, and performance of a plant tour are crucial factors in comprehending visitors' experiences in industrial tourism. Therefore, this study provides new insights into service theaters in industrial tourism.

Second, this study identified the multi-dimensional nature of customer experience in an industrial tourism context. This study emphasizes that industrial tourism experiences comprise three dimensions: enjoyment, education, and escape. Interestingly, enjoyment is combined into one dimension from the perspective of industrial tourists. These experiential factors are crucial in formulating favorable behavioral intentions.

Third, this study tested whether the dimensions of experience play a key role in linking the relationship between theatrical factors of industrial tourism and the behavioral intention of industrial tourists. The empirical findings show that the learning experience is the most critical experiential factor in an industrial tourism context. This emphasizes the importance of transmitting industrial knowledge to companies and customers in an industrial tourism context. Therefore, designing the theatrical factors (i.e., setting, performance, and actor) of plant tours that provide customers with in-depth knowledge is crucial.

8. Implications

Two decades ago, Pine and Gilmore urged managers to create and sell verbs (experiences), not nous (goods) (Pine and Gilmore, 1999). Creating holistic experiences that integrate individual experiences into a holistic Gestalt is the ultimate goal of experiential marketing (Schmitt, 1999). Our research shows that industrial tourism increases the number of touching points between companies and develops an exceptional platform for experiential strategy. Industrial tourism provides short-distance trips, favors appropriate consumption behaviors, and leads to responsible production and consumption. Therefore, it has many opportunities and potential for companies and cities in the post-pandemic scenario (Badia et al., 2023). This study urges managers to look beyond traditional customer relationship management strategies and consider creating and charging for the value of the transformation that the experience of industrial tourism could offer.

This study offers implications for organizers. The analysis shows that industrial tourism's theatrical factors (setting, performance, and actor) positively affect the dimensions of the tourist experience. However, the theatrical factor of "actor" only has significant effects on the learning experience. This means that industrial tourism organizers should shift from traditional factories to theatrical and transparent plants.

This can be achieved by providing participants with an elegant and clean environment, countable performance, and new technologies. Specifically, organizers could allow visitors to play the roles of actors in the service design process. Specifically, organizers could enable visitors to assume the roles of actors in the service design process. This would provide participants with personalized customer experiences. Industrial decorations or aesthetic elements can be used to encourage visitors to explore new knowledge, enhancing their aesthetic and learning experiences.

In terms of performance, tour organizers could improve their ability to ensure that the stage performance of a company is of a high standard. Secondly, tourist experience is positively related to tourist behaviour intention (Lemon and Verhoef, 2016). Industrial tourist experience management should strategically manage a tourist's entire experience with a plant tour. Enabling a tourist escape experience is considered the new frontier in industrial tourism marketing. With the use of transparent production, industrial tourism may soon create different worlds and immersive experiences that are more vivid than traditional ones. Tour organizers should focus not only on the service setting and performance but also on empowering onsite employees to enhance interactions between tourists and attractions.

For government, they could increase effective investment, not only to focus on the upgrading of tourist attractions, the construction of intelligent tourism facilities and other aspects but also to strengthen the integration of the tourism industry and other industries, to create a series of culture, shopping, consumption, experience as one of the industrial tourism complexes. Additionally, they should pay more attention to interactive engagement through aesthetic appreciation by utilizing transparent and interactive technology.

9. Limitations and future research

This study has several limitations. Firstly, the measurement model may require further validation across different situations. Secondly, our findings need to be cautiously generalized because the sample is limited to respondents who visited a factory in Guangdong province, China. Future research could investigate diverse populations from various regions and countries.

Further research should be conducted to explore additional forms of industrial tourism in different regions or countries in order to generalize the findings of this study using alternative methodologies. Observing the results obtained from a comparable study carried out on visitors from other forms of industrial tourism would be valuable. Furthermore, future research should strive to gain a more comprehensive understanding of service theaters and customer experiences of industrial tourism, particularly about demographic variables. Therefore, implementing wider and more purposeful sampling strategies would benefit these areas of investigation.

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