Journal of Infrastructure, Policy and Development 2024, 8(9), 6153.
https://doi.org/10.24294/jipd.v8i9.6153

Article

The effect of digital curation on visitor behavior in museum expositions

Fan Gao, Veronika Keller*

Széchenyi István University, 9026 Győr, Hungary
*** Corresponding author:** Veronika Keller, kellerv@sze.hu

CITATION

Gao F, Keller V. (2024). The effect of digital curation on visitor behavior in museum expositions. Journal of Infrastructure, Policy and Development. 8(9): 6153. https://doi.org/10.24294/jipd.v8i9.6153

ARTICLE INFO

Received: 1 May 2024
Accepted: 20 May 2024
Available online: 5 September 2024

Abstract: This study examines the impact of digitally curated museum exhibitions on visitor behavior, with a particular focus on university students from China and Hungary (n = 308). Using PLS-SEM analysis, the research finds that visitors' experiences during digital curation visits significantly influence their behavior, and this influence is mediated by perceived value and satisfaction. It is recommended that museums consider the following constructive considerations to facilitate their future development: expanding the application of digital curation, utilizing cutting-edge technologies, implementing data-driven curatorial optimization, enhancing social experiences, integrating education and entertainment, and promoting cultural preservation and environmental stewardship. These insights will help guide museums toward more engaging and sustainable experiences.

Keywords: digital curation; museum visitor behavior; perceived value; visitor satisfaction; visiting experience

1. Introduction

As guardians of cultural heritage and important venues for education and dissemination, the application of digital curation in museum exhibitions has become increasingly popular. In recent years, with the rapid development of digital technology, digital curation in museums has brought a whole new experience to visitors, while changing the traditional exhibition mode. However, in previous studies, while some scholars have considered the impact of the visit experience on tourists' visit behavior, the majority have focused on elucidating the mechanism of the visit experience itself (Calza et al., 2020; Elgammal et al., 2020; Xia, 2023) and its impact on tourists' behavior or analyzing it in terms of the quality of the experience (Cronin et al., 2000; Jin et al., 2015; Prekoet et al., 2023; Wu, 2014; Wu et al., 2018; Xie, 2023). Nevertheless, there has been a paucity of research exploring the diverse emotional experiences of tourists. Furthermore, the existing research in this area is still incomplete and lacks sufficient specificity. This study innovates by extending the analysis of the visitor experience to four key dimensions, taking into account the relationship between these emotions and visitor satisfaction and perceived value.

This innovative perspective addresses a research gap in the existing literature by providing a deeper and more comprehensive understanding of the mechanisms that shape visitor behavior. First, by exploring the relationship between visitor experience, perceived value, satisfaction, and visitor behavior, it is possible to gain a deeper understanding of the true impact of digital curation on visitors and provide museums with more targeted digital exhibition programs. Notably, this study highlights the importance of the four dimensions of the digital curatorial experience—immersive, interactive, available, and hedonic—in influencing visitor

behavior, with perceived value and satisfaction acting as moderating factors. This provides innovative ways for museums to effectively tailor their digital offerings. In addition, the findings enable museums to more effectively use digital technology to enhance visitors' perceived experiences and satisfaction, thereby fostering greater engagement in the preservation and transmission of cultural heritage. By leveraging digital tools and insights, museums can create more immersive and interactive experiences that encourage visitors to actively participate in the appreciation and preservation of cultural artifacts and traditions. Finally, this study also introduces novel concepts and methodologies for the use of digital scholarship in the tourism sector, providing broad insights into the digital transformation of the tourism industry.

2. Materials and methods

The museum visit experience is recognized by scholars as multidimensional, involving personal, sociocultural, and physical interactions (Falk and Dierking, 1992, 2000; Joseph and Gilmore, 1998; Sheng and Chen, 2012). Museum experiences include cognitive and affective elements, providing sensory, emotional, cognitive, behavioral, and relational values (Chan, 2009; Schmitt, 1999). However, museums face challenges in moving from a collection-centered to an experience-centered approach (Mehmetoglu and Engen, 2011; Radder and Han, 2015; Rivera et al., 2015).

Tourism experience dimensions have been extensively studied, including novelty, interactivity, excitement, safety, comfort, peace of mind, engagement, recognition, hedonism, refreshment, local culture, meaning, knowledge, and novelty (De Rojas and Camarero, 2008; Kim et al., 2012; Kao et al., 2008; Otto and Ritchie, 1995, 1996).

Museums are shifting to a visitor/user-centered model due to new digital technologies and tools, as well as the popularity and use of digital technologies (Giannini and Bowen, 2019; Tallon and Walker, 2008). Besides, because digital museum activities are inherently immersive (Errichiello et al., 2019; Jin et al., 2015; Thomas and Carey, 2005), interactive (Shipps and Phillips, 2013), available (Flavián et al., 2006), and hedonic (He et al., 2018), this paper categorises museum digital curation experience into four dimensions: immersive, interactive, available, and hedonic experience.

2.1. The impact of visiting experience on perceived value

The growing interest in cultural tourism and leisure travel has brought museums into the spotlight as preferred destinations for tourists who evaluate their experience based on perceived value (Chan, 2009). The integration of digital technologies in museums enhances human-environment interactions, thereby increasing overall visitor satisfaction (Elgammal et al., 2020). Perceived value, a central metric for evaluating consumption experiences, is highly dependent on the quality of visitor experiences, especially in the context of heritage tourism (Chen and Chen, 2010). Visitors are expected to derive their perceived value from these different digital curation environments. Consequently, the study proposes the following hypotheses:

H1: The visiting experience of a museum's digital curation has a significant impact on perceived value.

H1a: The immersive in a museum's digital curation has a significant impact on perceived value.

H1b: The interaction in a museum's digital curation has a significant impact on perceived value.

H1c: The availability of a museum's digital curation has a significant impact on perceived value.

H1d: The hedonism in a museum's digital curation has a significant impact on perceived value.

2.2. The impact of visiting experience on satisfaction

Several scholars have examined the relationship between experience and satisfaction (Chen et al., 2010; Jin et al., 2015; Kofi and Gyepi, 2021; Oklevik et al., 2022; Preko et al., 2020; Rojas et al., 2006; Trunfio et al., 2022; Vesci et al., 2020; Wu et al., 2018). Anderson (1994) proposed that satisfaction is an overall evaluation of a purchased product or service that is derived from previous experiences. Storbacka et al. (1994) asserted that customers formulate perceptions and evaluations of service relationships through personal experiences, leading to satisfaction. From the experiential perspective, experiential satisfaction is defined as the customer's evaluation of the content provided by the service provider. Kao et al. (2008) conceptualized quality of experience in theme parks based on immersion, surprise, engagement, and fun. Their findings revealed a positive relationship between quality of experience and satisfaction, with satisfaction further influencing visitors' behavioral intentions. Thus, experience quality emerges as a significant predictor of experience satisfaction. Through empirical research on digital and traditional museums, Elgammal et al. (2020) demonstrated that the museum visit experience has a positive impact on satisfaction. Based on this literature, the following hypotheses are formulated:

H2: The visiting experience of a museum's digital curation has a significant impact on visitor satisfaction.

H2a: The immersive in a museum's digital curation has a significant impact on visitor satisfaction.

H2b: The interaction in a museum's digital curation has a significant impact on visitor satisfaction.

H2c: The availability of a museum's digital curation has a significant impact on visitor satisfaction.

H2d: The hedonism in a museum's digital curation has a significant impact on visitor satisfaction.

2.3. The impact of perceived value on visiting behavior

Numerous studies in consumer behavior emphasize the importance of perceived value as a key determinant (Anderson and Srinivasan, 2003; Chen and Dubinsky, 2003; Jin et al., 2015; Petrick and Backman, 2002; Wei et al., 2020) demonstrated by the positive impact of perceived value and waterpark image on customers'

behavioral intentions. Similarly, Wei et al. (2020) highlighted the pivotal role of perceived value in heritage tourism, which influences destination satisfaction and revisit intentions. Empirical research suggests that perceived value is a strong predictor of user behavior, surpassing satisfaction or experience (Cronin et al., 2000). Cronin et al. (2000) found that perceived value directly influences customer satisfaction and behavioral intentions in various service industries. Pura (2005) confirmed this by showing a significant relationship between perceived value and behavioral intentions in service contexts. Based on these findings, the proposed hypothesis is formulated:

H3: The perceived value in a museum's digital curation has a significant impact on visitors' visiting behavior.

2.4. The impact of satisfaction on visiting behavior

Customer satisfaction, which is crucial for predicting long-term behavior and travel patterns (Anderson and Srinivasan, 2003; Chen, 2008; Cronin and Taylor, 1992; Mithas et al., 2005; Oliver, 1980; Petrick and Backman, 2002), positively influences users' intentions, as Chen et al. (2010) show in the context of online travel. Despite high levels of satisfaction with museum visits, repeat visits depend on substantial changes in the offerings (Harrison and Shaw, 2004). Nevertheless, visitors tend to share their positive experiences and return to the host destination (Rivera et al., 2015). Therefore, the proposed hypothesis is:

H4: The visitor's satisfaction with a museum's digital curation has a significant impact on visitors' visiting behavior.

The proposed model and system of hypotheses is summarized in **Figure 1**.

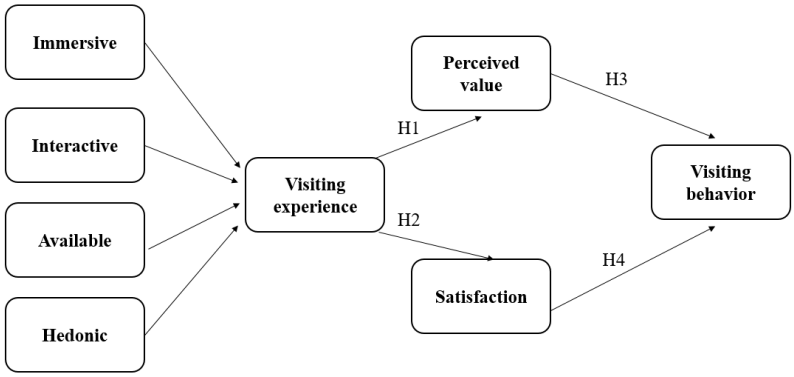

Figure 1. Theoretical model of visit experience impacting tourists' visiting behavior (Source: Own compilation).

2.5. Measurement techniques

In this research, the measurement of variables includes immersive, interactive, available, hedonic, perceived value, satisfaction, and visiting behavior, which are 7 variables. Among them, a total of 16 measurement questions were set in the 4 dimensions of visiting experience (immersive, interactive, available, and hedonic). The measurement questions were derived from studies by Deng et al. (2023), Jin et al. (2015), and Shipps (2013) for the immersive, interactive, available, and hedonic dimensions. Perceived value questions were derived from studies by Deng et al.

(2023), Petrick et al. (2002), and Zeithaml et al. (1996). Satisfaction measurement questions were adapted from research by Cronin et al. (2000), Gallarza et al. (2006), Gallarza et al. (2006), Hellier et al. (2003), Jin et al. (2015), Song and Zinkhan (2008), Shipps (2013). Similarly, the measure of perceived value was derived from the research of Gallarza et al. (2006), Jin et al. (2015), Nurdin and Abidi (2023), Song and Zinkhan (2008), Prayag and Ryan (2012), and Zeithaml et al. (1996). Based on the characteristics of the research in this paper, and after guidance from professional researchers, some of the questions were appropriately modified to prepare the final questionnaire. A detailed description of these modifications can be found in Appendix.

The authors used a Likert scale for measurement, including "strongly disagree", "disagree", "neutral", "agree", and "strongly agree", each of which is marked on a scale from 1 to 5, to assess participants' perceptions of the characteristics of the visit experience, perceived value, satisfaction, and visit behaviors. This design aims to ensure the reliability of the questionnaire results and, based on this, empirical analyses were conducted to explore the relationship between visit experience characteristics, perceived value, satisfaction, and visit behavior.

The research focused on university students from China and Hungary with experience in digital curation, with a total of 360 participants. However, after excluding those with a response time of less than 90 s, 308 valid questionnaires were obtained. This selection was based on their dual knowledge of technology and culture, providing a unique perspective on how digitally curated exhibitions affect visitor behavior. The recovery rate of valid questionnaires was 86%. The demographic composition of the sample is illustrated in **Table 1**.

Table 1. Demographic composition of the sample, $n = 308$ (Source: quantitative research).

Categories		***n***	**%**
Genders	Male	182	59.1%
	Female	126	40.9%
Age	≤ 25	118	38.3%
	26–30	132	42.9%
	≥ 31	58	18.8%
Education level	Freshman	39	12.7%
	Sophomore	34	11%
	Junior	31	10.1%
	Senior	148	48.1%
	Postgraduate and above	56	18.2%
Frequency (visiting digital museum)	Less than one month	44	14.3%
	Three months	85	27.6%
	Half a year	102	33.1%
	One year	36	11.7%
	More than a year	41	13.3%

3. Results and discussion

The univariate statistics of the variables in the model are summarized in **Table 2**.

Table 2. Univariate statistics of the model, n = 308 (Source: quantitative research).

Var.	Mean	SD	Var.	Mean	SD	Var.	Mean	SD
AV1	3.73	0.92	IM1	3.74	0.92	PV1	3.75	0.96
AV2	3.75	0.92	IM2	3.76	0.97	PV2	3.68	0.95
AV3	3.81	0.85	IM3	3.66	0.96	PV3	3.70	0.94
AV4	3.86	0.89	IM4	3.68	0.98	PV4	3.78	0.93
HE1	3.79	0.94	IN1	3.77	0.93	SA1	3.70	0.86
HE2	3.71	0.91	IN2	3.71	0.86	SA2	3.76	0.84
HE3	3.76	0.93	IN3	3.72	0.98	SA3	3.79	0.96
HE4	3.76	0.96	IN4	3.62	0.99	SA4	3.68	0.92
VB1	3.78	0.95	VB2	3.78	0.95	VB3	3.75	0.94

All items in the study are subjected to exploratory factor analysis (EFA). No single factor accounts for the majority of the variance (typically less than 50%), it indicates that common method bias is not a major problem. The reflective measurement model was analyzed for its reliability using outer loading values, extracted average variance (AVE), Cronbach's alpha (α value), and composite reliability (CR) (Szabó-Szentgróti et al., 2023). Due to the good reliability of the construct, all statements except for 2 items in the case of availability (see Appendix) were included in the final model. The outer loads are all greater than 0.7 and the AVE values of the latent constructs are all above the limit value of 0.5 (Hair et al., 2010). Cronbach's alpha is another measure of internal consistency reliability with a threshold > 0.7. According to Hair et al. (2011), CR values of 0.60 to 0.70 in exploratory research and values of 0.70 to 0.90 in more advanced stages of research are considered satisfactory. All CR values are above that threshold (**Table 3**).

Table 3. Construct reliability and convergent validity (Source: Authors' own research. The authors' own data generated by PLS-SEM analysis).

Constructs	Items	Outer loadings	p values	AVE	Cronbach's α	Composite reliability
Available	AV1	0.839	0.000	0.716	0.604	0.835
	AV3	0.854	0.000			
Hedonic	HE1	0.774	0.000	0.619	0.795	0.867
	HE2	0.766	0.000			
	HE3	0.816	0.000			
	HE4	0.791	0.000			
Immersive	IM1	0.717	0.000	0.576	0.754	0.844
	IM2	0.825	0.000			
	IM3	0.738	0.000			
	IM4	0.752	0.000			

Table 3. (*Continued*).

Constructs	Items	Outer loadings	p values	AVE	Cronbach's α	Composite reliability
Interactive	IN1	0.715	0.000	0.564	0.741	0.838
	IN2	0.753	0.000			
	IN3	0.820	0.000			
	IN4	0.712	0.000			
Perceived value	PV1	0.808	0.000	0.612	0.788	0.863
	PV2	0.766	0.000			
	PV3	0.771	0.000			
	PV4	0.783	0.000			
Satisfaction	SA1	0.743	0.000	0.603	0.781	0.859
	SA2	0.765	0.000			
	SA3	0.812	0.000			
	SA4	0.785	0.000			
Visiting behavior	VB1	0.839	0.000	0.662	0.745	0.855
	VB2	0.806	0.000			
	VB3	0.796	0.000			

Discriminant validity shows that constructs used in the model are distinct from one another (Hair et al., 2017) where Heterotrait-Monotrait Ratio (HTMT) and Fornell-Larker criteria are widely used in research to confirm that. Henseler et al. (2015) pointed out that Fornell-Larker criteria perform poorly and HTMT is recommended instead. In the present study, all HTMT values are below 0.9 (**Table 4**) which confirms the discriminant validity of the model.

Table 4. Discriminant Validity (HTMT criteria).

	AV	HE	IM	IN	PV	SA	VB
AV	0.846						
HE	0.669	0.787					
IM	0.657	0.747	0.759				
IN	0.645	0.711	0.726	0.751			
PV	0.695	0.798	0.774	0.714	0.782		
SA	0.646	0.770	0.745	0.678	0.748	0.777	
VB	0.647	0.748	0.737	0.742	0.733	0.729	0.814

Table 5. VIF values.

Var.	VIF	Var.	VIF	Var.	VIF	Var.	VIF	Var.	VIF
AV1	1.230	HE4	1.626	IN1	1.359	PV2	1.517	SA3	1.661
AV3	1.230	IM1	1.385	IN2	1.414	PV3	1.513	SA4	1.529
HE1	1.535	IM2	1.693	IN3	1.626	PV4	1.557	VB1	1.525
HE2	1.528	IM3	1.467	IN4	1.379	SA1	1.410	VB2	1.472
HE3	1.751	IM4	1.479	PV1	1.640	SA2	1.550	VB3	1.462

A multicollinearity test was performed before estimating the structural model,

for which VIF (variance inflation factor) values were tested. As a rule of thumb, VIF value less than 10 indicates the absence of multicollinearity (Jony and Serradell-López, 2021, p. 11). According to Hair et al. (2011) VIF values above 5.0 indicate multicollinearity; therefore **Table 5** shows no multicollinearity between latent constructs.

The structural model assessment was carried out using 5000 bootstrap calculations during which the statistical significance of the path coefficient was performed allowing hypotheses to be tested. To examine model fitness standardized root mean square (SRMR) was used and must be less than 0.08 according to Henseler et al. (2016). This model shows an adequate level of model fitness with an SRMR value of 0.056, which indicates a good fit. The final proposed model is shown in **Figure 2**.

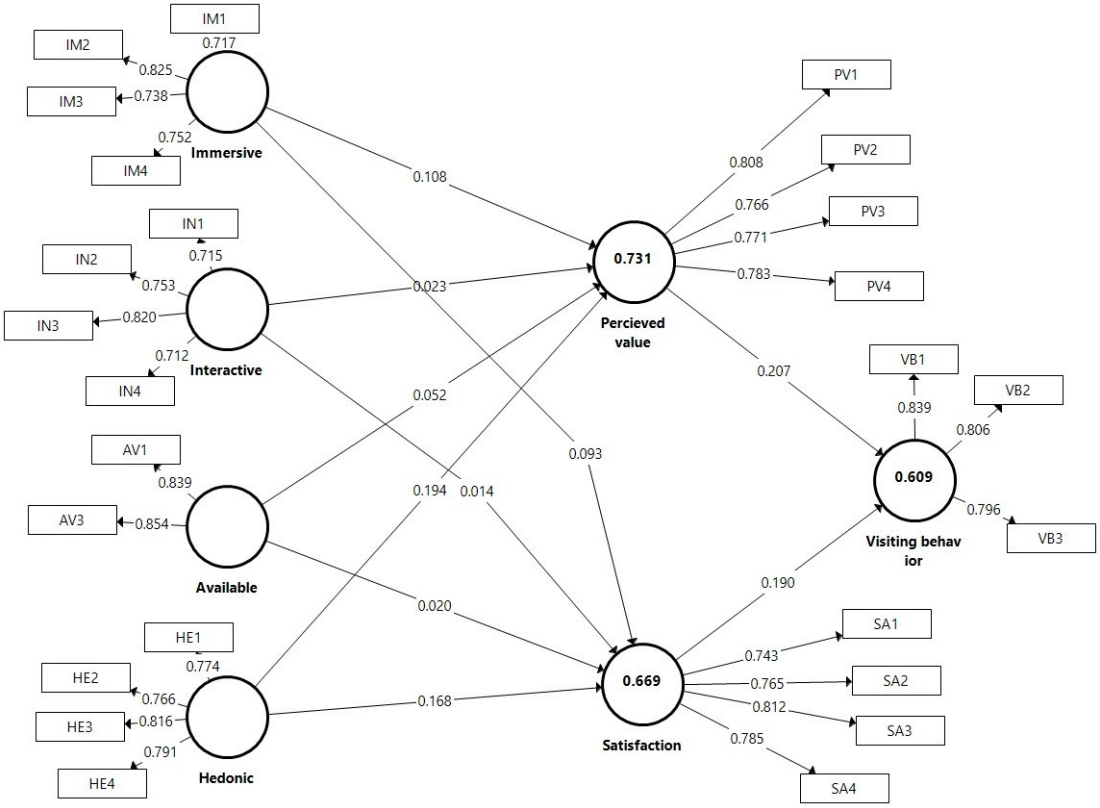

Figure 2. Results of PLS-SEM analysis (Source: own data generated by PLS-SEM analysis using Smart PLS statistical program).

Three adjusted R^2 was evaluated in the case of perceived value, satisfaction, and visiting behavior. 73.1% of the variance in perceived value can be explained by the visiting experience, the four latent variables (immersive, interactive, available, hedonic). 66.9% of the variance in satisfaction can be explained by the visiting experience (immersive, interactive, available, hedonic). 60.9% of the variance in visiting behavior can be explained by perceived value and satisfaction. Accordingly, the structural model was considered to be moderate ($0.50 < r < 0.75$) (Henseler et al., 2016) and these values mean a sufficient explanatory power in marketing researches (**Figure 2**). Relationships of the research model were analyzed to test the hypotheses. Results show in **Table 6** that visiting experience has a significant positive impact on

perceived value, the visiting experience (especially immersive, available and hedonism) has a significant impact on satisfaction, thus the second hypothesis can be partially expected. The data shows that the overall visitor experience significantly increases the perceived value of the museum's digital offerings (H1). This means that when visitors find the digital curation immersive, accessible, and enjoyable (hedonism), they are more likely to perceive the value of the museum positively. The visiting experience, particularly elements like immersion, availability, and enjoyment, has a significant impact on visitor satisfaction (H2). The analysis did not show a statistically significant relationship between interactive elements of the museum's digital curation and visitor satisfaction. Interactive features alone may not be sufficient to increase visitor satisfaction. This suggests that other factors may play a more critical role in determining how satisfied visitors are with the museum's digital curation. Museums should not rely solely on interactive elements to increase visitor satisfaction. While interaction is often considered important, it may not be the primary driver of satisfaction in this context. A holistic approach to digital curation that integrates various elements-interaction, content quality, user interface design, and educational value-may be more successful in improving visitor satisfaction. The perceived value in a museum's digital curation has a significant impact on visitors' visiting behavior (β = 0.426) (H3). This suggests that when visitors perceive high value in the digital offerings, they are more likely to engage in behaviors such as repeat visits, recommending the museum to others, or participating in other museum activities. The visitor's satisfaction with a museum's digital curation has a significant impact on visitors' visiting behavior (β = 0.409) (H4). Satisfied visitors are more likely to engage in positive behaviors such as returning to the museum, engaging with the museum's digital content, and recommending the museum to others. Museums should collect feedback on digital experiences and continually improve them based on visitor preferences and comments. Ensuring that digital content is both high quality and enjoyable can lead to higher satisfaction, which in turn can lead to more positive visitor behavior.

Table 6. Bootstrap results and hypothesis results.

	H	**Sample**	***β***	**St. Dev.**	***t* stat**	***p***
Immersive → Perceived value	H1a	0.287	0.286	0.053	5.387	0.000
Interactive → Perceived value	H1b	0.124	0.125	0.052	2.377	0.017
Available → Perceived value	H1c	0.171	0.172	0.043	4.000	0.000
Hedonic → Perceived value	H1d	0.382	0.382	0.050	7.633	0.000
Immersive → Satisfaction	H2a	0.295	0.294	0.055	5.392	0.000
Interactive → Satisfaction	H2b	0.107	0.111	0.059	1.805	0.071
Available → Satisfaction	H2c	0.119	0.117	0.049	2.447	0.014
Hedonic → Satisfaction	H2d	0.394	0.392	0.057	6.861	0.000
Perceived value → Visiting behavior	H3	0.427	0.426	0.063	6.809	0.000
Satisfaction → Visiting behavior	H4	0.409	0.409	0.066	6.246	0.000

4. Discussion

This study both aligns with and extends previous research, offering unique insights and practical recommendations for improving digital curation in museums. Its comprehensive approach and quantitative methodology provide a valuable contribution to the field, highlighting the importance of a holistic digital curation strategy. Previous studies, such as those by Calza et al. (2020) and Elgammal et al. (2020), have shown that the overall visitor experience influences tourist behavior. This study is consistent with these findings by confirming that a positive digital curation experience increases visitor satisfaction and perceived value, which in turn influences visitation behavior. This study advocates for a holistic approach to digital curation, one that integrates various elements beyond interaction alone. Previous research has often treated digital elements in isolation, but the findings of this study support a more integrated strategy, echoing and extending the recommendations of Wu et al. (2018).

Previous researches have often focused on specific dimensions of the visitor experience, such as immersion and enjoyment (Jin et al., 2015; Wu et al., 2018). This study confirms that immersive and hedonic aspects of digital curation positively influence satisfaction and perceived value. Unlike previous studies that have often focused on isolated aspects of the visitor experience, this study provides a comprehensive analysis by examining four dimensions: immersive, interactive, available, and hedonic. This multi-faceted approach provides a more detailed understanding of what drives visitor satisfaction and perceived value. The research first shows that the four dimensions of the visitor experience (immersive, interactive, available, and hedonic) make a significant contribution to perceived value. PLS-SEM analysis shows a clear causal relationship between these four dimensions of the visitor experience and perceived value, supporting hypothesis H1. This suggests that these dimensions are critical in shaping perceived value, advancing the understanding of how multidimensional visitor experiences contribute to perceived value and emphasizing a holistic approach to experience design. Museums should focus on creating high quality, engaging digital curation. Ensuring that digital exhibits are interactive, easily accessible, and fun will increase the perceived value of the museum. For example, incorporating virtual reality (VR) tours or interactive digital exhibits could make the experience more immersive and enjoyable for visitors.

A key departure from previous research is the finding that interactive elements alone do not significantly affect visitor satisfaction. This is in contrast to previous studies that emphasized the importance of interactivity in digital and physical museum exhibits (Preko et al., 2023; Xie, 2023). This study suggests that while interaction is important, it must be part of a broader strategy that includes content quality and usability. Visitor satisfaction can be improved by providing a more immersive, available, and hedonic experience. Improving the quality of the visitor experience can effectively increase visitor satisfaction. The visiting experience, particularly elements like immersion, availability, and enjoyment, has a significant impact on visitor satisfaction. Enhancing these experience dimensions can effectively motivate more frequent and positive visitation behaviors, support visitor

behavior theories, and provide valuable insights for developing targeted marketing and management strategies. Museums should prioritize improving those aspects of digital curation that contribute to a satisfying experience. This includes ensuring that digital content is readily available, easy to navigate, and enjoyable and useful, educative. For example, providing user-friendly interfaces and engaging storytelling can increase visitor satisfaction.

Studies by Cronin et al. (2000) and Wu (2014) highlight the importance of satisfaction and perceived value in shaping consumer behavior. This study supports these findings, showing that both satisfaction and perceived value significantly influence visitor behavior. The perceived value of digital curation in museums has a significant impact on tourist behavior. The value provided by digital curation in museums is not only part of the visitor's sensory experience, but rather an experience that is deeply embedded in the visitor's psyche. When visitors perceive a high level of value from digital curation, they are more likely to engage deeply, actively explore the curated content, and remain motivated to visit. This finding suggests that digital curation serves not only as a platform for providing information and experiences, but also as an environment that can influence visitor behavior. This positions perceived value as a critical factor in engaging and driving visitor behavior. By increasing perceived value through quality digital content, museums can encourage repeat visits and positive word-of-mouth. Marketing strategies could highlight the unique and valuable aspects of digital curation to attract more visitors.

Visitors' satisfaction with digital curation in museums significantly influences their visitation behavior. The results of the path analysis showed that there is a significant correlation and a clear causal relationship between visitor satisfaction with digital curation and visitor behavior, which supports research hypothesis H4. Visitor satisfaction with digital curation reflects not only their sensory experience, but also their satisfaction with curatorial content, interactivity, and personal needs. Satisfied visitors are more likely to exhibit positive and more frequent attendance. Improving the quality of digital curation to increase satisfaction highlights its potential to influence visitor behavior during their visit. This insight enriches the understanding of satisfaction as a multifaceted construct encompassing sensory, content-related, and interactive elements, reinforcing its central role in visitor behavior theories. Focusing on visitor satisfaction is critical.

5. Conclusion

By focusing on these areas, museums can effectively use digital curation to increase visitor engagement and satisfaction, leading to a cycle of positive visitor behavior and enhanced museum reputation. The most relevant practical usages of the study are: enhancing the immersive, accessible, and enjoyable aspects of digital curation to increase perceived value and satisfaction; leveraging these improved perceptions and satisfaction levels to influence positive visitor behaviors, such as repeat visits and referrals; constant improvement of digital offerings based on visitor feedback to maintain high levels of satisfaction and perceived value.

The broad applicability of digital curation and experience optimization: Having gained a deeper understanding of the positive impact of digital curation on museums,

it is now necessary to consider the four dimensions of the visitor experience and extend this concept to other tourist attractions, such as monuments and markets. The implementation of digital displays will enable visitors to have a more immersive, interactive, convenient and enjoyable experience during their visit. In practice, museums and other attractions can implement digital kiosks and augmented reality (AR) guides to provide contextual information and interactive experiences that enhance the overall visits.

Strategies for digital transformation in tourism management: To enhance visitor experience and appeal, tourism management organizations can incorporate digital museum curation into their promotional strategies, highlighting the dimensions of the digital museum experience. By integrating this visitor experience into their promotional activities, they can attract greater attention and participation from visitors, thereby promoting the broader development of digital transformation. For example, creating virtual tour previews and interactive online exhibits can attract a global audience and stimulate interest in physical visits.

Integration of state-of-the-art technologies for immersive experiences: technological innovations and interactive experiences can also be incorporated. Based on the study's findings, museums can use the latest digital technologies to enhance the visitor experience. Museums can develop augmented reality (AR) and virtual reality (VR) experiences that allow visitors to virtually explore artifacts and exhibits in 3D, providing a deeper and more engaging understanding of the content.

Data-driven curatorial optimization for continuous improvement: By implementing a data collection and analysis mechanism, museums can monitor visitor behavior and satisfaction in real time. This enables curatorial optimization based on data results. Data analysis can be used to continuously improve the content and experience of digital exhibitions, increasing visitor satisfaction and motivation to visit. For example, using visitor feedback forms and analytics tools, museums can adjust exhibit elements and content based on real-time data to ensure that exhibits remain relevant and engaging.

Enhancing social experiences through digital platforms: Digital curation can enhance the social experience of visitors by encouraging communication and interaction through digital platforms. It is important to establish a mechanism for user participation that combines online and offline activities, encouraging visitors to share their experiences and feedback to promote continuous improvement. Museums can create social media campaigns and online forums where visitors can share their experiences and discuss exhibits, fostering a community of engaged visitors.

Integrating education and entertainment for enriched experiences: Digital curation can seamlessly integrate educational and entertaining elements to provide both intellectually stimulating and enjoyable visitor experiences. Through the use of digital technology, vivid and engaging historical stories and cultural heritage can be presented to engage visitors' interest and enthusiasm for learning. Educational apps and interactive touchscreens can be used to present detailed information about exhibits in a fun and engaging way, making learning a more enjoyable experience.

Promoting cultural preservation and environmental stewardship: Digital curation should focus on preserving and protecting traditional culture while using modern technology to digitally display and disseminate cultural resources. It should

also promote environmental stewardship and employ sustainable curatorial practices to reduce environmental impact and contribute to the sustainable use of cultural and natural resources. Museums can implement energy-efficient digital displays and use sustainable materials for exhibit setups, reducing their carbon footprint and promoting green practices.

The findings provide strategic insights for museums seeking to increase visitor satisfaction and engagement. By demonstrating the limited role of interactivity alone and the importance of a holistic approach, museums can better allocate resources to elements that truly enhance the visitor experience.

While the research demonstrates the important impact of digital curation on museum visit experiences and visitor behavior, there are some limitations and directions for future research. The study focuses primarily on visitors' perceptions and behaviors in digitally curated exhibitions, without exploring in depth the dynamic relationships between various potential research variables. By filling gaps in the existing literature, particularly regarding the emotional dimensions of the visitor experience and the comprehensive analysis of different experience dimensions, this study adds novel contributions that can guide future research and practical implementations in digital curation. Future research could employ a longitudinal or experimental design to fully explore these relationships. Second, the study relied on self-reported data from visitors, which may have been biased or inaccurate. Additional methods, such as observational studies or interviews, could be used to provide a more comprehensive understanding. Third, the small sample size and predominantly young consumers limited the generalizability of the findings. Therefore, future research should aim for a more diverse sample to ensure broader applicability. Furthermore, the effectiveness of digital curation in different types of museums was not thoroughly investigated. In addition, the study only examined direct effects and did not consider the potential influence of cultural differences, personal preferences, or external factors. Addressing these gaps will improve understanding of digital curation practices and facilitate further advancements in the field.

Author contributions: Conceptualization, VK and FG; methodology, FG; software, VK; validation, VK and FG; formal analysis, VK; investigation, FG; resources, FG; data curation, FG; writing—original draft preparation, FG; writing—review and editing, VK; visualization, VK; supervision, VK; project administration, FG. All authors have read and agreed to the published version of the manuscript.

Conflict of interest: The authors declare no conflict of interest.

References

Anderson, R. E., & Srinivasan, S. S. (2003). E-satisfaction and e-loyalty: A contingency framework. Psychology & Marketing, 20(2), 123–138. https://doi.org/10.1002/mar.10063

Cronin, J., Brady, M. K., & Hult, G. T. (2000). Assessing the Effects of Quality, Value, and Customer Satisfaction on Consumer Behavioral Intentions in Service Environments. Journal of Retailing, 76(2), 193–218.

Chan, K. L. J. (2009). The consumption of museum service experiences: benefits and value of museum experiences. Journal of Hospitality Marketing & Management, 18(2–3), 173–196. https://doi.org/10.1080/19368620802590209

Chen, C. F., & Chen, F. S. (2010). Experience quality, perceived value, satisfaction, and behavioral intentions for heritage tourists.

Tourism Management, 31(1), 29–35. https://doi.org/10.1016/j.tourman.2009.02.008

Chen, Z., & Dubinsky, A. J. (2003). A conceptual model of perceived customer value in e-commerce: A preliminary investigation. Psychology & Marketing, 20(4), 323–347. https://doi.org/10.1002/mar.10076

De Rojas, C., & Camarero, C. (2008). Visitors' experience, mood and satisfaction in a heritage context: Evidence from an interpretation center. Tourism Management, 29, 525–537. https://doi.org/10.1016/j.tourman.2007.06.004

Elgammal, I., Ferretti, M., Risitano, M., & Sorrentino, A. (2020). Does digital technology improve the visitor experience? A comparative study in the museum context. International Journal of Tourism Policy, 10(1), 47–67. https://doi.org/10.1504/ijtp.2020.107197

Errichiello, L., Micera, R., Atzeni, M., et al. (2019). Exploring the implications of wearable virtual reality technology for museum visitors' experience: A cluster analysis. International Journal of Tourism Research, 21(5), 590–605. https://doi.org/10.1002/jtr.2283

Falk, J. H., & Dierking, L. D. (1992). The museum experience. Whalesback Books, Washington, D.C.

Flavián, C., Guinalíu, M., & Gurrea, R. (2006). The role played by perceived usability, satisfaction and consumer trust on website loyalty. Information & Management, 43(1), 1–14. https://doi.org/10.1016/j.im.2005.01.002

Giannini, T., & Bowen, J. P. (2019). Museums and digitalism. Museums and Digital Culture: New Perspectives and Research, 27–46.

Hair, J. F., Anderson, R. E., Babin, B. J., & Black, W. C. (2010). Multivariate Data Analysis: A Global Perspective. Pearson Education.

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a Silver Bullet. Journal of Marketing Theory and Practice, 19(2), 139–152. https://doi.org/10.2753/mtp1069-6679190202

Hair, J. F., Hult, G. T., Ringle, C. M., & Sarstedt, M. (2017). A Primer on Partial Lest Squares Structural Equation Modeling (PLS-SEM), 2nd ed. Sage, Thousand Oaks.

Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. Journal of the Academy of Marketing Science, 43(1), 115–135. https://doi.org/10.1007/s11747-014-0403-8

Henseler, J., Hubona, G., & Ray, P. A. (2016). Using PLS path modeling in new technology research: updated guidelines. Industrial Management & Data Systems, 116(1), 2–20. https://doi.org/10.1108/imds-09-2015-0382

Hellier, P. K., Geursen, G. M., Carr, R. A., et al. (2003). Customer repurchase intention. European Journal of Marketing, 37(11/12), 1762–1800. https://doi.org/10.1108/03090560310495456

Jin, N., Lee, S., & Lee, H. (2015). The effect of experience quality on perceived value, satisfaction, image and behavioral intention of water park patrons: New versus repeat visitors. International journal of tourism research, 17(1), 82–95. https://doi.org/10.1002/jtr.1968

Jony, A. I., & Serradell-López, E. (2021). A pls-SEM approach in evaluating a virtual teamwork model in online higher education: why and how? In: Research and Innovation Forum 2020: Disruptive Technologies in Times of Change. Springer International Publishing. pp. 217–232.

Joseph, P., & Gilmore, G. H. (1998). Welcome to the experience economy. Harvard Business Review, 76(4), 97–105.

Kao, Y. F., Huang, L. S., & Wu, C. H. (2008). Effects of theatrical elements on experiential quality and loyalty intentions for theme parks. Asia Pacific Journal of Tourism Research, 13(2), 163–174. https://doi.org/10.1080/10941660802048480

Kim, J. H., Ritchie, J. R. B., & McCormick, B. (2012). Development of a scale to measure memorable tourism experiences. J. Travel Res. 51, 12–25. https://doi.org/10.1177/0047287510385467

Kofi, A., & Gyepi, T. F. (2021). Museum experience and satisfaction: moderating role of visiting frequency in national museum of Ghana. Revista de Turismo y Patrimonio Cultural, 19(2), 239–253. https://doi.org/10.25145/j.pasos.2021.19.016

Mehmetoglu, M., & Engen, M. (2011). Pine and Gilmore's Concept of Experience Economy and Its Dimensions: An Empirical Examination in Tourism. Journal of Quality Assurance in Hospitality & Tourism, 12(4), 237–255. https://doi.org/10.1080/1528008x.2011.541847

Otto, J. E., & Ritchie, J. R. B. (1995). Exploring the quality of the service experience: a theoretical and empirical analysis. Adv. Serv. Mark. Manag., 4, 37–61.

Otto, J. E., & Ritchie, J. R. B. (1996). The service experience in tourism. Tour. Manag., 17, 165–174.

Oklevik, O., Kwiatkowski, G., Preuss, H., & Kurdyś-Kujawska, A. (2022). Contextual engagement in event visitors' experience and satisfaction. Scandinavian Journal of Hospitality and Tourism, 22(1), 58–79.

https://doi.org/10.1080/15022250.2021.1927829

Petrick, J. F., & Backman, S. J. (2002). An examination of the construct of perceived value for the prediction of golf travelers' intentions to revisit. Journal of travel research, 41(1), 38–45. https://doi.org/10.1177/004728750204100106

Preko, A., Gyepi-Garbrah, T. F., Arkorful, H., et al. (2020). Museum experience and satisfaction: Moderating role of visiting frequency. International Hospitality Review, 34(2), 203–220. https://doi.org/10.1108/ihr-04-2020-0009

Pura, M. (2005). Linking perceived value and loyalty in location-based mobile services. Managing Service Quality: An International Journal, 15(6), 509–538. https://doi.org/10.1108/09604520510634005

Rojas, M. D. C. D., & Camarero, M. D. C. (2006). Experience and satisfaction of visitors to museums and cultural exhibitions. International Review on Public and Non Profit Marketing, 3, 49–65. https://doi.org/10.1007/bf02893284

Radder, L., & Han, X. (2015) An examination of the museum experience based on pine and Gilmore's experience economy realms. Journal of Applied Business Research, 31(2), 455. https://doi.org/10.19030/jabr.v31i2.9129

Rivera, M., Semrad, K., & Croes, R. (2015). The five E's in festival experience in the context of Gen Y: Evidence from a small island destination. Revista Española de Investigación de Marketing ESIC, 19(2), 95–106. https://doi.org/10.1016/j.reimke.2015.06.001

Shipps, B., & Phillips, B. (2013). Social networks, interactivity, and satisfaction: Assessing socio-technical behavioral factors as an extension to technology acceptance. Journal of theoretical and applied electronic commerce research, 8(1), 35-52. https://doi.org/10.4067/s0718-18762013000100004

Sheng, C. W., & Chen, M. C. (2012). A study of experience expectations of museum visitors. Tourism Management, 33(1), 53–60. https://doi.org/10.1016/j.tourman.2011.01.023

Schmitt, B. (1999) Experiential marketing. Journal of Marketing Management, 15(1–3), 53–67. https://doi.org/10.1362/026725799784870496

Szabó-Szentgróti, E., Konczos-Szombathelyi, M., Rámháp, S., & Kézai, P. K. (2023). How Consumers Accept Unmanned Smart Stores?—Introducing a Proposed Technology Acceptance Model. Chemical Engineering Transactions, 107, 373–378.

Trunfio, M., Lucia, M. D., Campana, S., et al. (2022). Innovating the cultural heritage museum service model through virtual reality and augmented reality: The effects on the overall visitor experience and satisfaction. Journal of Heritage Tourism, 17(1), 1–19. https://doi.org/10.1080/1743873x.2020.1850742

Tallon, L. (2008). Introduction: Mobile, digital and personal. In Digital technologies and the museum experience: Handheld guides and other media. Plymouth: Altamira Press.

Thomas, W. A., & Carey, S. (2005). Actual/virtual visits: what are the links? Museums and the web 2005. In: Proceedings of the international conference (Vancouver, British Columbia: Archives & Museum Informatics). pp. 13–17.

Vesci, M., Conti, E., Rossato, C., et al. (2020). The mediating role of visitor satisfaction in the relationship between museum experience and word of mouth: evidence from Italy. The TQM Journal, 33(1), 141–162. https://doi.org/10.1108/tqm-02-2020-0022

Wei, B., Yang, T., & Liu, C. H. (2021). "Can Intelligence Make You Happy?" The Influence of Tourists' Cultural Sustainability and Intelligence on Their Flow Experience. Sustainability, 13(22), 12457. https://doi.org/10.3390/su132212457

Wu, H. C., Li, M. Y., & Li, T. (2018). A study of experiential quality, experiential value, experiential satisfaction, theme park image, and revisit intention. Journal of Hospitality & Tourism Research, 42(1), 26–73. https://doi.org/10.1177/1096348014563396

Appendix

Table A1. Items measuring each construct of the conceptual model.

Variable	Statements	Reference
Immersive (IM)	1) Digital curation in the museum has sparked my curiosity (IM1)	(Deng et al., 2023)
	2) Digital curation in the museum makes me feel I'm immersed (IM2)	(Deng et al., 2023)
	3) When l am in the museum digital curation, l become so involved that l forget everything around me (IM3)	(Jin et al., 2015)
	4) Digital curation in the museum frees me from reality, from my daily life (IM4)	(Jin et al., 2015)
Interactive (IN)	1) When I visit a museum digitally curated, l am free to choose what l want to see (IN1)	(Deng et al., 2023)
	2) When I visit a museum digitally curated, l can get a positive response to every step of my operation (IN2)	
	3) When I visit a museum digitally curated, l can interact and give feedback in real-time (IN3)	
	4) When I visit a museum digitally curated, l can feel the connection between people and do not feel alone (IN4)	
Available (AV)	1) The museum's digital curation is presented and everything was simple to understand (AV1)	(Deng et al., 2023; Shipps, 2013)
	2) The museum's digital curation is user-friendly, even for first-time users) I can easily get started with it (AV2)	(Deng et al., 2023; Shipps, 2013)
	3) l was about to easily find the content l needed during the museum digital curation process (AV3)	(Deng et al., 2023)
	4) The museum's digital curation made me feel that the content was rich and the structure was well set (AV4)	(Deng et al., 2023)
Hedonic (HE)	1) l am very happy to experience the museum's digital curation (HE1)	(Deng et al., 2023; Jin et al., 2015)
	2) The production process of museum digital curation makes me feel relaxed (HE2)	(Deng et al., 2023)
	3) In my opinion, l really like museum digital curation (HE3)	(Deng et al., 2023)
	4) l like the process of digital curation in the museum (HE4)	(Deng et al., 2023; Jin et al., 2015)
Perceived value (PV)	1) The museum digital curation experience has taught me a lot and has met my expectations (PV1)	(Cronin et al., 2000; Zeithaml et al., 1996)
	2) I find the museum digital curation experience very interesting and enjoyable (PV2)	(Deng et al., 2023)
	3) I feel that my money's worth the money spent on my museum digital curation (PV3)	(Petrick et al., 2002)
	4) I am very satisfied with the time and effort l put into the museum's digital curation (PV4)	(Deng et al., 2023)
Satisfaction (SA)	1) The decision to visit a museum's digital curation was a wise one (SA1)	(Gallarza et al., 2006; Hellier et al., 2003; Jin et al., 2015)
	2) All things considered, I feel good about my decision to visit this museum's digital curation (SA2)	(Hellier et al., 2003; Jin et al., 2015)
	3) Overall, I am satisfied with the experience in the museum digital curation (SA3)	(Jin et al., 2015; Song and Zinkhan, 2008; Shipps, 2013)
	4) The experience on the museum digital curation is exactly what l needed (SA4)	(Cronin et al., 2000; Gallarza et al., 2006; Song and Zinkhan, 2008; Shipps, 2013)
Visiting behavior (VB)	1) After the museum's digital curation, l will recommend my friends and relatives to visit this museum (VB1)	(Gallarza et al., 2006; Jin et al., 2015; Song and Zinkhan 2008; Nurdin and Abidi, 2023; Prayag and Ryan, 2012)
	2) I would like to return to this museum in the future (VB2)	(Jin et al., 2015; Prayag and Ryan, 2012)
	3) I want to tell other people positive things about this museum (VB3)	(Jin et al., 2015; Song and Zinkhan 2008; Zeithaml et al., 1996)