

# Research on the Elements of Tourist Experience Demands in Archaeological Site Parks Based on Grounded Theory

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**Abstract.** This study refines the tourists' five main demand categories of "perceptual presentation demand", "behavioral interaction demand", "scene narrative demand", "content perception demand" and "main goal demand" in the archaeological site parks, through choosing the tourist experience of archaeological site parks as the research object, taking their review texts in the Internet as the basic data, and using the basic research procedures of open coding, spindle coding, selective coding of grounded theory, then verifying the results by the reliability test and the matrix method in social network analysis. The elements of visitor experience demand in archaeological site parks extracted from this study have good credibility to support for the design of visitor experience in archaeological site parks and experience optimization of subsequent related products.

**Keyword.** Archaeological site parks, Tourist experience, Demand elements, Grounded theory

## 1. Introduction

In recent years, the cultural industry and tourism industry have accelerated their integration under the support of intelligent technology, and archaeological site parks have begun to pay attention to the physical operation, emotional needs, and cognitive thinking of tourists in the process of visiting. The author attempt to explore the possibility to make tourists feel, share and participate in the historical and cultural landscape in the archaeological site comprehensively through taking tourist experience demands as the guide, and supported by the digital technology. Compared with the traditional tourist experience in archaeological site parks, the design based on the actual tourist experience demands is more realistic, and the in-depth study of the actual problems and demands of tourists is of great significance to improve the quality and value of their experience in archaeological site parks. This research can provide a data base for the tourist experience in archaeological site parks, to provide a theoretical basis for the tourist experience design of archaeological site parks.

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## **2. Research Design**

### *2.1 Research Method*

Grounded theory, as a research method based on data to discover clues, is a typical research method with theoretical exploratory function, which can encode and generalize unstructured large amounts of data and produce corresponding categories, to establish a scientific and effective user experience element. Therefore, according to the review text of the Archaeological Site Park, this study coded original data at three levels through grounded theory, including open coding, spindle coding and selective coding, so as to obtain the core category of tourist experience. Extracting the factors of concern for tourist experience demands in the archaeological site park, and studying the relationship between the core categories, can provide practical reference for the enhancement and improvement of tourist experience in the park.

### *2.2 Research Process*

#### *2.2.1 Data Collection*

The collection and collation of textual data is carried out from tourists' online comments and in-depth interview. On the one hand, this study took Liangzhu Ancient City Archaeological Park as an example, and semi-structured interviews to tourists there was collated into textual form. On the other hand, according to the APP index ranking provided by iResearch, Ctrip.com is ranked first because of its wider coverage and more active users, so this study takes it as the data source of the tourists' comment texts.

In the process of searching the texts, firstly, based on the list of three batches of established national archaeological site parks released by the State Administration of Cultural Heritage, keyword searching was carried out on Ctrip.com in turn, then a total of 35 national archaeological site parks were searched, except for 1 archaeological site park could not be retrieved the relevant attraction information. Among them, 7 archaeological site parks have no tourist comments on Ctrip.com, and the relevant data cannot be obtained.

In the end, this study collected a total of 32,480 online comments from tourists on 28 national archaeological site parks on Ctrip.com up to 10 September 2022, which was used as the raw text data for the sample.

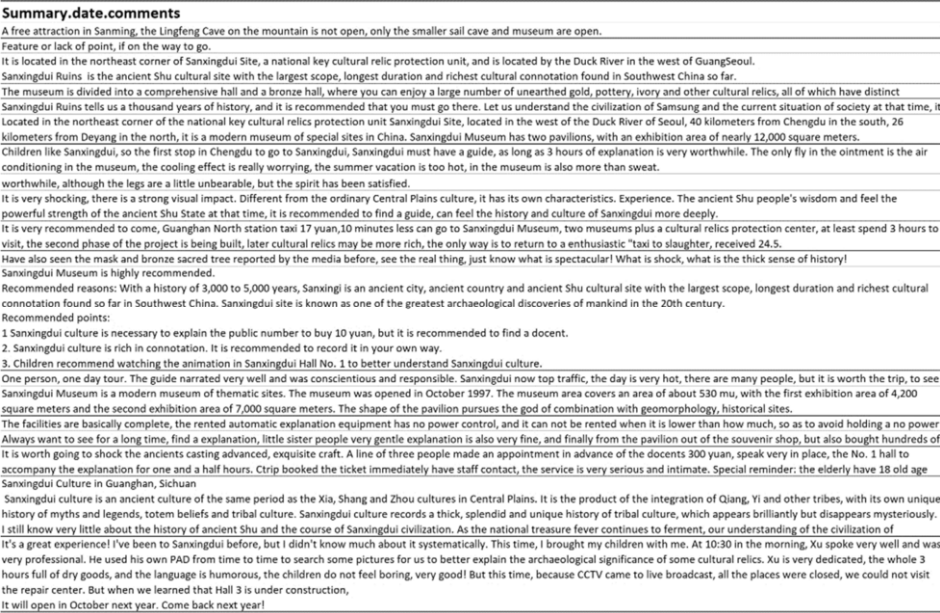
#### *2.2.2 Data Collation*

In order to ensure the accuracy and representativeness of the selected text data, this study selects and arranges the retrieved comment texts according to the following principles: Deleting the duplicated tourists' comment contents in the text data;

Eliminating the overly simplified and non-substantial contents.

Deleting the contents that do not directly evaluate the tourists' experience of the archaeological site park.

Eventually, through the collation and selection of text data, as well as the adjustment and improvement of text data collection results, a total of 21,571 valid comments were obtained, which were used as the text content of the study. (Figure 1)



**Figure1.** Tourist comments on the National Archaeological Site Park (Image source: Ctrip.com data, compiled by the author)

2.2.3 Analysis Method

The analysis method were divided into four main steps as follows:

Open coding: the initial analysis and conceptualization to the primary data. It requires the researcher to initially integrate all the data without bias and give them the appropriate concepts. Maintaining the habit of writing analytical memos needs to be aware of during the open coding process, which enhances the analysis and reflection on the primary sources.

Spindle coding: to discover and establish connections between individual concepts and categories. Since the connection between data is crucial to the final construction of the theory, the researcher needs to be clear about the intrinsic connection between concepts so as to analyse the problem from the broadest perspective.

Selective coding: the process of constructing a theory around core categories. With the deepening of the analysis, the researcher has a clear understanding of the core categories that are the most important in the research problem. The primary and secondary relationships between the categories have been very clear, then, the researcher needs to focus on the main core to carry out the study, so as to form a new theory.

Reliability and validity test: verify the reliability and validity of the coded content analysis. The same method was used to measure on the same object repeatedly, and if the results obtained were the same, it would be able to prove the consistency, reliability and stability of the research experiment.

3. Data Analysis

According to the grounded theory, the analysis of the research data consisted of four main parts: open coding, spindle coding, selective coding, and reliability and validity test.

3.1 Open coding analysis

Open coding requires the researcher to hold an open attitude in the initial study, and gradually generalize the concepts with the same attributes and similar meanings in the original data into certain categories to establish the relationship from phenomenon to category, the open coding process of this study is as follows:

- Screening of the collected text data, paragraph splitting of the commented texts therein, and integrating them into a single document as the basis of the next step of the study.
- Coding the processed text statements and summarizing the specific concepts appearing in the statements.
- Integrating all the concepts and summarizing the categories.

The following table demonstrates some of the specific processes and concepts of open coding.

Table 1. Example of open coding demonstration (Table source: self-making)

No.	Original Record	Concept
1	The inside of the Daming Palace is very large, and the buildings inside are very characteristic, and a lot of cultural relics are here, it is well worth a visit.	Architectural style
2	The use of modern restoration technology, fully demonstrated the glory of Tang Dynasty, 3D film is very good, focusing on the restoration of Tang Dynasty.	Sound and light technology
3	Seeing the masks and the bronze god tree in real life, one realizes what is spectacular! What is shocking, what is the sense of historical heaviness!	Mind-blowing
4	The Sun God Bird, an icon of China's historical and cultural heritage, was unearthed here, it's necessary to hiring a tour guide, there's plenty of backstory to listen to.	On-site Explanation
5	The scenery is beautiful, and the air is good!	Natural scenery
6	You can see the museum exhibitions as well as the Lantern Festival, which is held everywhere during the Chinese New Year, with snacks and performances.	Festive atmosphere

Based on the coding principles and specific steps of grounded theory, this study carefully and individually analyzed and generalized all the tourists' textual data, and combined with the characteristics of archaeological site parks, 62 concepts and 25 categories of cultural tourism experience to archaeological site parks were finally summarized as below.

**Table 2.** Open coding results (Table source: self-making)

No.	Category	Concept
A1	Visual perception	Natural scenery, colors, forms
A2	Auditory perception	Nature sounds, local dialect
A3	Tactile perception	Material texture, weather and climate
A4	Olfactory perception	Fresh air, floral odour
A5	Taste perception	Local food, delicious food
A6	Aesthetic perception	Cultural features, architectural styles, manufacturing techniques
A7	Escape perception	Forget worries, escape from reality, mental relaxation
A8	Intelligent terminal	VR display, video introduction, sound and light technology
A9	Product function	Path navigation, content expansion, interactive media
A10	Interactive interface	Function distribution, interface style
A11	Human-computer interaction	Difficulty of operation, high learning cost
A12	Interactive participation	Participation in activities, on-site discussion, network sharing
A13	Cultural landscape	Special attractions, geographic features
A14	Story Scene	Reducing historical events, rendering story atmosphere
A15	Local atmosphere	Sense of place, festive atmosphere
A16	Task guidance	Narrative clue guidance, role-playing, character interaction
A17	Excursion activities Festivals	archaeological simulation, cultural project experience
A18	History and culture	Ethnic spirit, religious beliefs
A19	People and customs	Living habits, customs and rituals
A20	Storyline Plot	development, story line connection
A21	Education and popularization of science	On-site explanation, knowledge learning, cultural education
A22	Leisure and recreation Camping	picnicking, playing and walking
A23	Cultural identity	Value identity, national self-confidence, national sentiment
A24	Emotional resonance	Soul shock, understanding the rise and fall of history, local attachment
A25	Heart-flow experience	Whole-body concentration, passage of time, strong sense of immersion

### 3.2 Spindle Coding

The results of open coding are independent of each other, spindle coding can specify and scope the categories and dimensions of the concepts, and reorganize them to form a certain coherence, to summarize and merge them into the main category and the secondary category, the coding of this part is mainly to get the secondary category of the concepts mentioned above.

In this paper, by spindle coding of the constituent elements of cultural tourism experience in archaeological site parks, 8 secondary categories are finally summarized, including perceptual presentation, interactive products, interactive behaviour, narrative scenarios, activity tasks, content needs, tour goals, and experiential feelings as below.

**Table 3.** Results of spindle coding (Table source: self-making)

Secondary category	Category
B1 Perceptual presentation	A1 Visual perception, A2 Auditory perception, A3 Tactile perception, A4 Olfactory perception, A5 Taste Perception, A6 Aesthetic Perception, A7 Escape Perception
B2 Product interaction	A8 Intelligent terminal, A9 Product function, A10 Interaction interface
B3 Interaction mode	A11 Human-computer interaction, A12 Interactive participation
B4 Narrative Scene	A13 Cultural Landscape, A14 Story Scene, A15 Local Atmosphere
B5 Activity tasks	A16 Task guidance, A17 Tour activities
B6 Cultural output	A18 History and culture, A19 Humanities and customs, A20 Storyline
B7 Tour Goal	A21 Science Education, A22 Leisure and Recreation
B8 Experience Feeling	A23 Cultural Identity, A24 Emotional Resonance, A25 Heart Flow Experience

3.3 Selective Coding Analysis

Selective Coding is the process of category theorizing, whereby the primary categories are deepened and compared with the initial categories, a core theory is developed to validate the relationships between the categories, and primary sources and developed labels, concepts, and categories are used to illustrate the full range of phenomena.

According to the content of this paper, the author chooses to use the tourists' experience in the National Archaeological Site Park as the story line of selective coding and try to analyze the tourists' experience demands in the whole process of touring the park. When tourists enter the park, they will get the sensory experience of sight, hearing and touch firstly, as well as the perceptual experience of the architecture aesthetic style of the site and the escape from real life. Secondly, tourists interact with tourism products, participate in interactive projects, and communicate with other tourists. Thirdly, tourists will participate in the tour activities and complete the corresponding tasks according to the guidance of the activity tasks, to build up the overall story scene and atmosphere and generate the great experience.

**Table 4.** Selective coding results (Table source: self-making)

Core category	Secondary category	Category
C1 Perceptual Presentation Demand	B1 Perceptual Presentation	A1 Visual Perception, A2 Auditory Perception, A3 Tactile Perception, A4 olfactory perception, A5 taste perception, A6 aesthetic perception, A7 Escape perception
C2 Behavioral Interaction Demand	B2 Product Interaction	A8 Intelligent Terminal, A9 Product Function, A10 Interaction Interface
	B3 Interaction mode	A11 Human-computer interaction, A12 Interactive participation
C3 Scene Narrative Demand	B4 Narrative Scene	A13 Cultural Landscape, A14 Story Scene, A15 Local Atmosphere
	B5 Activity tasks	A16 Task guidance, A17 Excursion activities
C4 content perception Demand	B6 cultural output	A18 history and culture, A19 humanities and customs, A20 storyline

C5 Main goal Demand	B7 Park visit goal	A21 Science education, A22 Leisure recreation
	B8 Experience Feeling	A23 Cultural Identity, A24 Emotional Resonance, A25 Heart Flow Experience

According to the above table, this article proposes 5 core demand categories of “perceptual presentation demand”, “behavioral interaction demand”, “scene narrative demand”, “content perception demand” and “Main goal demand”.

3.4 Reliability and Validity Tests

In order to verify the reliability and validity of this coded content analysis, the same method will be used to measure the same object repeatedly to verify the degree of consistency, reliability and stability of the results obtained. According to the validation method proposed by Glaser, the author selected 25% of the samples from the text data for the reliability test, 2 coders negotiated and coded the text data at the same time, and then the reliability test of the data will be conducted according to the Holsti interaction discriminant formula.

The Holsti interaction discriminant reliability formula is:

$$R = \frac{sn \times K}{1 + (n - 1) \times K}$$

“R” is the discriminant reliability, “n” is the number of coders, “K” is the average mutual agreement between coders, when  $R > 0.8$ , it means that the coding result is “acceptable”,  $R > 0.9$ , it means that the coding result is “good”. Since there were 2 coders in this study, the formula for calculating the average mutual agreement was:

$$M = \frac{2M_{AB}}{N_A + N_B}$$

Where “MAB” denotes the number of codes that were identical for both coders, and “NA” and “NB” denote the number of codes for each of the two coders. During the open coding process, both coders coded 21571 tourist comments, i.e.,  $NA = NB = 21571$ ; the number of data categorized as identical by both was 20385, i.e.,  $MAB = 20385$ .

Through formula (2), the average mutual agreement  $K_{AB} = \frac{2 \times 20385}{21571 + 21571} = 94.5\%$  can be obtained; then substituting it into formula (1), discriminant reliability

$$R = \frac{2 \times 0.945}{1 + (2 - 1) \times 0.945} = 0.972 \text{ can be calculated.}$$

The calculation found that the Kappa coefficient of the open coding reliability R of this study is 0.972, which passes the Holsti Interactive Discriminant Reliability Test, indicating that the elements of cultural tourism experience in archaeological site parks distilled in this study have a good credibility.

4. Element Extraction of Tourist Experience Demand in Archaeological Site Parks

Social network analysis is a method to analyze the degree of correlation between factors within a system and the degree of influence of each factor in the whole system. The social network analysis method can be used to explore and analyze the structural characteristics of the mixed experience elements in archaeological site parks.

In this paper, we constructed a social relationship matrix with mixed experience elements and converted it into a visual social relationship network diagram with Ucinet6 software, so as to show the social network members and their relationships and structural characteristics more clearly and explicitly.

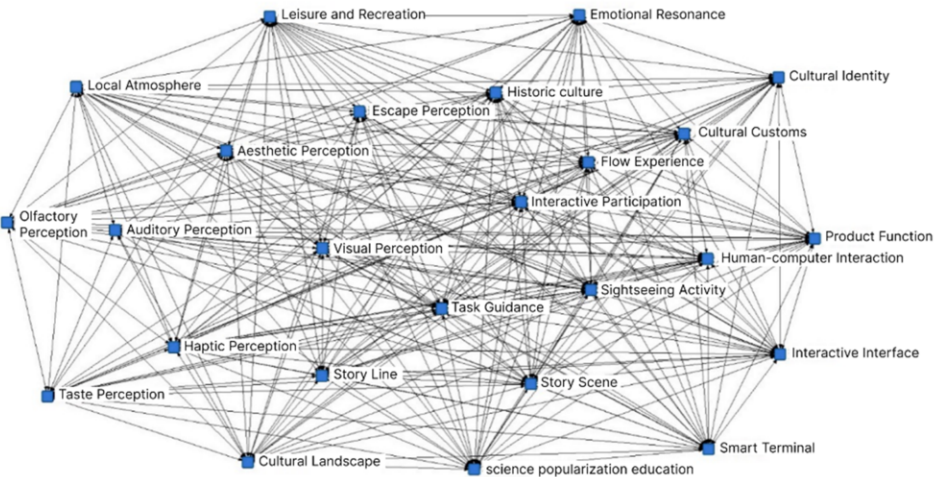
Overall, it is mainly divided into three steps:

First, the co-occurrence matrix is constructed based on the 25 mixed experience elements of archaeological site parks refined above as nodes, i.e., the number of times two mixed experience elements appear in a comment at the same time, so as to depict the inter-relationships between these two mixed experience elements.

Second, the co-occurrence matrix of the mixed experience elements is then converted into a 0-1 co-occurrence matrix, i.e., when the two elements co-occur is greater than 1, the corresponding matrix cell is assigned the value of 1, and vice versa is 0, and the binary matrix of the mixed experience elements is finally obtained.

Third, Using Ucinet software to calculate the overall density of this binary matrix, and the calculation result was 0.9067, that is, there is a close connection between the mixed-experience elements of the archaeological site park as refined above.

On this basis, the Net Draw function of Ucinet was used to visualize the relationship between the mixed experience elements, and the specific results are shown in Figure 2.3.



**Figure 2.** Structural network of mixed experience elements in archaeological site parks  
(Source: Ucinet, compiled by the author)

Core node is the association relationship generated by the relationship between each node element and other elements, if a node element is directly associated with many other node elements, the node is more important in the whole social network, and its influence on the mixed experience is also greater.

According to the figure above, the network of mixed experience elements in archaeological site parks has the characteristics of multi-core and high-density. In general, the core nodes of mixed experience elements in archaeological site parks mainly include the following five aspects:

- the perceptual presentation demand with the needs of visual perception, auditory perception, aesthetic perception, etc.



- the behavioral interaction demands the needs of interactive participation, excursion activities, and human-computer interaction;
- the scene narrative demands the needs of task guidance and story scenes as the core.
- the content perception demands the needs of history and culture, cultural scenery and storyline as the core.
- the main goal demands the needs of cultural identity, emotional resonance, and heart flow experience as the core.
- The above five dimensions together reflect the core demands of tourists for archaeological site parks.

5. Analysis of tourists’ experience demand elements in archaeological site parks

Based on the grounded theory and the basic research procedures of open coding, selective coding and theoretical coding, this paper examines and discusses the tourists’ experiential demands in archaeological site parks. Finally, it refined the 5 main demand elements of “perceptual presentation demand”, “behavioral interaction demand”, “scene narrative demand”, “content perception demand” and “main goal demand” in archaeological site parks.

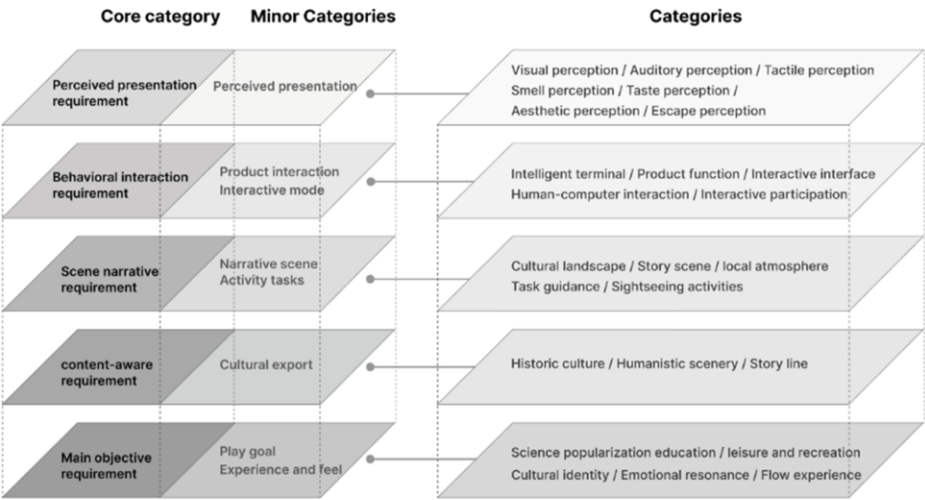


Figure3. Grounded theory research results and tourists experience demand element model of archaeological site park (image source: self-making)

In terms of perceptual presentation demand, it is the key channel for tourists to obtain the experience content, including sight, hearing, taste, touch, smell and other sensory perception. The way in which tourists perceive archaeological site parks is no longer single, and tourists can obtain the experience content through a variety of perceptual channel. Tourists are brought into specific cultural contexts to understand culture and are provided with personalized narratives and itineraries to create a mixed scene space of reality.

In terms of behavioral interaction demand, the objects that tourists communicate and interact with in archaeological site parks include tourism experience products and interfaces, scene experience facilities and other tourists. Tourists can actively communicate and interact with the park through behavioral interactions driven by intuition and the experience products set up by the segmentation to produce two-way interactions at the sensory and behavioral levels, and at the same time, produce an invisible emotional resonance and cultural identity for the park in the process of interaction.

In terms of scene narrative demand, tourists in archaeological site parks have the demand to feel the scene culture and participate in the cultural story. According to the experience motivation, experience needs and knowledge structure of different tourists, the richness and complexity of the scene narrative content is set hierarchically in this way; on this basis, the narrative content and story text are opened up, prompting tourists and other groups to become the interpreters of the scene narratives, and the narrative co-creation is carried out through the whole process of the tourist's experience, thus realizing the constant updating and continuous iteration of the narrative content.

In terms of content perception demand, on the one hand, it helps tourists to tap into the feelings and perceptions of the history and culture, to achieve content iteration from tourists' production, updating and optimization for periodically providing cultural content input for the national archaeological site parks, and to achieve benign and sustainable development of culture. On the other hand, it helps the national archaeological site parks to correctly grasp the characteristics of the cultural experience content.

In terms of main goal demand, it is the purpose of tourists to the archaeological site park, as well as the feeling demand in the middle and late stages for the tour, including three experience goals of producing cultural identity, achieving emotional resonance, and reaching the flow state in mind. In the mixed experience design, it is necessary to consider how to achieve the social attributes of scientific research, learning, education, leisure and entertainment of the site park and the diversified and personalized experience demands of the tourists.

To sum up, through the refinement of the 5 core demand elements, the author explores the tourist experience in archaeological site parks from 5 demand levels of perception presentation, behavioral interaction, scene narrative, content perception, and main goal, to construct the tourists' inner emotion and cognition from multi-dimensional aspects, to stimulate the deepest emotional resonance, and to ultimately achieve the cultural identity of the archaeological site parks.

## 6. Limitations and Prospect

Due to the limitations of research time, energy and ability, the research still should be improved and explored.

1. The samples of the data on tourist demand in archaeological site parks is relatively little, and some of the data in archaeological site parks could not be obtained, thus the analysis result may be biased, and the bias can be corrected in the subsequent study through more samples and more rigorous analysis.
2. This paper takes Ctrip.com comments as the sample, but tourists' characteristics are not obvious and the content is not clear, which may affect the accuracy of the analysis of tourist experience demand in archaeological site parks to a

certain extent, so in the follow-up study, the questionnaire could be designed to quantify the system of the demand component factors, in order to test and adjust the elements of the tourist experience demand in this paper.

It is hoped that there will be more and better methods for the research on the elements of tourist experience in archaeological site parks in the future, which will have far-reaching significance for how archaeological site parks can provide tourists with good service and product experience and thus create the value of their own products under the environment of the experience economy and the Internet.

## Acknowledgment

This paper is supported by "Research on the Development Strategy of Zhejiang Digital Tourism Cultural and Creative Products Based on Cultural Identity", the 2021 General Scientific Research Project of Zhejiang Provincial Education Department (Y202147412).

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