

A Probe into the English Interpretation and Education of Science Museum-Take Shanghai Astronomy Museum as an Example

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Abstract: In this globalized era, the phenomenon of "cultural multi-element co-generation" and "cultural flow" has become increasingly prominent, and the country needs to improve its cultural soft power in an all-round way. The function of the museum is not only to display, educate, and collect but also to have the responsibility for the communication of foreign languages. Therefore, English interpretation is an important force to help the museum develop this function. Taking the Shanghai Planetarium as an example, this paper discusses the problems in the English interpretation of science Museums and mainly puts forward the following three suggestions: first, to attract more talents with astronomical knowledge background; second, to strengthen the astronomical knowledge training for non-astronomical professional interpreters; third, to comprehensively improve the English interpretation level of interpreters and educators using cooperation between museums and schools, and to build a sustainable platform for English interpretation and communication.

Keywords: culture; education; astronomy, English interpretation

A museum is a building or institution that cares for and displays a collection of artifacts and other objects of artistic, cultural, historical, or scientific importance.

Generally speaking, the functions of museums include collection, research, display, education, and cultural communication with other countries. With the rapid development and frequent international communication, the function of cultural communication is increasingly prominent in a museum. In the era of cultural diversification, countries rely more on cultural soft power and build new competitive advantages by displaying cultural charm (Kuang, 2013).

Cross-cultural communication has become an iconic feature of this era (Chen, 2004). Cross-cultural

communication refers to the exchange of ideas and information between people with different cultural backgrounds through language, signals, and writing (Cheng, 2008). Therefore, English interpretation in Chinese museums is an important force to help museums fulfill the function of cultural communication. Chinese museums, as carriers to interpret and embody national history, culture, personality, and characteristics, should consider how to effectively realize the international communication and cross-cultural communication of Chinese culture. Compared to Chinese interpretation in the museum, English interpretation in Chinese museums shows its specific characteristic in the second language we use and the audience, including the background and cultural differences between the interpreter and the listener (Zhu, 2021).

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By taking Shanghai Astronomy Museum as an example, this thesis aims to discuss the difficulties that interpreters or educators confronted in English interpretation, the current conditions of English interpretation towards foreign visitors in the Shanghai Astronomy Museum, and put forward some suggestions to fulfill the educational function of museums, spread Chinese culture, enhance cultural soft power and protect the diversity of human civilization.

1. An introduction of Astronomy and the Shanghai Astronomy Museum

1.1 Astronomy

As a part of natural science, astronomy is a national science universal education is an indispensable and important part of the world's major countries that have attached great importance to it. Astronomy is the study of everything in the universe beyond the Earth, including objects we can view with our naked eyes, for example, the moon, the sun, planets in the solar system or other stars, and the things we can see with our man-made telescopes or other instructions, for example, black holes in the galaxies and other particles. What's more, some other invisible matters are also discussed in astronomy, for example, the famous dark matter and dark energy. The popularization of astronomy can take many forms, among which Astronomy museums (planetariums) play an irreplaceable key role in spreading the knowledge and latest achievements in this field.

Visitors to the Astronomy Museum (or planetarium) can enjoy an incomparable audio-visual feast while absorbing astronomical knowledge. For example, they can experience the starry sky in the planetarium, to be deeply impressed by the grandeur and magnificence of the universe, thus stimulating their interest and yearning for space and astronomy. The first planetarium in the world originated in Germany in the 1920s and has a very long history (Wu, 2017).

1.2 An introduction of the Shanghai Astronomy Museum

Shanghai Astronomy Museum (Branch of Shanghai Science and Technology Museum), is a science museum invested in by the Shanghai government. With an area of 58,000 m² and a floor area of 38,000 m², it is the largest astronomy museum in the world. Holding a vision of “to help visitors build an integrated view of the universe”, Shanghai Astronomy Museum is dedicated to intriguing visitors to know about the sky, understand the universe, and ponder on the future.

The main exhibition areas of the Shanghai Astronomy Museum consist of “Home”, “Cosmos” and “Odyssey”. The Museum provides visitors with a multi-sensory trip and helps them to build an integrated view of the universe. The visit to the “Home” exhibition area starts with the long-forgotten starry sky. Then visitors will leap into the universe, dazed by the huge Earth, Moon, and Sun. After the voyage into the Solar System, they will fly across the Milky Way Galaxy and know about human location in space. Then in the “Cosmos” exhibition area, the museum presents the amazing phenomena of the cosmos in the five theme areas of space-time, light, gravity, element, and life. Various interactive exhibits will help visitors understand the laws of the evolution and revolutions of celestial bodies. The “Odyssey” exhibition area will present the Odyssey of human's exploration of the universe, and the vision of the future of astronomy and aerospace, which will inspire visitors' thoughts and perceptions.

The museum is also scattered with some featured exhibition areas names “Astronomy in China”, “Wonder Planet” “Journey to Mars” and “Xihe Solar Tower”.

And in all these exhibition areas, “Astronomy in China” is the most Chinese characteristic, which learns about Chinese astronomical exploration and the evolution of China's astronomy from ancient to modern times and on to the present day.

Since its first opening to the world on July 18th, 2021, it has attracted more than 700,000 visitors and got countless praise from all over the world.

1.3 Featured classes that Shanghai Astronomy has for visitors

In addition to providing a good visiting experience and full explanation service, Shanghai Astronomy Museum has also developed a series of astronomy courses and forums for different age groups. For example, teachers have designed the "Little Galileo Class" brand course for children at younger ages to better understand some simple astronomical knowledge. For example, what is the Milky Way, why is the Earth a habitable planet, and so on. In order to let the public better understand some of the latest discoveries and knowledge in astronomy, Shanghai Astronomy Museum has invited many experts from home and abroad to give lectures to popularize astronomical knowledge.

2. Difficulties in English Interpretation

To provide a better service to all visitors, many museums in China have carried out multi-lingual interpretations, including English, French, Korean, and so on. Among all these languages, English interpretation is most frequently conducted. Shanghai Astronomy Museum is located in a super large city-Shanghai, according to the latest data in 2022, there are now 460,000 foreigners in Shanghai from 47 different countries, and many of them are also in the habit of visiting museums, so it is very important to be able to provide these foreign friends with a good experience and English interpretation to spread scientific astronomical ideas and promote Chinese culture. However, when conducting an interpretation of foreign languages, interpreters might be confronted with a lot of difficulties, for example, the cultural difference between Chinese and Western countries, context, background, and aesthetics.

2.1 Cultural differences between Chinese and Western countries

The difference in cultural context refers to the cultural difference between visitors and interpreters, which includes not only commonness but also individuality. The difference in the cultural background will result in individuality, and the recognition of scientific knowledge is usually the

commonality. In the main exhibition areas, Home, Cosmos, and Odyssey, the museum mainly displays the common sense about the things in the galaxies, the latest knowledge in Astronomy, and human beings' history about astronomy from 15000 BC to the present. However, in "Astronomy in China", visitors, especially foreign visitors will find it quite difficult to understand the history of Chinese astronomical development.

As is known to all, China is one of the four ancient civilizations in the world. The Chinese nation has a time-honored history and splendid culture and has made great contributions to the progress of human civilization. Throughout history, the Chinese civilization has had a unique cultural gene and its own development history. Rooted in the Chinese land, the Chinese civilization has interacted with other civilizations in the world, advanced in step with The Times, and enjoyed great vitality.

Extensive literature and books in China record a history of more than 3,000 years. Meanwhile, before the invention of Oracle bone inscriptions, there were still more than 1,000 years of civilization development in China and more than one million years of human development history without written records. Therefore, when talking about the history of China, it's very hard to explain in a few words.

Due to the cultural gaps and cultural conflicts, the expressions of some words in Chinese and English will be very incompatible. For example, the expression of "dragon" in English and Chinese, cultural meaning of "dragon" is completely different. In China, "dragon" is a symbol of auspice. Chinese people call ourselves "the descendants of the dragon", and we also call the ancient emperors "the true dragon and the son of heaven". However, in Western culture, "dragon" often symbolizes evil. In English, an old and very bad-tempered woman is also called a "dragon". Under the two different cultural backgrounds, the cultural meaning of the word "dragon" is completely different. Therefore, when introducing the contents related to ancient Chinese traditional culture, the interpreters should first fully understand the cultural differences and language

habits between China and Western countries, to avoid misunderstandings caused by cultural conflicts in the process of introduction. If the opposite meaning is expressed due to cultural differences, it will also have a very negative impact on the spread of Chinese culture (He, 2013).

2.2 Aesthetics

The difference in aesthetic emotions will also lead to some different tendencies in the process of appreciating cultural relics in China and Western countries. Chinese aesthetic taste is mainly based on artistic conception, while foreign visitors tend to prefer the beauty of intuition, logic, and simplicity in the process of appreciating cultural relics. In fact, this point is also greatly reflected in Chinese and foreign poems. For foreign visitors, the beauty of simplicity and logic must be emphasized in the process of explaining cultural relics containing aesthetic thinking, to arouse their resonance because it is more in line with their aesthetic standards and habits. Therefore, when we introduce aesthetics, we should take the audience as the theme to capture the essence of cultural relics, so as to better stimulate the desire of visitors to visit.

3. Current conditions of English interpretation towards foreigners

3.1 Number of English interpreters

According to previous research done by some other Chinese scholars, most of the museum staff in China can speak English and they have passed CET-6 in the universities and some of them have taken IELTS and TOEFL tests. In daily life, or when they meet visitors from other countries, most of them can communicate with them simply, for example, having a brief introduction to the museum, telling them how to store their luggage or where the toilet is. However, less than 30% of the staff will be able to complete the whole English interpretation and at the same time, respond to questions from the audience.

3.2 Specialty

There is a lack of astronomical professional literacy among the staff of the Astronomy Museum. Although it is an astronomical museum, the staffs of

Shanghai Astronomy Museum are not all astronomy oriented. Many of them are engaged in cultural relics, museology, education, communication, and so on. Therefore, there is a great shortage of astronomy professionals. Among the interpreters, their astronomy professional quality is also insufficient, so in the process of explaining to the audience, it is not able to explain astronomy knowledge to foreigners in a good and comprehensive way, not to mention the need to translate Chinese into English to explain to them.

3.3 Lack of cross-cultural awareness

As a form of intercultural communication, English interpretation plays an important role in the external communication of museums. English interpretation is not a literal translation from one language to another, but a cross-cultural communication behavior that relies on language to achieve cultural transmission, interpretation, and representation.

English and Chinese belong to Indo-European and Sino-Tibetan languages respectively. In terms of language structure, Chinese emphasizes parataxis and pays attention to understanding, while English emphasizes hypotaxis and pays attention to rationality (Cheng, 2008). There are huge differences between British and American culture and Chinese culture. British and American people pay attention to the concise, accurate, and intuitive language, which is in sharp contrast to the indirect, euphemistic, and curvy expression view of Chinese people. In cross-cultural communication, if the two parties cannot enter into the same cultural background, confusion or misunderstanding will easily occur, leading to communication failure (Sheng, 2017). However, according to the current situation, most of the interpreters find it quite difficult to enter the same cultural background since they have little idea about the background and history of Western countries.

4. Suggestions

4.1 Introduce more talents with the background of astronomy major

Considering the particularity of a science museum like an Astronomy Museum, it needs to attract more talents in astronomy, whether using them to teach students, explain astronomy professional knowledge to the audience, or give English interpretation to foreign audiences. It is also better to attract and develop professionals who are good at both astronomy and English, so as to create a more sustainable development of education and services for the venue.

4.2 Enhance the training of non-astronomy major interpreter

Since many interpreters are not astronomy majors, they do not have a comprehensive knowledge of astronomy. For example, they may have learned some basic knowledge in physics or geography classes in junior and senior high school, such as the earth's revolution and rotation, the eight planets of the solar system and their respective characteristics, but for some other professional points, for example, what types of telescopes there are, what situations each of these different types of telescopes are used for, what the cosmology of the Big Bang is, what black holes are, what gravity is, what the nature of black holes is and so on. But in fact, the audience needs to come to the planetarium, and the interpreters, need to be able to understand astronomical knowledge not only in Chinese, but also in English, and know the principles behind it. Among them, the most difficult is to explain and introduce the history of astronomy, to understand how human beings understand the universe and themselves, including not only ancient Chinese astronomy but also Greek, Indian, Arab, and British astronomy, etc. To this end, the interpreters need to research the topics to fully expand their knowledge base to support the content of the lecture, relate the content displayed or described to the visitor's personality or experience (Brochu & Merriman, 2008), show direct links from the past to the present, and connect Chinese culture with western culture. To connect the Chinese civilization with the world civilization and to help the audience establish an emotional and intellectual

connection with the intrinsic meaning of heritage resources.

Therefore, interpreters and educators can spare no efforts to learn astronomical knowledge in their spare time and attend astronomy lectures and forums. For example, interpreters can pay more attention to some of the latest discoveries in astronomy, such as the first picture of A black hole, the Milky Way's black hole - the first picture of a black hole in Sagittarius A*, including the techniques, difficulties, and history used to take these pictures. Sharing the latest news can also stimulate visitors' interest in Astronomy.

4.3 Strengthen the cooperation between museums and universities

Strengthening the training of English interpreters through cooperation between the museum and the school can improve the English interpretation level of the staff in the museum better and faster. For example, we can cooperate with astronomy experts in universities and invite them to adopt the method of "passing, helping, and guiding" so that they can have a better understanding of astronomy knowledge. For example, in Shanghai, teachers from Donghua University can be invited to give lectures on the history of astronomy and the philosophy of astronomy, and teachers from Shanghai Astronomical Observatory and Shanghai Jiao Tong University can also be invited to popularize some basic astronomy courses, so as to better increase the astronomical knowledge reserve of the interpreters. At the same time, in order to improve the oral English level of the interpreters, foreign language experts can be invited to take some courses on cultural differences between China and Western countries, tourism English and cross-cultural communication. In addition to inviting experts to give lectures, interpreters can also be organized to attend professional training and training classes in some brotherly venues or other institutions to improve their service awareness and response-ability. This can also better establish a platform for English interpreters to exchange, learn, and promote the gradual development of training to a deeper level.

Conclusion

To better realize the public education, entertainment, display, and publicity functions of science museums for foreign visitors, interpreters and educators in the museum need to achieve cross-cultural communication in the process of communicating with them. Museums and staff should also be actively aware of the problems that may be encountered in the process of spreading scientific ideas and traditional Chinese culture. For example, the number of English interpreters is not enough, the astronomy literacy is not enough, the astronomy professional staff's English communication level is poor, the lack of cross-cultural communication awareness, and some other problems. After recognizing these problems, science museums and staff should also take timely measures to solve these problems. Taking Shanghai Astronomy Museum as an example, it can take some active methods to solve these problems, such as attracting more interdisciplinary talents who are both good at astronomy and language, strengthening the astronomy literacy of English professionals, creating a good astronomy and English learning environment by strengthening the cooperation between museums and schools and building a long-term benign learning and training platform. It is hopeful that with the joint effort of managers of museums, interpreters, educators, and experts, our Chinese museum can spread the scientific idea and Chinese culture to visitors from all over the world in a more effective way.

Conflict of Interest

The authors declare that they have no conflicts of interest to this work.

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