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Segment Identity-related Visitor Characteristics that Impact Motivation and Experience at Museum

Ruiyan Zhang [1,*]

[1] Department of Culture and Art Management, Hongik University; Doctoral Candidate; zryrainie@gmail.com
* Correspondence

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Abstract: *Visitor research has long been a key focus in museum studies. The paradigm shift brought about by new museology emphasizes a more comprehensive exploration of visitors, particularly regarding their identity characteristics. This approach prioritizes personal traits over visit-related characteristics. This study employs a questionnaire analysis method to differentiate between visitors' personal characteristics and their visiting traits from the perspective of identity. It considers "visiting frequency" as a regulatory condition and examines how visiting motivation influences the visitor experience within this context. The findings indicate that the characteristics of museum visits significantly impact the overall visitor experience. This supports the research of Crompton and Kasser (2009), which highlights the importance of distinguishing between identity-related visitor characteristics. By segmenting these characteristics, museums can better understand visitor needs and create a diverse visiting environment that caters to their desires for leisure, entertainment, and edutainment.*

Keywords: Identity-related Visitor Characteristics; Motivation; Experience; Visit Frequency; Museum

1. Introduction

Traditional museology is regarded as giving priority to its collection-based function and its social connection with the cultural tastes of specific social groups [1]. However, in the past few decades, cultural heritage organizations such as museums and art centers have undergone a series of changes in their social and political roles and economic environment, which has caused people to pay attention to the necessity of dealing with the relationship with the audience [2].

"New Museology" is a discussion about the social and political role of museums, encouraging new communication and new expressions, which is in sharp contrast with the classic collection-centered museum model [3]. This is related to the change of the focus and intention of the museum community. "New Museology" has been decomposed into the changes of "value, significance, control, interpretation, authority and authenticity" within museums [4] and it also involves redefining the relationship between museums and people and their communities. This transformation includes making the public play a more active role as visitors and controllers of the curatorial function [5, 6]. The "new museology" and many museology documents believe that the understanding of museum functions and activities has really changed due to rethinking the purpose of museums [1].

Today's museums face four major challenges: the promotion and development of citizenship (identity and learning behavior); intercultural dialogue and understanding (intercultural dialogue space); the need to strengthen gender equality (gender equality); and meet the needs of more and more international tourists (cultural tourism) [7]. Scott et al. (2014) [8] believe that more work needs to be done to provide a detailed and complex understanding of how users experience and "understand" museums, and to understand the "reality" of museums from the perspective of users, rather than (as seems to happen here) integrating the views of the audience into the needs of the authors.

At present, museum research has undergone a paradigm shift (reflected in the decentralization, transfer, and decentralization of power within the museum field). Under the influence of the new paradigm, "museums should hold exhibitions centered on tourists" [9] Villeneuve (2019) [9] supports the viewpoint of "visitor-

centered" and introduces the theory of competitive value into museum research, hoping to help this viewpoint be valued by museum practice and improve the museum curatorial model. The "inclusive" in the model describes the inclusive curatorial process, and the strategy focuses on "audience-driven". Therefore, the realization of "visitor-centered" curatorial practice calls on museums to act. At the same time, the inevitable changes have some limitations. That is, it reflects the phenomenon of imposing power ideology on the public [1]. Museum staff often discuss the importance of user participation, but there are few concrete examples to illustrate how user feedback affects their daily activities. Because many museums visited have no formal user participation strategy except review books and cards or occasional tourist surveys (because of the high operating cost) [1] It is reasonable for museum staff to be worried about the transfer and decentralization of power, but the current research results reveal that the initiative of visitors (visiting motivation) is the main factor affecting the museum experience. Therefore, how to plan curation, education, and other projects from the perspective of visitors is an exact practical problem that museums need to consider. This study will use the visitor motivation scale [10] and the visitor experience scale [11] as a framework to explore the relationship between the two, and based on Villeneuve's theoretical framework, examine the extent to which visitors' identity background characteristics affect visitor motivation and visitor experience.

In summary, the paradigm of "New Museology" and "visitor-centered" has established that museum research needs to deeply understand the audience's turn, and specific research tools such as Falk's identity model and Phelan et al.'s motivation scales provide operational pathways. However, the existing research mostly explores the direct relationship between static identity characteristics and motivation or experience, lacking systematic examination of how dynamic visit characteristics (e.g., visit frequency) adjust this relationship. Therefore, this study aims to fill this gap by introducing Villeneuve's competitive value framework as an organizational perspective, it focuses on testing the moderating role of visit frequency in the relationship between identity-related visitor characteristics and experience.

2. Visitor-centered Museum curation

2.1 Visit experience

Most of the literature on museum research regards the museum as the culture and history of an institution, and critically analyzes the social role of the museum, its political and management issues, its function as a place for learning, leisure and self-realization, and its curatorial and collection issues. However, the experience of museum visitors rarely becomes the focus of attention [12]. Who really benefits from the curatorial task: the content curator or the content consumer [13] This is a problem. In academic circles, tourist experience is usually conceptualized as a situational, conversational, multidimensional, and special phenomenon [14, 15].

Spanish researchers emphasize more than Doreen, Pekarik and Kearns that a satisfactory museum visit is a combination of cognitive and emotional stimulation. The substantial quality of the exhibition, the emotional charm of the exhibition and the mood of the visitors determine the satisfaction of the visit [16]. Yi et al. (2022) show that the museum experience of tourists takes place in the interaction of various environments [17]. They define the tourist experience as the physical (i.e., environment, exhibition, art labels and guiding media), personal (i.e., visiting motivation, prior knowledge and personal interests or choices) and social (i.e., interaction between a group of visitors and dialogue with officials of art museums or others) background. Simon (2010) put forward the concept of "metaphor" in web2.0 and provided a new direction for the study of museum curation and visitor relations [18]. Simon combines experiential prototype, with metaphor-mapping to help designers visit museums from the perspective of tourists, to gain new insights and achieve a better participation experience.

Marie et al. (2014) discussed the Perceived authenticity of museum visitors' experience and developed a measure to measure the authenticity of visitors' experience [19]. It is found that visitors' views on the authenticity of the visit experience partly depend on the authenticity of the visitors themselves, and the perceived authenticity of the visitor experience is positively related to the Visitor satisfaction. This discovery emphasizes to the museum that understanding the visitors' experience can jointly create the visitors' experience in a more meaningful way.

Museums should strive to meet the diverse needs of tourists, not only to create exhibitions that meet the highest standards of intellectual Excellence and integrity, but also to create exhibitions aimed at stimulating the interest and general understanding of different audiences [20]. Therefore, more work needs to be done to provide a detailed and complex understanding of how users experience and "understand" the museum, and to understand the "reality" of the museum from the user's point of view, rather than (as seems to happen here) integrating the

audience's views into the author's needs [8]. Therefore, the museum's curatorial strategy to jointly create visitors' visiting experience needs to consider the influence of identity-related visitor characteristics.

2.2 Identity-related Visitor Characteristics

Identity is also a continuous construction [21]. Based on the needs and environment, they will express different identities at different times. All social information in daily life may be a factor that affects people to change their views. Falk and Dierking show that the museum experience of tourists occurs in the interaction of various environments, and they define the museum visitor experience as having physical, personal, and social background [17]. So, will the different identity characteristics of visitors affect the effect of the visit experience?

Falk puts forward the identity model of "I(&i)" and explains how these identity-related motives ("I" or "i") are generated in the public mind. Falk divides the identity of "me" into “ego (I)" and "ego (i)". Self-identity which is "I" is a core and relatively stable identity, which belongs to the field of museum research. The ego identity which is "i" is a more situational identity, belonging to a specific "environment" or situational identity, which is closer to the real needs than the "I" identity. And Falk thinks that my identity may play an important role in influencing my identity [22]. Therefore, based on these findings, Falk (2006) classified museum visitors into five identity-related categories, and added two categories in 2011 [23, 24]. They are Explorers, Facilitators, Professional/ hobbyists, Experience seekers, Rechargers, Respectful pilgrims, Affinity Seekers. Although it is meaningful to discuss the identity of tourists, and Falk himself emphasizes that the purpose of tourist classification is not to "segment the audience", some scholars still express their concern about the way of museum visitors' segmentation. Similarly, Crompton et al. (2009) hold the same view [25]. They describe the dual identity of "I(&i)" as "deposition" and "activation" and think that the more advanced the active identity is, the more important it is than the personality identity.

Jones (2015) focuses on "how to gain, retain and" promote the attention of visitors [7]". She believes that when distinguishing the types of tourists, museums seem to classify and control tourists in the same way as they classify and control their articles, which gives people a rather simplified and restrictive method. Phelan et al. (2020) [10] explored six categories of visiting motivation, four personal characteristics (age groups, gender, education & residence) and three characteristics related to visiting (Visit Company, Visit Strategy &Visit Frequency) to understand how the visit motivation is embedded in the broader personal background of visitors.

Drawing on the above literature-particularly the core insight from Falk's identity theory that motivation and experience are shaped by self-concept and situational roles this study proposes a quantifiable operationalization. Instead, this study proposes a quantifiable two-dimensional framework, which deconstructs the identity-related background into: (1) Relatively stable personal characteristics (such as age and education), which form the basis of identity; (2) Dynamic interview-related characteristics (such as frequency and companions) reflect the "activated" status of identity in the museum context [25]. This approach translates theoretical constructs into measurable variable for large-scale survey testing.

Based on the above research literature, this study puts the two factors of "personal characteristics" and "visit-related characteristics" into the method of distinguishing and measuring "identity-related visitor characteristics" to analyze whether the dual identity of "I" will affect visitors' experience and how.

2.3 Visit motivation

Motivation is the internal driving force to motivate people to move towards specific goals, which can meet people's internal needs. When visitors visit museums, the demand for "motivation" is an important factor [26]. The motivation of museum visitors is usually influenced by many factors, not even one [25]. The visiting motivation is a multi-dimensional structure, which can be regarded as the integration of various elements that lead him or her to visit a specific museum on a specific date [12].

Falk and Durkheim developed a "situational learning model", which can distinguish the reasons why people visit museums (motivation, motivation, expectation, and other factors), how to visit museums (experience alone or in different types of social environments) and what the result may be (learning, memory). This model emphasizes four dimensions of considering, experiencing and remembering (or learning from) the causal process of access: personal background, social and cultural background, physical background and time flow [16]. But this model only evaluates the main motivation [22], many tourists cannot be classified into a single category. Falk's model comes from data collected at a specific location, which forms a rather limited foundation [10].

As Black (2005) [5] pointed out, the focus on learning is a limited view on the motivation of visiting, which often appears in museum research, rather than in the field of leisure and tourism, which has a broader

perspective [10]. Scott et al. (2014) [8] also emphasized that we know little about how museum visitors evaluate their experiences and how these experiences may affect their lives outside the museum. In fact, the industry is characterized by a long-standing debate about the value of visitor research [7]. Therefore, it is emphasized that researchers should use a broader perspective, even including visitors outside the museum.

Vallerand & Thill (1993) [26] defined "motivation" as the fundamental purpose, whether initiated by internal or external forces or both. Therefore, Falk (2016) [15] believes that the motivation for visiting is never fixed, but always unstable, and is determined by direct personal needs and environment. Slater (2007) [27] thinks that "internal demand" and "external stimulus" are the two main factors that generate motivation. And in the study of audience motivation, it is found that there are three motivation factors: "escape" is the primary factor, "learning" is the second factor, followed by "social and family interaction". Lin et al. (2006) [28] conducted research on the night audience of Taipei Art Museum and divided the audience into two types: participation and non-participation. It is believed that the main motivations of the audience's visit are self-enrichment, art study, education and making friends, leisure and entertainment, and participation in activities. Packer and Ballantyne (2002) [29] found five motivations of visitors: learning and exploration, passive entertainment, self-recovery, social interaction, and self-satisfaction. It is also found that the audience's motivation to enter the museum is closely related to their different learning behaviors in the museum. Hoffer et al. (2015) [30] shows through research that escapism is one of the factors that can be used to describe tourists' experience of visiting historical sites and museums.

Although there may be practical limitations, the current research believes that it is best to fully explain the interests and needs of current and potential tourists through an "inclusive approach that includes motivation, identity and sociological variables (such as class and race)" [31]. And to better understand the relationship between visit motivation and its main personal and visit-related characteristics, it is necessary to study a wider range of personal and situational characteristics [32]. Phelan et al. (2018) [10] developed a research scale for visitors' visit motivation based on this literature. The results show that the motivation of visiting can be manifested in the following six aspects: various forms of learning, social motivations, relaxation and restoration, entertainment and enjoyment, new experiences and aspects relating to the popularity or reputation of the site. This study will collect the data of visitors' visit motivation based on this research scale for analysis.

3. Research problems and methods

3.1 Research theoretical model and research problems

In this study, the competitive value theory of Pat Villeneuve (2019) [9] was used to organize the literature on the museum visit experience and visitors' research, and the questionnaire framework was constructed. The research will focus on the influence of visitors' identity background on the sense of visiting experience and then explore whether the visiting motivation is influenced by visitors' identity background and how the visiting motivation affects visitors' sense of visiting experience. The dimension of curatorial competitive value model provides a tool for theory, research and dialogue based on the whole museum industry in the past three years [33] Figure 1. shows the model of Pat Villeneuve. According to the interpretive focus, the model classifies museum curation into four modes: exclusive, inclusive, traditional, and sympathetic. Among them, the upper right quadrant is described as an inclusive curatorial type, which is characterized by explaining the key points to the audience and extensive collaborative curatorial strength (including curating, education, and another professional knowledge) [9].

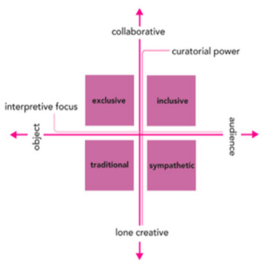

Figure 1. Curator Competitive Value Model [9]

Professor Pat Villeneuve supports the viewpoint of "taking tourists as the center" and introduces the theory of competitive value into museum research, hoping to help this viewpoint be valued by museum practice and improve the curatorial mode of the museum. It is pointed out (in the paper) that there is still a gap between museum theory and curatorial practice; Introducing the framework of competitive value into the research of museum curation, developing theoretical models, and helping curation practice to better realize "tourist-centered" [33]. The dimension of the competitive value model of curation provides a tool for curators to reflect on their past practice, use continuity to plan the upcoming exhibition, and strategically imagine the future of museum exhibitions [33].

The purpose of this study is to explore the factors that influence people's motivation to visit art museums and their sense of experience, and specifically to analyze the influence of "personal identity characteristics" and "visit-related characteristics" on the motivation to visit and the sense of experience of the visit in the context of the visitor's identity. Therefore, this study will combine the theoretical model to examine the influence of identity-related visitor characteristics on the relationship between visitor motivation and visitor experience, and on this basis, put forward research questions to explore the significance and feasibility of this factor research.

1. Does collecting background information on identity-related visitor characteristics help to explain their visit emotion, as well as predict or enhance their sense of visit experience (authenticity and satisfaction)?
2. Do "personal identity characteristics" exert a significant predictive effect on visit motivation and visit experience?
3. Do "visit-related characteristics" exert a significant predictive effect on visit motivation and visit experience?

3.2 Research method

To test whether the factor of "visitor motivation" is effective and can be included in the framework, this study will mainly adopt quantitative research methods, collect data through questionnaire survey and test it. This questionnaire sets questions for three variables according to relevant literature. The sample composition of this study has specific characteristics: young women with high education are the main ones (75.74% women ,90.44% ages 20-39, all of whom have bachelor's degree or above). This feature **reflects the typical demographic portraits of museum regulars who actively participate in online research** and is also like the characteristics of most volunteer samples studied in museums [33]. The research focuses on verifying the moderating effect of "visit frequency" on the relationship between tourists' identity and experience, and this effect mechanism may be the most significant among frequent customers with strong motivation. Therefore, the current sample has appropriate sensitivity for testing the core theoretical assumptions.

Among them, non-scale items are used to collect data for the independent variable "visitor identity" [32] ; According to the variable of "visiting motivation" [10] and the variable of "visiting experience" [29], the data were collected by quoting the maturity scale. In this study, to investigate the influence of visitors' identity factors on the visit experience and the curatorial effect of the museum, and to avoid the selective effect, the study is not limited to the visitors of a specific museum but focuses on the visitors who have visited the museum.

The survey was tested and formally investigated between May 27 and June 13, 2024. The questionnaires were distributed through the "crumdo" platform, "qualtrics" platform, and random sharing links. A total of 276 questionnaires were collected. Except for the questionnaires with dishonest answers or missing items, 272 materials were screened and used. In the first phase of this study, reliability analysis will be used to measure the visit motivation scale and the visit experience scale, confirmatory factor analysis will be used to confirm the consistency of the research content and the content of the items, and correlation analysis will be used to determine whether the relationship between the variables is close. The study used the Cronbach Alpha coefficient analysis method, which is the Cronbach Alpha coefficient was 0.924>0.7, indicating that there was a high degree of consistency between the research content and the item content, and the collected data was consistent with the division of the scale dimensions. According to the results of the person correlation coefficient analysis, the correlation coefficient values between the variables ranged from -1 to 1, indicating a significant positive correlation. In the interactive analysis of visiting motivation and visiting experience, the study established a basic model for the impact of visit motivation on visit experience (including authenticity and satisfaction), and introduced visit frequency as a moderating variable to examine the role of visit frequency in moderating Visit motivation and visit experience influence the importance of the relationship.

4. Research results

4.1 Descriptive analysis

Table 1. Basic personal characteristics of visitor in the sample（n=272）

Item	Option	Frequency	Percentage (%)
gender	male	66	24.26
	female	206	75.74
age	under 20	6	2.21
	20-29	184	67.65
	30-39	62	22.79
	40-49	6	2.21
	50-59	10	3.68
	60 and above	4	1.47
education	College or University	170	62.5
	Graduate School (and above)	102	37.5
Frequency (n=271)	Once a week	10	3.69
	Once a month	79	29.15
	Once every two or three months	102	37.64
	Once a year	80	29.52
Duration of visit	Within 1 hour	22	8.09
	1-2 hours	165	60.66
	3-4 hours	79	29.04
	More than 4 hours	6	2.21
Companion with family	not selected	178	65.44
	selected	94	34.56
Companion with friends	not selected	147	54.04
	selected	125	45.96
Companion with classmates	not selected	233	85.66
	selected	39	14.34
Companion with colleagues	not selected	247	90.81
	selected	25	9.19
Companion with lovers	not selected	214	78.68
	selected	58	21.32
Companion with alone	not selected	249	91.54
	selected	23	8.46
How many people usually accompany you when you visit?	Only myself	14	5.15
	1 person	87	31.99
	2-4 people	161	59.19
	More than 4 people	10	3.68
How did you get the information about visiting the museum?	Introduction of friends	47	17.28
	Internet	200	73.53
	TV, Radio, Newspaper and Magazine	25	9.19
What aspects of the museum do you pay more attention to?	Exhibition content	185	68.01
	Natural environment	63	23.16
	Explanation and Reception	24	8.82
Do you plan to visit local museums/art museums when traveling?	yes	265	97.43
	no	7	2.57
Total		272	100

This frequency analysis shows that most of the interviewees are women (75.74%), mainly in the age groups of 20-29 (67.65%) and 30-39 (22.79%), and their overall education level is relatively high, among which 62.5% have a bachelor's degree and 37.5% have a postgraduate degree or above. The museums visited by respondents were predominantly located in Asia and Europe. This distribution is consistent with the sample source and the universal pattern of museum tourism around the world, which provides a preliminary context for the potential cultural background discovered in this study. In terms of frequency of visits, 37.64% of the respondents visit the museum once every two or three months, and about 29.15% visit the museum once a month, and the visit duration is mainly 1-2 hours (60.66%). Most of the interviewees said that they would usually be accompanied by 2-4 people (59.19%), mainly with friends (45.96%) or family members (34.56%). In terms of information sources, 73.53% of the respondents learned about museum information through the Internet, and the museum that attracted them most was the exhibition content (68.01%). It is worth noting that 97.43% of the respondents plan to visit local museums or art galleries when traveling, which shows a strong willingness to visit culture.

4.2 Reliability and validity analysis

Table 2. Reliability Statistics (Cronbach Alpha)

Number of terms	Sample size	Cronbach α
27	272	0.924

From the results of Cronbach reliability analysis, the Cronbach α coefficient of 27 items in 272 samples is 0.924, which indicates that the scale has high internal consistency. This means that the correlation between these items is high, and the reliability of the scale is very good. Generally, Cronbach α coefficient greater than 0.7 is considered to have good reliability, while greater than 0.9 indicates very high reliability. Therefore, the scale shows excellent stability and consistency in the measurement and is suitable for further analysis.

Table 3. Test of KMO (Kaiser-Meyer-Olkin) and Bartlett

KMO		0.866
Bartlett's test	X^2	5923.042
	df	351
	p	0.000

According to the test results of KMO and Bartlett, this data is suitable for factor analysis. The KMO value is 0.866, which indicates that the sample data has good fitness in factor analysis. Usually, a KMO value greater than 0.8 means that the data is very suitable for factor analysis. In addition, the chi-square value of Bartlett's sphericity test is 5923.042, the degree of freedom is 351, and the p value is 0.000, which shows that there is a significant correlation between variables and rejects the hypothesis that the correlation matrix is identity matrix. These results show that the data structure has good conditions for factor analysis, and then we can further explore the potential structure and dimension of the data.

4.3 Confirmatory factor analysis

Table 4. CFA factor loadings for six factors of visit motivation and two of visitors' experience

Factor	Indicator	Coef.	Std. Error	z	p	Std. Estimate	SMC
LI	M1	1.000	-	-	-	1.000	1.000
LI	M2	0.645	0.029	22.407	0.000	0.809	0.655
LI	M3	0.626	0.026	23.746	0.000	0.825	0.681
LI	M4	0.615	0.029	21.507	0.000	0.797	0.636
RR	M5	1.000	-	-	-	0.956	0.914
RR	M6	0.676	0.046	14.685	0.000	0.741	0.549
RR	M7	0.495	0.049	10.201	0.000	0.567	0.322
SL	M8	1.000	-	-	-	0.975	0.950
SL	M9	0.611	0.041	14.845	0.000	0.749	0.560

SE	M10	1.000	-	-	-	0.926	0.857
SE	M11	0.737	0.044	16.896	0.000	0.799	0.638
SE	M12	0.418	0.046	9.094	0.000	0.518	0.268
SC	M13	1.000	-	-	-	1.000	1.000
SC	M14	0.466	0.045	10.255	0.000	0.622	0.386
PS	M15	1.000	-	-	-	0.962	0.925
PS	M16	0.628	0.042	15.043	0.000	0.751	0.563
PS	M17	0.459	0.047	9.855	0.000	0.550	0.303
VS	Y14_1	1.000	-	-	-	0.811	0.657
VS	Y14_2	0.910	0.071	12.830	0.000	0.909	0.826
VS	Y14_3	0.502	0.055	9.111	0.000	0.555	0.308
PA	Y15_1	1.000	-	-	-	0.993	0.986
PA	Y15_2	0.592	0.034	17.381	0.000	0.737	0.544
PA	Y15_3	0.584	0.033	17.641	0.000	0.743	0.551
PA	Y16_1	0.693	0.035	19.977	0.000	0.785	0.616
PA	Y16_2	0.622	0.032	19.133	0.000	0.771	0.594
PA	Y16_3	0.620	0.033	18.664	0.000	0.762	0.581
PA	Y16_4	0.551	0.033	16.467	0.000	0.718	0.515

Note: The bar'-'indicates that this item is a reference item; LI = learning and pursuing interests; RR = relaxation and recuperation; SL = social learning; SE = social enjoyment; SC = (establishing) social contacts; PS=popularity of site; PA=Perceived Authenticity; VS=Visitor Satisfaction.

Factor load factor

The standard load coefficients (Std. Estimate) of all factors (latent variables) are significant ($p < 0.001$), and most load coefficients are higher than 0.7, indicating that there is a strong correlation between each explicit variable and its latent variable (factor). For example, the standard load coefficients of M2-M4 under the Li (learning and pursuing interests) latent variable are 0.809, 0.825 and 0.797, respectively, showing strong correlation.

Standard error and Z value

The standard error of each measurement item is within a reasonable range, and the standard error of most measurement items is small, which shows that the estimation accuracy is high. For example, the standard error of M2 is 0.029 and that of M5 is 0.046, which shows the stability of the model and the accuracy of estimation. Z values of all the measured items are much greater than 1.96, indicating that the load coefficient is statistically significant, which further verifies the significant relationship between the measured items and the latent variables.

SMC (squared multiple correlation coefficient)

The square multiple correlation coefficient (SMC) of measurement items is mostly high, especially the SMC value of M1, M8 and M13 is 1.000, which shows that these measurement items have very high explanatory power to their latent variables. At the same time, the SMC values of some measurement items are slightly lower, such as M12 (0.268) and M17 (0.303), indicating that the explanatory power of these measurement items is relatively weak.

The relationship between latent variables

There is a high factor load coefficient between the measurement items of each latent variable, which shows that these measurement items are suitable indicators and can measure these latent variables well.

Table 5. AVE (Average variance extraction) and CR (Combined reliability) index results of the model

Factor	AVE value	CR value
LI	0.743	0.920
RR	0.595	0.808
SL	0.755	0.859
SE	0.588	0.803
SC	0.693	0.811
PS	0.597	0.809
VS	0.597	0.811
PA	0.627	0.921

Confirmatory factor analysis (CFA) was conducted for a total of 8 factors and 27 analysis items. As can be seen from the above table, the AVE values corresponding to the eight factors are all greater than 0.5, and the CR values are all higher than 0.7, which means that the analysis data has good aggregation (convergence) validity.

Table 6. Discriminant validity: Pearson correlation and square root value of AVE

	LI	RR	SL	SE	SC	PS	VS	PA
LI	0.862							
RR	0.617	0.771						
SL	0.720	0.484	0.869					
SE	0.689	0.438	0.489	0.767				
SC	0.685	0.451	0.52	0.434	0.833			
PS	0.624	0.398	0.358	0.364	0.504	0.773		
VS	0.398	0.189	0.409	0.224	0.378	0.218	0.773	
PA	0.308	0.172	0.293	0.132	0.279	0.376	0.303	0.792

Note: diagonal figures are the square root values of AVE.

From the results of discriminant validity analysis, the latent variables have good discriminant validity. By comparing the correlation coefficients between the square root values of AVE and latent variables, the square root values of AVE of all latent variables are greater than their correlation coefficients with other latent variables, which shows that latent variables can be effectively distinguished. For example, the square root of AVE of LI (learning and pursuing interests) is 0.862, which is greater than its correlation coefficient with RR (relaxation and recuperation) of 0.617, indicating that LI and RR have good discrimination validity. Similarly, the correlation coefficient between SE (social enjoyment) and SL (social learning) is 0.489, but their respective square root values of AVE are 0.767 and 0.869, which further supports their independence.

In addition, the dependent variables VS (visitor satisfaction) and PA (perceived authenticity) have low correlations, and the correlation coefficients with LI are 0.398 and 0.308, respectively, and the square root values of AVE (VS is 0.773, PA is 0.792) are higher than those with other latent variables, which indicates that the discrimination validity between VS and PA and independent variables is also high. These results show that each latent variable is structurally independent, which supports the validity of the model and the reliability of the measurement.

4.4 The correlation analysis

Table 7. Pearson correlations for six factors of visit motivation and two of visitors' experience.

	VS	PA
LI	0.398**	0.308**
RR	0.189**	0.172**
SL	0.409**	0.293**
SE	0.224**	0.132*
SC	0.378**	0.279**
PS	0.218**	0.376**

* $p<0.05$ ** $p<0.01$

From the analysis of Pearson correlation coefficient, there is a significant positive correlation between each latent variable and visitor satisfaction (VS) and perceived authenticity (PA). First of all, the correlation coefficient between learning and pursuing interest (LI) and VS is 0.398**, which shows that the stronger the learning motivation of tourists, the higher their satisfaction. Similarly, the correlation between social learning (SL) and VS is the highest (0.409**), indicating that acquiring knowledge through social interaction significantly improves the satisfaction of tourists. In addition, social contacts (SC) and social enjoyment (SE) also have a moderate positive correlation with VS, with correlation coefficients of 0.378 and 0.224 respectively, which indicates that social factors can promote tourists' satisfaction. In terms of perceived authenticity (PA), the popularity of site (PS) has the highest correlation with PA, reaching 0.376**, which indicates that tourists' high sense of identity with popular scenic spots will enhance their perception of the authenticity of the visit

experience. At the same time, LI and SL also have a significant positive impact on PA, and the correlation coefficients are 0.308 and 0.293, respectively, indicating that learning motivation and social learning have played a certain role in improving tourists' perceived authenticity. Relatively speaking, the influence of relaxation and recuperation (RR) on PA is weak (0.172**), but it is still significant.

In general, learning motivation and social learning have a prominent influence on visitors' satisfaction, while the popularity of site has a strong influence on perceived authenticity. These results show that different visiting motivations have different influences on tourists' experience (including satisfaction and authenticity perception).

4.5 Analysis of regulatory effect

Table 8. Regulatory effect analysis results for about VS.

	Model 1	**Model 2**	**Model 3**
constant term	3.708** (6.718)	3.699** (6.686)	3.951** (7.282)
gender	-0.017 (-0.116)	-0.019 (-0.131)	-0.000 (-0.003)
age	-0.081 (-1.124)	-0.083 (-1.140)	-0.086 (-1.218)
residence	0.001 (0.695)	0.001 (0.701)	0.000 (0.189)
education	0.024 (0.187)	0.032 (0.247)	-0.033 (-0.263)
Duration of visit	-0.137 (-1.425)	-0.130 (-1.313)	-0.145 (-1.504)
How many people usually accompany you when you visit?	-0.014 (-0.146)	-0.022 (-0.229)	-0.028 (-0.293)
visit motivation	0.587** (6.515)	0.589** (6.516)	0.590** (6.701)
frequency		0.029 (0.393)	0.018 (0.255)
visit motivation*frequency			0.385** (3.904)
N	269	269	269
R^2	0.160	0.161	0.208
Adj.R^2	0.138	0.135	0.180
F	F (7,261)=7.126,p=0.000	F (8,260)=6.234,p=0.000	F (9,259)=7.538,p=0.000
$\triangle R^2$	0.160	0.000	0.047
$\triangle F$	F (7,261)=7.126,p=0.000	F (1,260)=0.154,p=0.695	F (1,259)=15.239,p=0.000

Note：Dependent Variable=VS

* p<0.05 ** p<0.01

Model 1 (basic model)

The visit motivation has a significant positive effect on tourists' satisfaction (β=0.587, t=6.515, p<0.01), which shows that when the visit motivation is strong, the tourists' satisfaction will be improved accordingly. The model explained 16% variation of tourists' satisfaction (R^2=0.160), and the whole model was significant (F=7.126, p=0.000). Control variables (gender, age, place of residence, education level, etc.) have no significant impact on tourists' satisfaction.

Model 2 (adding adjustment variables)

Model 2 introduces visit frequency as a regulating variable, but its direct influence on tourists' satisfaction is not significant (β=0.029, t=0.393, p=0.695), which shows that visit frequency itself has no significant effect on tourists' satisfaction. However, the influence of visit motivation remained significant (β=0.589, p<0.01). The r of the model only slightly increased to 0.161, indicating that the addition of access frequency did not significantly improve the explanatory power of the model (△ r = 0.000).

Model 3 (interaction effect)

Model 3 adds the interaction term between visit motivation and visit frequency, and the results show that the interaction term has a significant impact on tourists' satisfaction (β=0.385, t=3.904, p<0.01), which shows

that visit frequency has a positive regulatory effect on the relationship between visit motivation and tourists' satisfaction. When the frequency of visits is high, the opportunity of visits will have a stronger positive impact on tourists' satisfaction. The r of model 3 increased to 0.208, and △ r was 0.047, which indicated that the explanatory power of the model was significantly improved by the interaction term (F=7.538, p=0.000).

To sum up, visit motivation is the main influencing factor of tourists' satisfaction, and visit frequency plays a moderating role in this relationship. When visitors frequently visit museums, the positive impact of visit motivation on tourists' satisfaction is more significant. Control variables such as gender, age and educational background have no significant influence on tourists' satisfaction.

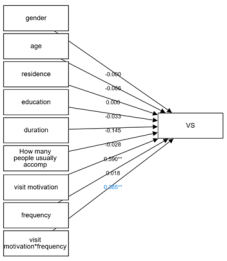

Figure 2. The model of Regulatory effect analysis results for about VS.

Note ： "duration"=Duration of visit; "How many people usually accomp"= How many people usually accompany you when you visit.

Table 9. Regulatory effect analysis results for about PA.

	Model 1	**Model2**	**Model 3**
constant term	4.261** (7.323)	4.275** (7.332)	4.504** (7.818)
gender	-0.191 (-1.255)	-0.188 (-1.229)	-0.171 (-1.141)
age	-0.018 (-0.236)	-0.016 (-0.208)	-0.019 (-0.252)
residence	-0.003 (-1.486)	-0.003 (-1.495)	-0.004 (-1.958)
education	0.108 (0.805)	0.095 (0.697)	0.036 (0.264)
duration	-0.302** (-2.970)	-0.315** (-3.027)	-0.328** (-3.217)
How many people usually accompany you when you visit?	0.004 (0.043)	0.018 (0.174)	0.013 (0.128)
visit motivation	0.521** (5.488)	0.517** (5.422)	0.517** (5.534)
frequency		-0.047 (-0.601)	-0.057 (-0.739)
visit motivation*frequency			0.350** (3.338)
N	269	269	269
R^2	0.151	0.152	0.187
Adj.R^2	0.128	0.126	0.159
F	F (7,261)=6.613, p=0.000	F (8,260)=5.818, p=0.000	F (9,259)=6.611, p=0.000
$\triangle R^2$	0.151	0.001	0.035
△F	F (7,261)=6.613, p=0.000	F (1,260)=0.361, p=0.548	F (1,259)=11.143, p=0.001

Note：Dependent Variable=PA

* p<0.05 ** p<0.01

Model 1 (basic model)

Access motivation has a significant positive impact on perceived authenticity (β=0.521, t=5.488, p<0.01), indicating that the stronger the access motivation, the higher the perceived authenticity. In addition, the duration of the visit has a significant negative impact on the perceived authenticity (β=-0.302, t=-2.970, p<0.01), indicating that the longer the visit, the lower the perceived authenticity. Other control variables (such as gender, age, place of residence, education level, etc.) have no significant influence on perceived authenticity. The r of the model is 0.151, which explains the variation of 15.1%, and the model is significant as a whole (F=6.613, p=0.000).

Model 2 (adding adjustment variables)

In model 2, access frequency is added as an adjustment variable. The results show that the direct influence of visit frequency on perceived authenticity is not significant (β=-0.047, t=-0.601, p=0.548), while the influence of visit motivation on perceived authenticity is still significant (β=0.517, t=5.422, p<0.01), and the visit duration still has a significant negative influence on perceived authenticity (p<0.01) The r of the model increased slightly to 0.152, but the explanatory power changed little (△ r = 0.001), indicating that the explanatory power of the model was not significantly improved by adding the access frequency.

Model 3 (interaction effect)

Model 3 adds the interaction between access motivation and access frequency. The results show that the interaction term has a significant influence on perceived authenticity (β=0.350, t=3.338, p<0.01), which indicates that the frequency of access plays a positive role in regulating the relationship between access motivation and perceived authenticity. When the access frequency is high, the access opportunity will have a stronger positive impact on the perceived authenticity. R of the model increased to 0.187, and △ R was 0.035, and the explanatory power of the model was significantly improved by the interaction term (F=6.611, p=0.000, △F=11.143, p=0.001).

To sum up, access motivation has a significant positive impact on authenticity perception, and access frequency has a significant regulatory effect on this relationship. Specifically, visitors who frequently visit the museum will have a higher perception of the authenticity of the museum when their visit motivation is high. In addition, control variables such as gender, age and educational background have no significant influence on the perception of authenticity.

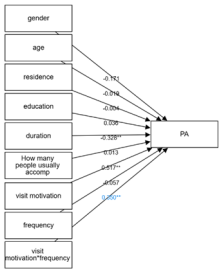

Figure 3. The model of Regulatory effect analysis results for about PA.

Note ： "duration"=Duration of visit; "How many people usually accomp"= How many people usually accompany you when you visit.

4.6 Supplementary Analysis and Discussion

4.6.1 Robustness Checks with Subsamples

To examine the stability of the core conclusions across different subgroups, supplementary analyses were conducted:

- Gender subgrouping: The sample was divided into male (n=66) and female (n=206) groups, and the moderating model was tested separately. The results show that the moderating effect of visit frequency on the "motivation → satisfaction" relationship was significant both the male group (β=0.371, p<0.05) and the female group (β=0.390, p<0.01).
- Age subgrouping: Comparing the 20-29 (n=184) and 30-39 (n=62) age groups, the direction and significance of the moderating effect were consistent.
- Regional subgrouping: The core conclusion patterns were similar between Asian samples (n=156) and European samples (n=74).

These analyses indicate that, despite the imbalance in the sample's demographic structure, the core theoretical findings demonstrate robustness across subgroups.

4.6.2 In-depth Discussion on Key Findings

Notably, the findings reveal a significant negative impact of visit duration on perceived authenticity (β=-0.302, p<0.01). This counterintuitive result may reflect **the phenomena of fatigue effect and cognitive threshold in the museum experience**. Drawing on Kirchberg and Tröndle's (2012) research on exhibition experience, when the visit duration exceeds an individual's optimal cognitive processing capacity, information overload and mental-physical may impair the ability to deeply comprehend exhibition content and achieve emotional resonance, thereby influencing the perception of authenticity. This observation resonates with the finding in this study frequent visitors are less affected (β=-0.198), suggesting that "museum literacy" may buffer the fatigue effect. This discovery implies that museums should consider **experience pacing management** in curation and visitor services to avoid inadvertently undermining the core experience due to overly long exhibition routes or excessively high information density.

5. Conclusions

This study attempts to categorize visitor identity background information into personal and visit-related characteristics to examine their impact on motivation and experience. The key empirical findings are threefold. First, the sample profile confirmed that highly educated young women constitute a primary visitor group, and strong link exists between museum visits and travel itineraries. Second, basic personal identity characteristics (e.g., gender, age, education) did not significantly affect perceptions of authenticity, suggesting their limited direct explanatory power. Third, and most crucially, visit frequency significantly and positively moderated the relationship between visit motivation and both experiential outcomes, perceived authenticity and satisfaction. This supports the theoretical notion of a dynamic, "activated" visitor identity [25], highlighting that how motivation translates into experience depends fundamentally on whether the visitor is a frequent or infrequent attender.

6. Discussion

6.1 Practical Implications and Recommendations

The findings offer several actionable implications for museum management and curation. First, museums should strategically attend to the needs of core visitor segments identified, such as highly educated female visitors and tourist visitors. Second, and more importantly, curatorial and operation strategies should be differentiated based on visitors' frequency patterns. Recognizing the moderating role of visit frequency, museums are encouraged to develop "visitor-centered" strategies that cater to the distinct needs and behavioral patterns of high-frequency versus low-frequency visitors.

A concrete example of such a strategy is the implementation of tiered frequent visitor program. For instance, an art museum could launch a tiered "Friends of Art" membership with "Explorer" and "Patron" tiers, offering benefits ranging from ticket discounts and preview invitations to exclusive curator events and personalized services. Promotion through digital and on-site channels, coupled with clear success metrics (e.g., increased member revisit rate), can facilitate implementation.

It is important to note that this study, as an exploratory quantitative investigation, primarily aimed to verify the moderating role of visit frequency in relationship between visitor characteristics and experience. While strategic directions for female visitors and travelers are proposed based on the findings, the concrete implementation framework requires museums to conduct customized design based on their specific circumstances (e.g., budget staff, existing audience structure).

6.2 Limitation and Future Research

This study has several limitations that outline the scope for future research. Methodologically, its exploratory quantitative design and reliance on a self-selected sample (predominantly young, highly educated women) mean the findings are most directly applicable to understanding "highly engaged museum visitors". Generalizability to casual visitors, those with different educational or cultural backgrounds, requires further validation.

Future research could adopt stratified sampling designs to systematically cover visitor groups with different ages, educational levels and cultural backgrounds. It is particularly recommended to include: 1) family visitor (groups with children); 2) international visitors (non-Asian backgrounds); and 3) low-frequency/first-time visitors. This will contribute to constructing a more comprehensive theory of museum visitor behavior. Adopting mixed-methods approaches would also be value to gain deeper qualitative insights into the mechanisms behind the quantitative relationships identified here, such as how exactly visit frequency alters the motivation experience link. Such work would contribute to more comprehensive theory of museum visitor behavior.

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