



Study of Space Layout of Museum; A Case of International Mountain Museum at Pokhara, Nepal

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Abstract

Currently, the museum is one of the learning and pass time activities space for the public. A good layout of a museum can bring a wonderful visiting experience to the visitors. Overall, museums play an important role in preserving a town's cultural heritage, providing educational opportunities, attracting tourism, and promoting community engagement. Effective space distribution in a museum is critical for creating an engaging and informative experience for visitors. By carefully considering the needs and interests of different types of visitors, museums can create spaces that are both functional and aesthetically pleasing. But there are very few designed museums in Pokhara, one of the growing cities of Nepal. Also, it is one of the tourist-attracting places in Nepal. This paper explains the spatial layout of one of the designed museums of Pokhara. For this purpose, a well-known International Mountain Museum is taken as a case area by using observation and questionnaire survey methods. This museum displays a wide range of exhibits related to the Himalayan mountains, mountaineering, and the culture of the people who call the region home. In addition to the mountaineering exhibits, the museum also features displays of the history, culture, geology, flora, and fauna of the Himalayas. Overall, space distribution in a museum is designed to facilitate the flow of visitors through the space, while also highlighting the key messages and themes of the exhibits.

Keywords: *Museum, Space layout, Visitors, Pokhara*

1.Introduction

With the rapid development of the social economy, the public's demand for history and culture is on the rise (Wang et al., 2019). In this context, Museum is one of the major public facilities to provide such opportunities for knowledge and learning, along with leisure and relaxation. In addition to their educational and research functions, museums can also serve as important cultural institutions that help to preserve and celebrate a community's history, heritage, and identity. By providing access to unique and valuable collections, museums can inspire curiosity, creativity, and a sense of wonder in visitors of all ages and backgrounds. For audiences, the most intimate functional space in museum architecture consists of three aspects, i.e., exhibition, traffic space, and rest space (Le et al., 2013). Here exhibition space refers to the space where museum displays are planned, traffic space is the circulation space connecting various spaces, and rest space refers to the space where visitors can take a break from the tour to have some rest. Thus, this article takes part in exploring the layout of different functional spaces in a museum by taking International Mountain Museum at Pokhara, Nepal as a case study. Likewise, this research focuses on the study of the layout of those functional spaces taking a case of a museum. (Bitgood, 2022) explain orientation and circulation play a key role in marketing/public relations, education, audience research, exhibit design, and visitor services. According to him, various spaces are linked together by the planning of orientation and circulation. Form of the circulation is how the pathways for movement are integrated into the spatial organization of a building. (Elottol & Bahauddin, 2011).

1.1 Space Layout of Museum

The space layout of a museum is an essential aspect of its design, as it can significantly impact the visitor experience. Here are some key considerations when studying the space layout of a museum:

- Visitor flow: The museum's space layout should be designed to guide visitors through the exhibits logically and intuitively. This can involve creating clear entrances and exits, designing pathways that naturally lead from one exhibit to another, and using signage to direct visitors.
- Exhibit placement: The placement of exhibits within the museum space should be carefully considered to maximize their impact. For example, exhibits that are visually

striking or that tell a compelling story may be placed in prominent locations, while smaller or less engaging exhibits may be placed in less prominent locations.

- **Lighting:** Lighting is an essential aspect of the museum space layout, as it can significantly impact the visitor experience. Proper lighting can highlight exhibits and create a welcoming and inviting atmosphere, while poor lighting can make exhibits difficult to see and detract from the overall experience.
- **Accessibility:** The museum's space layout should be designed with accessibility in mind, ensuring that visitors with disabilities can easily navigate the exhibits. This may involve designing wheelchair-friendly paths, providing audio guides for visitors with visual impairments, or using braille signage.
- **Comfort:** The museum's space layout should be designed with visitor comfort in mind, ensuring that visitors have a pleasant experience. This may involve providing comfortable seating areas, designing temperature-controlled environments, or incorporating rest areas into the exhibit spaces. (Joshil, 2021)

1.2 Space Path Relationship

The space-path relationship in a museum refers to how visitors move through and interact with the different spaces in the museum. The spatial layout of a museum is designed to guide visitors along a specific path, allowing them to view the exhibits in a logical and engaging sequence. The relationship between the path and space in a building can be linked in three different ways:

- 1 The path passes by the spaces, ensuring the integrity of each space.
- 2 The path passes through spaces.
- 3 The path terminating in a space (Ching, n.d.)

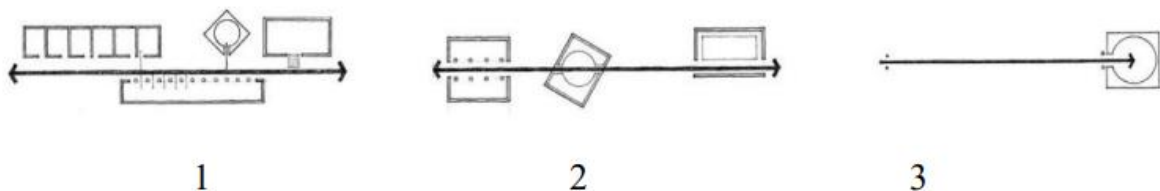


Figure 1: Space Path Relationship (Ching, n.d.)

1.3 Basic circulation patterns

The basic circulation patterns in a museum are the pathways or routes that visitors take as they move through the museum's exhibition spaces. These patterns are designed to guide visitors through the exhibits logically and engagingly, while also ensuring that visitors have access to all areas of the museum.

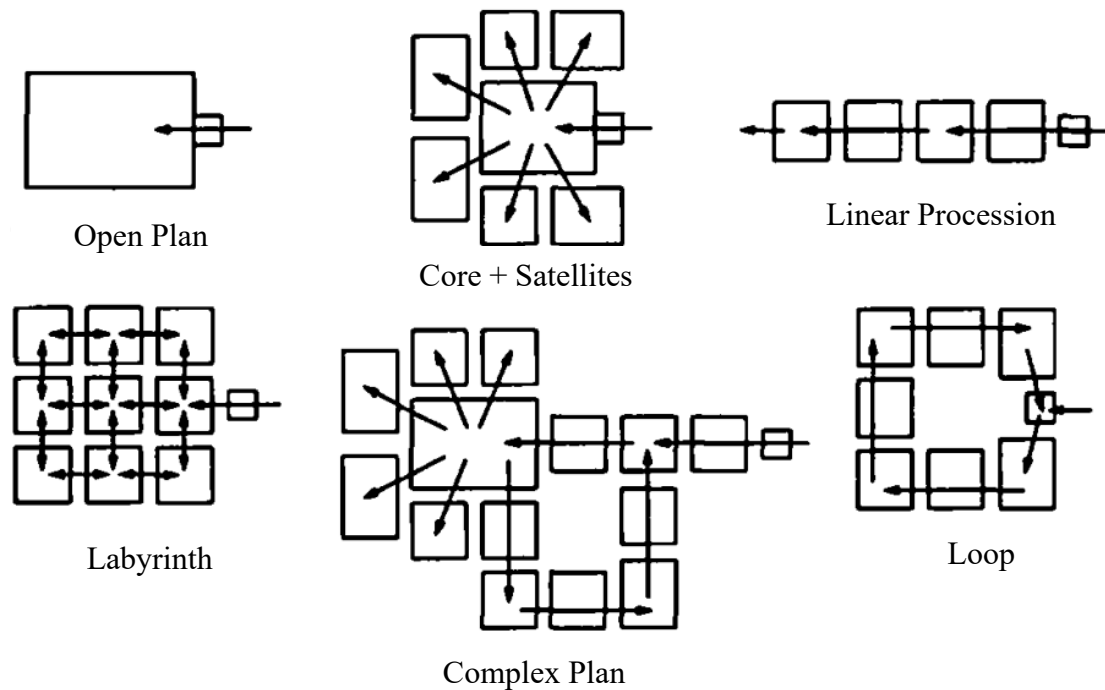


Figure 2: Basic circulation patterns (*Ching, n.d.*)

Overall, the space layout of a museum should be carefully considered and designed to maximize the visitor experience. By paying attention to factors such as visitor flow, exhibit placement, lighting, accessibility, and comfort, designers can create a space that is engaging, informative, and enjoyable for all visitors. A layout of exhibition space is a tie link between the public and the object, so a reasonable layout of displays can bring a wonderful visiting experience for visitors. Here a well-designed museum is taken for analysis to study the layout of the existing exhibition space. After the detailed observation and field survey it is also considered as, a unique and engaging space distribution in Pokhara that reflects its focus on mountains. Its central atrium and carefully curated exhibits make it a must-visit destination for anyone interested in mountain culture and history

2. Materials and Methods

2.1 Introduction to Study Area

International Mountain Museum is located in *Ratopairo*, Pokhara (a beautiful city with spectacular views of mountains), Nepal. The museum is selected for the study because it is the first purposefully designed museum building in Nepal and opened officially on 5 Feb 2004. (Pujari, 2010). The objective of the museum is to record, document, and chronicle the past and present development of mountaineering activities in the world is a valuable contribution to the preservation and celebration of mountaineering history and culture. The focus on the Himalayan peaks is particularly relevant, given the significant role that these mountains have played in mountaineering history and the unique challenges they present to climbers. (Takehana, 2004)

The museum's focus on the mountains of Nepal, the mountaineers who climbed them, and the people who call them home make it a valuable resource for preserving and celebrating Nepal's cultural heritage. It's impressive to hear that the museum attracts over 100,000 domestic and international tourists each year. This level of visitorship highlights the importance of designing museum spaces that are engaging, informative, and accessible to a wide range of audiences. The fact that the museum records, documents, and exhibits past and present developments related to mountain and mountaineering activities around the world suggests that the spatial layout of the museum may play an important role in conveying this information to visitors. (Takehana, 2004)

The museum contains three main exhibition halls: the Hall of Great Himalayas, the Hall of Fame, and the Hall of World Mountains. There are exhibits on famous peaks, descriptions of famous mountaineers, the culture and lifestyle of mountain people, flora and fauna including geology, in an attempt to represent the traditional culture and values of the Nepalese people.

There is also an exhibition about the Yeti, an outdoor "living museum" dedicated to Nepal's indigenous tribes, and a 31-foot replica of Mt. Manaslu. (Obscura, 2022)



Figure 3: International Mountain Museum

The museum runs under the direct supervision of Nepal's Department of Archeology and it spreads over a hundred ropanies (1 ropani =508 sq m) of land. Along with the museum building, the museum premise consists of an entrance, parking for visitors, a ticket counter, staff parking, a rock-climbing wall, a restaurant, small vernacular buildings, a Miniature model of Mount Manaslu for climbing, a pond, statue of three personalities who contributed for the establishment of a museum, Chorten, botanical garden and garden spaces. (Keshav, 2016)

2.2. Methodology

The current situation of museum space is observed through the detailed literature review, site visit, and survey among the varieties of public visiting mountain museums. The survey is conducted on-site for local and foreign visitors whereas it is taken through google forms among students and scholars.

As the museum is the only designed museum in Pokhara, all the architectural students once visited there so, the views of 20 students from Pokhara Engineering College, Phirke, Kaski was collected. On the other hand, the survey is conducted among 20 scholars of architecture faculty who can give ideas about the spatial layout of the museum. Similarly, the ideas of 30 common visitors and foreigners were also taken into consideration.

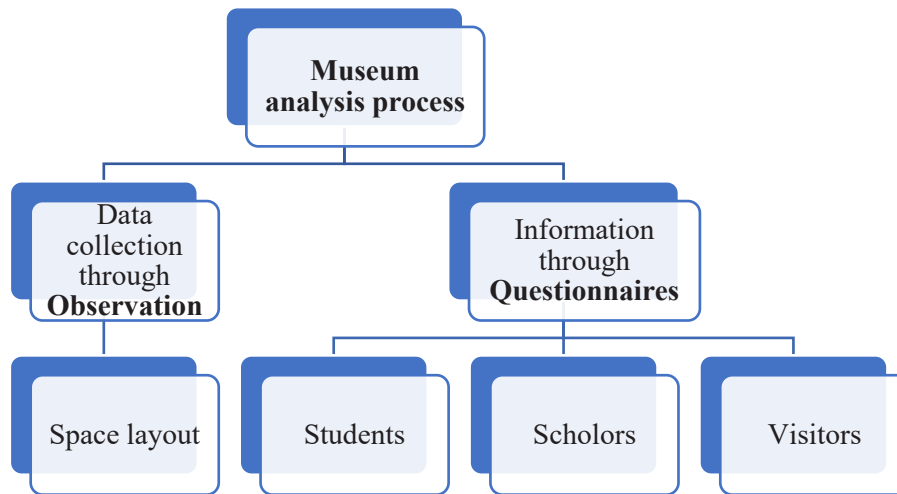


Figure 4: Methodology during the study of the museum

3. Results and Discussion

3.1 Space analysis in the interior portion of the building

The space analysis inside the International Mountain Museum in Pokhara reveals that the building is well-designed to serve its purpose. The museum is divided into several exhibition halls, each with a specific theme or focus. The layout of the museum is arranged in a way that allows visitors to move from one hall to another easily and without confusion. The museum building consists of two floors; the basement and the ground floor. The idea behind the spatial arrangement of the museum was to create three different exhibition areas, displaying different aspects of mountains (Pujari, 2010). According to (Takehana, 2004) exhibition areas inside the building in the basement and ground floor are named;

- Mountain people gallery
- Mountain gallery
- Mountain activities gallery
- Associates' gallery

3.1.1 Space distribution in a basement area

The exhibition halls are arranged chronologically, with the first hall focusing on the history of mountaineering in Nepal, followed by halls showcasing the culture and lifestyle of the mountain people, the geology and flora and fauna of the Himalayas, and finally, the equipment used in mountaineering expeditions. Each exhibition hall is spacious and well-lit, with plenty

of natural light streaming in through large windows. The displays are arranged in an organized and easy-to-follow manner, with the following exhibition areas:

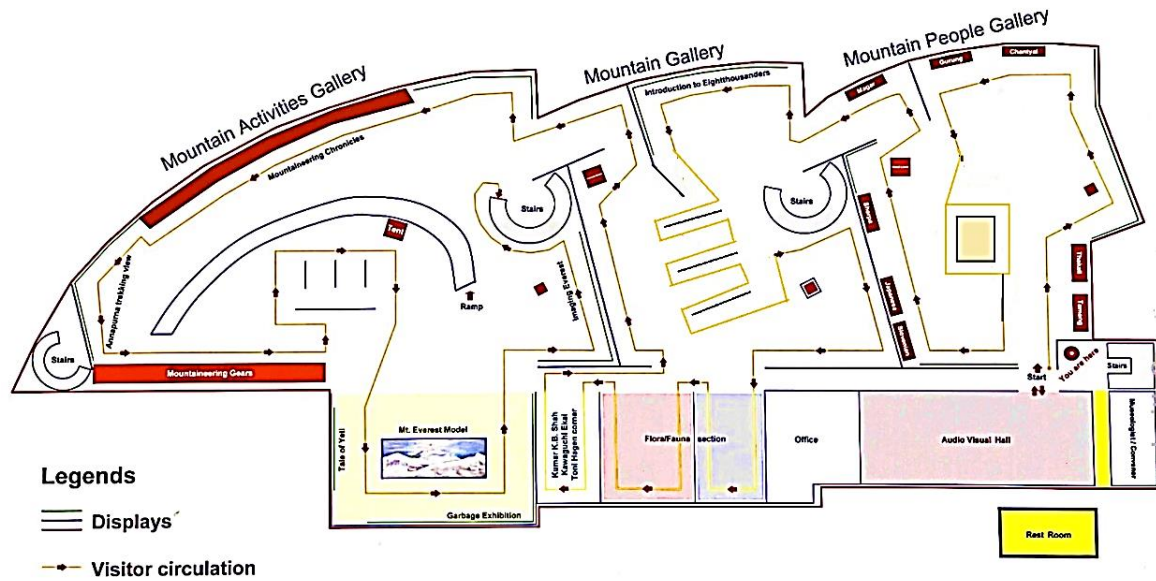


Figure 5: Exhibition layout plan of basement area

3.1.1.1 Mountain people gallery

As the journey begins, visitors are led to the mountain people gallery which has an impressive display of artifacts arranged systematically. This is the first gallery where people get to explore the lifestyle, culture, and traditions of the inhabitants of the region. The space layout walks through the display elements which is as shown in figure 6. Before entering this part of the museum, a short documentary is shown in the video hall. This video serves as a prelude to the exhibits in the gallery. The entire journey after the screening of the video makes the walk through the room more interesting and relatable.



Figure 6: Walk through display area layout



Figure 7: Exhibit area in museum

3.1.1.2 Mountain gallery

As people proceed further, they are led to the mountain gallery the geological history and other detailed information on the mountains can be found. Plant and animal replicas, rock samples, and photographs from the tallest peaks climbed so far have been exhibited here. Most of these artifacts were donated generously by prominent personalities who are passionate about the mountains, the sport, and the museum which is displayed in a walkthrough layout as shown in figure 7. Which is in the pass-by spaces type as shown in figure 8. (Ching, n.d.)

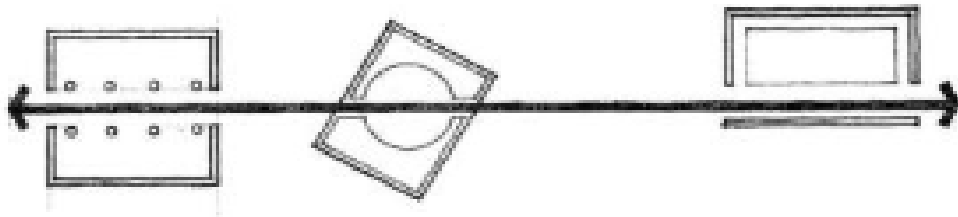


Figure 8: Pass by spaces layout (Ching, n.d.)

3.1.1.3 Mountain activities gallery

The next section is dedicated entirely to the activities on the mountains and is called the activities gallery which has exhibits of apparel, gear, equipment, and photographs of the numerous mountain expeditions that took place in the region. Artifacts from the French expedition up the Annapurna led by Maurice Herzog in 1950, the one completed by Junko Tabei, the first woman from Japan to climb Mt. Everest, by Timanishi who was one of the first summiteers to climb Manaslu, and the British expeditions to Mt. Everest that were carried out between 1921 and 1953 are properly displayed in separate sections in the gallery as shown in figure 9.

A stunning collection of photographs of all the peaks that were conquered by courageous mountaineers is a must-see here. This section also gives insights into the mythical mammal, yeti, a humungous brown bear. Stories and photographs of the signs and footprints that the mammal is believed to have left behind are also exhibited like the path terminating in a space as shown in figure 11.



Figure 9: Mountain Model in separate section



Figure 10: Open space layout

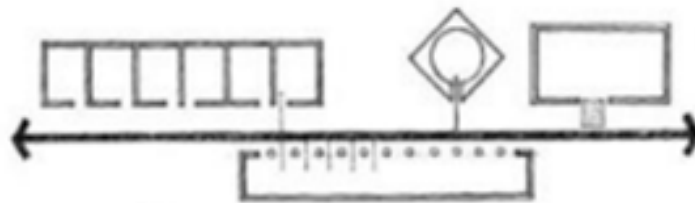


Figure 11: Path terminating in a space (Ching, n.d.)

3.1.2. Space distribution in the ground floor area

The museum also has a library and a research center, which are located on the upper floor of the building. The library contains a wide variety of books and resources related to

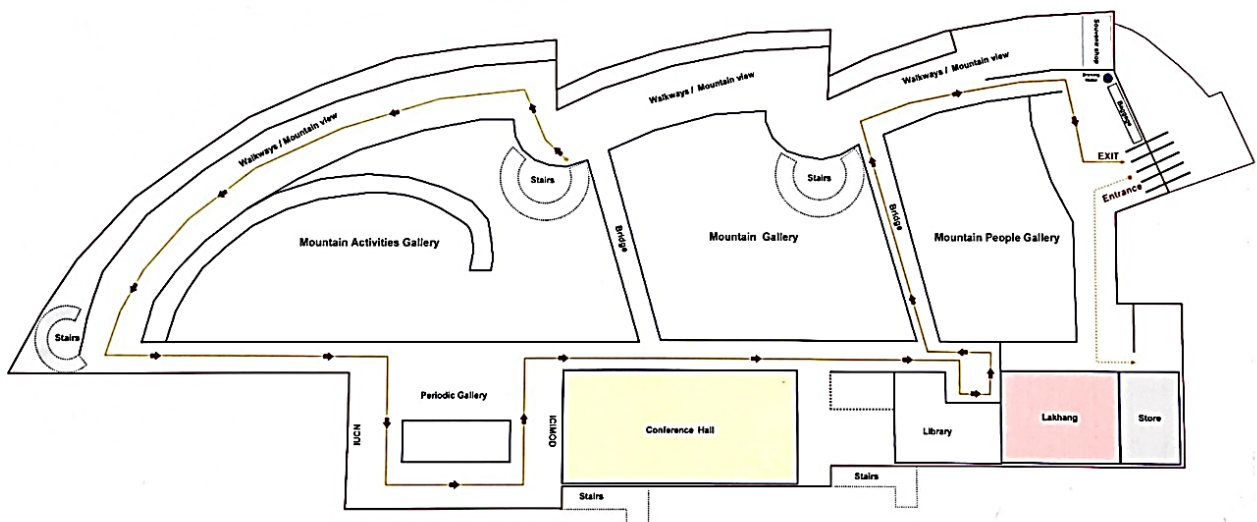


Figure 12: Ground floor plan

mountaineering and the Himalayas, while the research center is equipped with state-of-the-art

facilities to support research and scholarship in the field. One of the most striking features of the museum's space distribution is its use of a central atrium. This atrium is designed to resemble a mountain, with a spiral staircase that winds its way up to the top. Visitors can climb the staircase to get a panoramic view of the surrounding area, including the Himalayas as shown in figure 10. This layout is considered as a pass-by-space layout as shown in figure 8. The upper floor of the museum is also named as associates gallery.

3.1.2.1 Associates' gallery

After the basement floor is explored, visitors are taken to the associates' gallery on the ground floor where there are displays of the socio-economic life of the region. The collection spans different periods in the past and highlights some important phases. Insights into the plans for the future that will help conserve the biodiversity and evolution of the people in the region can also be found here. This draws quite a few researchers and enthusiasts who seek information to bring about positive change through their studies and innovations.



Figure 13: Library area

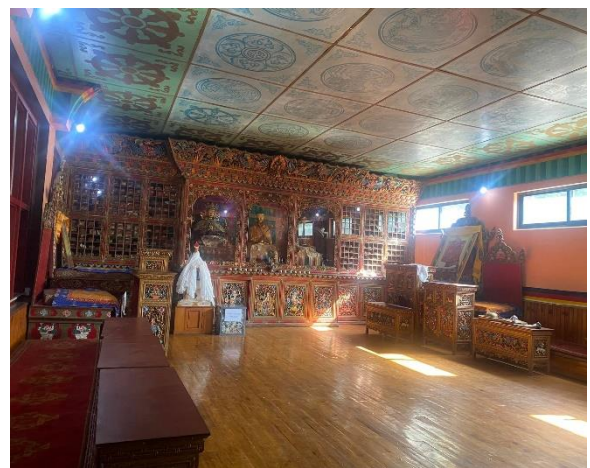


Figure 14: Lakhang (Worship) Area

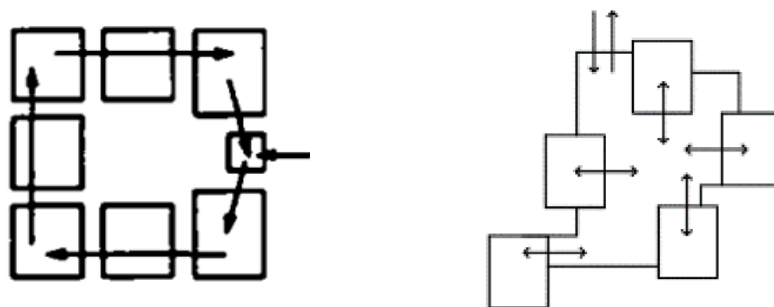


Figure 15: Loop layout in ground floor area (Ching, n.d.)

Overall, the spatial analysis of the International Mountain Museum in Pokhara reveals a well-designed and functional space that is conducive to learning and exploration.

3.2 Space analysis in landscape areas:

The museum spreads over hundred ropanies (1 ropani =508 sq m) of land. Along with the museum building, the museum premise consists of an entrance, parking for visitors, a ticket counter, staff parking, a rock-climbing wall, a restaurant, small vernacular buildings, a Miniature model of Mount Manaslu for climbing, a pond, a statue of three personalities who contributed for the establishment of a museum, Chorten, botanical garden and garden spaces.

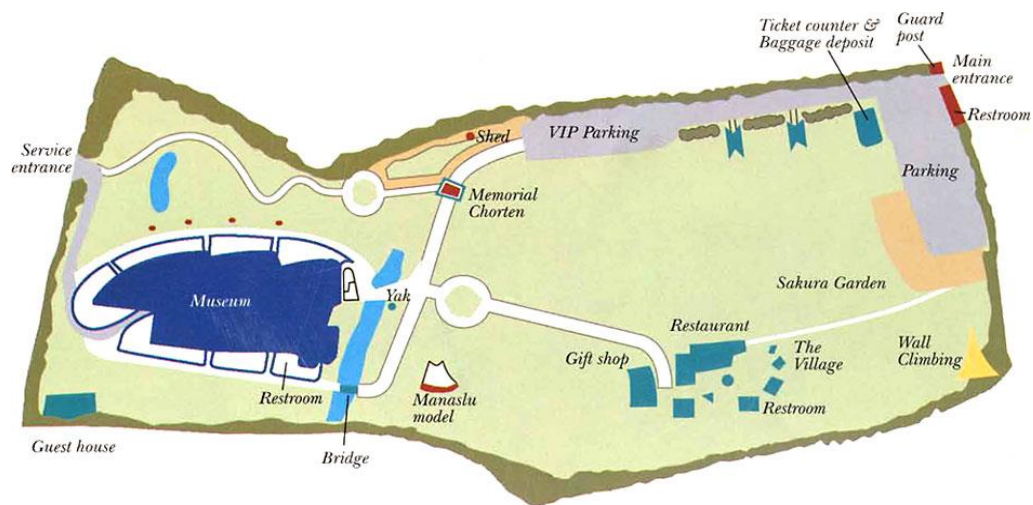


Figure 16: Exhibition layout in landscape areas

The exhibit area in the outdoor section is around 572.6 sq. ft. and the route for the movement is 2036 ft, which is calculated as per the master plan of a museum as shown in figure 16.



Figure 17: Water bodies in front of building

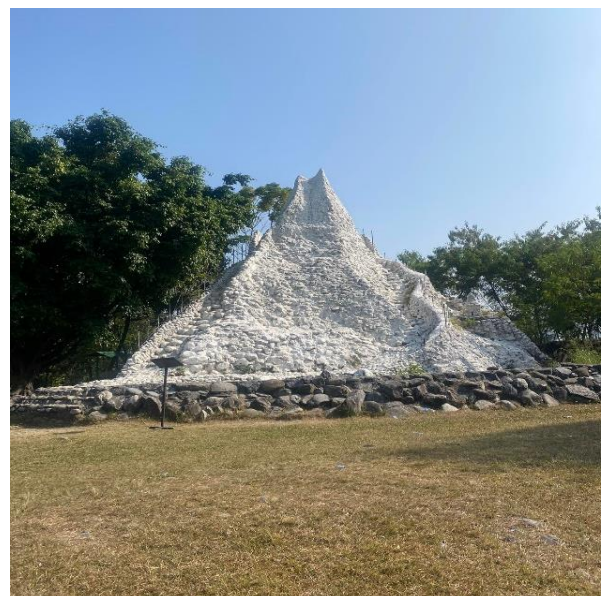


Figure 18: Model of Mt. Manaslu

3.3 Distribution of spaces in the museum

Space distribution in a museum is how different areas or zones within the museum are organized and arranged. This includes the placement and layout of exhibits, the design, and arrangement of circulation paths, and the allocation of spaces for amenities which is useful to guide visitors through the space. Some exhibits are interactive, such as a simulated mountaineering experience that allows visitors to climb a virtual mountain. Other exhibits include dioramas and multimedia displays that showcase the natural beauty and cultural richness of mountain regions around the world which are also arranged in tabular form below.

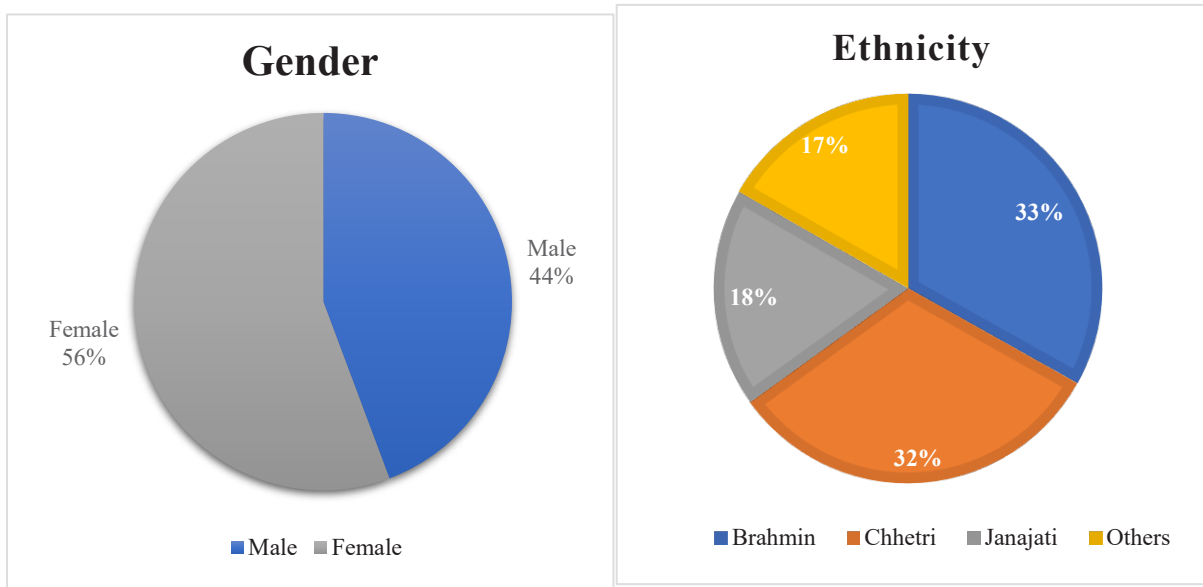
Table 1: Distribution of spaces in museum

Floor	Space distribution in museum	Exhibit area (Percentage)	Route (Percentage)
Basement Plan	<ul style="list-style-type: none"> • Ethnicity gallery, • Mandala, • Introduction to eight-thousanders, • Mountaineering Chronicles • Annapurna trekking view area • Mountaineering gears • Mt. Everest Model • Imaging Everest • Garbage Exhibition • Flora fauna section • Office • Audio visual room • Restroom 	67 %	75 %
Ground Floor Plan	<ul style="list-style-type: none"> • Entrance • Walkways mountain views • Lakhang • Library • Conference hall • Periodic gallery 	33 %	25 %

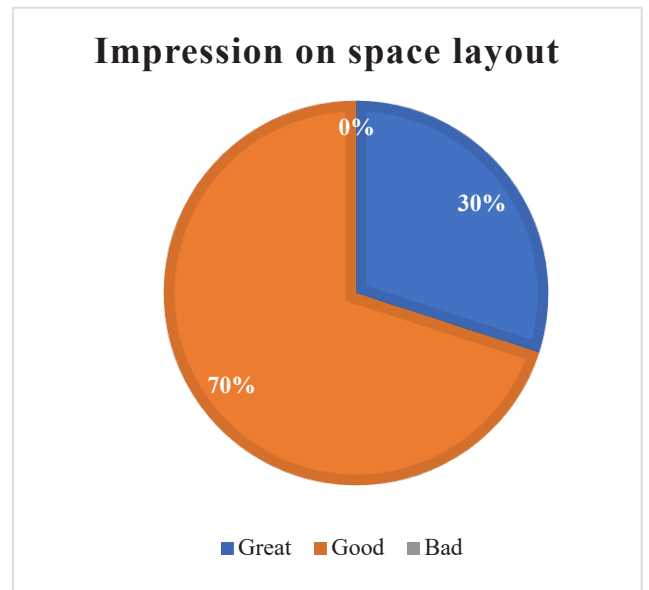
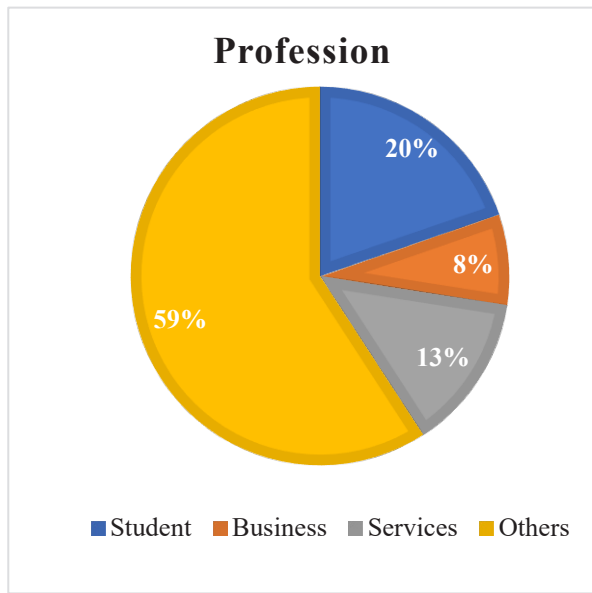
The provided table illustrates that the basement plan consists of around 75 percent of the layout route which is more than that of the route on the ground floor which is 25 percent. Also, the maximum travel route is found in the landscape area, as the outdoor space is more than the built space of the museum itself. The overall exhibition area is higher in the basement area which equals to 67 percent, as the upper floor consists of a void with an exhibit area of 33 percent.

3.4. Data Analysis:

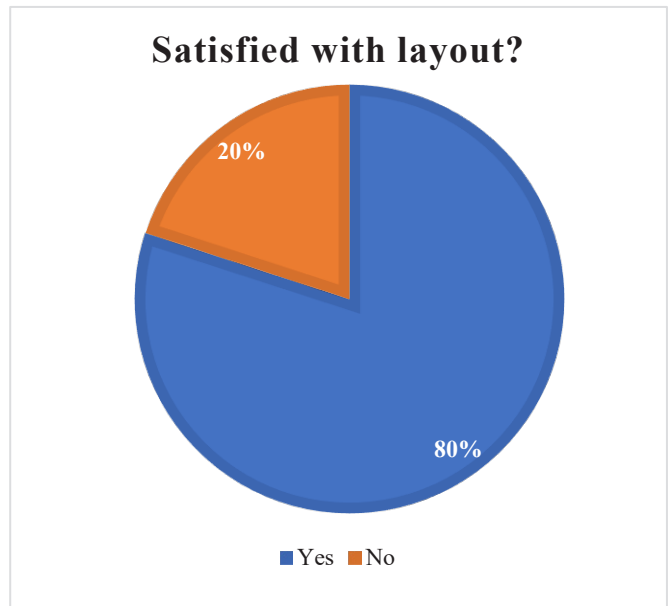
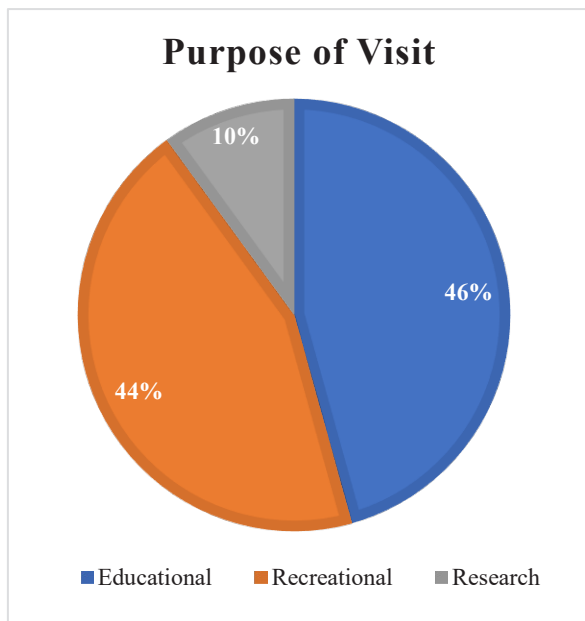
As per the survey conducted among the 70 respondents following information is gathered.



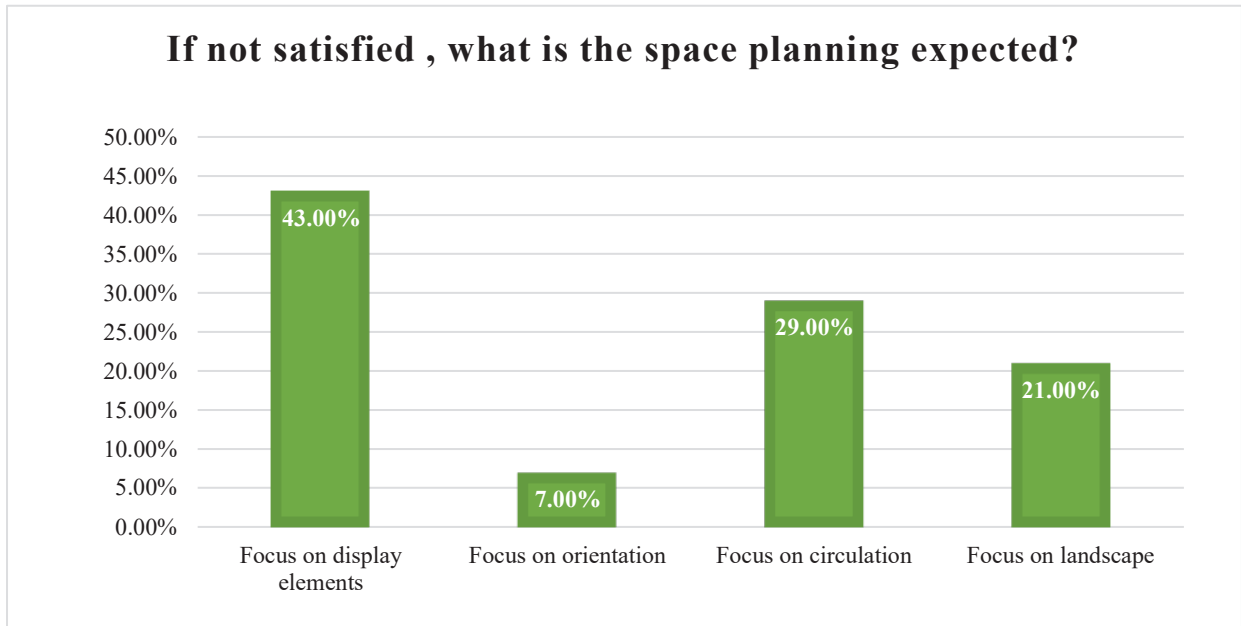
The above pie chart illustrates that 56 percent of females and 44 percent of a male are there in a random selection of respondents. Among them 33 percent are Brahmin, 32 percent are Chhetri, 18 percent are janajati and 17 percent are from another ethnic group.



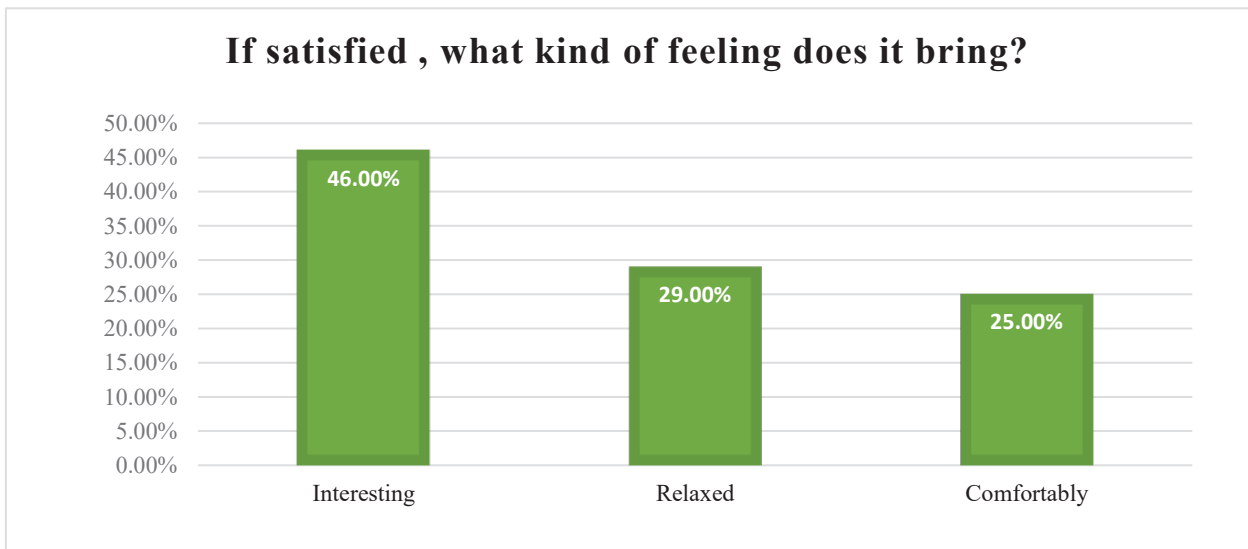
Similarly, the profession of respondents is limited to a student (59 percent), business (8 percent), services (13 percent), and others (8 percent). Among them, 30 percent of visitors have a great impression of the layout and 70 percent have a good impression, there are no people who do not like the layout of the museum.



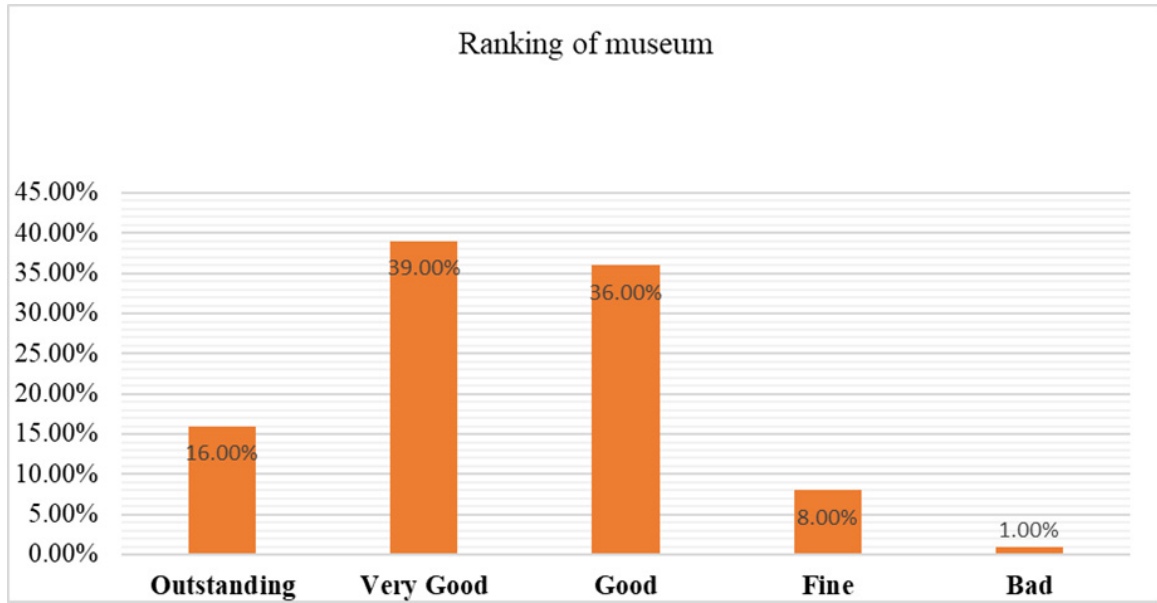
The above-given pie charts depict the information about the purpose of visiting a museum and their satisfaction with the layout. 44 percent, 46 percent, and 10 percent of visitors are in the museum for recreational, educational, and research purposes respectively. Among them, 80 percent are satisfied with the layout and 20 percent have not satisfied.



The people who are not satisfied with the space planning have given ideas on various improvement topics. The highest percentage of people around 43 percent are telling to focus on display elements whereas the lowest (around 7) percentage of people have given their feedback to improve the orientation of the museum. Similarly, 29 percent and 21 percent of visitors' idea is to improve circulation and landscape respectively.



The above graph provides information about the feeling of satisfied visitors. 46 percent find the museum interesting; 29 percent are relaxed and 25 percent are comfortable.



Among 70 respondents, the highest percentage of visitors find the space of the museum very good, and the lowest percentage of people are unsatisfied with the layout of the museum. About 16% of visitors find it outstanding whereas 8% are fine with the museum space. Similarly, 39% and 36% of people find it very good and good respectively.

4. Conclusions

From the observation and the questionnaire survey among the various visitors, it is found that the museum is one of the important spaces for the public. As per the survey conducted among students, scholars, and local and foreign visitors, 80 percent are satisfied with the layout and 20 percent have not satisfied with the present scenario and have given feedback on the improvement of the space layout. Most of the feedback is concerned with the clear circulation pattern and display elements in the museum. Also, among 70 respondents, the highest percentage of visitors find the space of the museum very good, and the lowest percentage of people are unsatisfied with the layout of the museum. The highest percentage of people around 43 percent are telling to focus on display elements whereas the lowest (around 7) percentage of people have given their feedback to improve the orientation of the museum. Similarly, 29 percent and 21 percent of visitors' idea is to improve circulation and landscape respectively. By addressing the concerns raised in the survey, the museum can continue to serve as an important space for the public and attract a wider range of visitors.

5. Future works

The International Mountain Museum is one of the designed museums of Pokhara, though it needs to be updated as per the research. Considering the feedback from the visitor many changes to the space layout could be done in coming future.

Acknowledgements

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