



## UNDERSTANDING VISITOR BEHAVIOUR IN SCIENCE MUSEUM

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### Abstract

*Science is one of the important school subjects. It allows one to develop critical thinking, reasoning and problem solving skills. The science of today is the technology of tomorrow; hence it is an important subject to study. Suter, Larry E. (2014), supported that student attendance at science museums finds that student achievement in science and mathematics is somewhat higher for those students who visited science museums frequently during the school year or summer. The main aim of the study was to analyze visitors' perceptions about Nehru Science Centre with respect to its activities and educational programmes. The data was collected from 100 students and 100 general visitors of Nehru Science Centre. Outcome of the study revealed that, most of the respondents both students and other general visitors of science museum clearly indicated that they found the various exhibits and activities of Nehru Science Centre either good or an excellent. It means they were happy with the way the scientific exhibits are placed in science museum. It clearly indicates that they found the exhibits and activities educationally effective and valuable.*



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Science is one of the important school subjects. It allows one to develop critical thinking, reasoning and problem solving skills. Science is everywhere, with the knowledge of science one is able to understand the existence of life and enables one to develop technology to assist life. There are different ways in which a learner learns, one of the best being learning by doing. Science is more of a practical subject. The Nation must invest heavily in engaging the public in science. When people are left behind in their understanding of the facts, the importance of science education is understood. Our knowledge of how and why things are the way they are in the natural world is our greatest natural resources, second only to water. The science of today is the technology of tomorrow; hence it is an important subject to study.

### **Importance of Science Museums:**

When we teach students about different concepts of science, reflection of light, potential energy, circulation they only learn about the facts at the most they take forward their learning with the help of videos or by doing practical's. How about life sized big working models? or learning about same concepts outside classroom setup? This is exactly when Science centres come into picture.

Many students find science extremely inspiring and interesting. Science instils a sense of intrigue and enables students to develop understanding and form questions based both on the knowledge they already have and the insight they wish to gain in the future. Students who excel in science lessons are likely to develop a strong ability to think critically. Whatever we learn we should be able to apply it in our real-life situation. For this it is important for learning to happen outside classroom. Science can't be learnt entirely inside four walls of the classroom.

Science museums are places which emphasize hands on approach, featuring interactive exhibits that encourage visitors to experiment and explore. Science museums help to build interest about science in all from students to general public of all age group. A range of studies have documented that children and adults pursue lifelong science interest and understanding in and out of school using a variety of community resources (e.g., libraries, science centres, aquariums and zoos, broadcast and print media and the Internet)

Filippoupoliti, Anastasia; Koliopoulos, Dimitris, (2014), reported that growing number of research articles in recent years have treated the role of informal settings in science learning, the subject of the history of science in museums and its relationship to informal and non-formal education remains less well explored. The researcher's aim of review was to bring together the studies of history of science in science museums and explore the opportunities for the further use of the history of science in science museum education practice.

Shaby, Neta; Assaraf, Orit Ben-Zvi; Tal, Tali, (2017), investigated learning in science museums through the most common activity in a science museum--interaction with exhibits. The aim of this research was to characterize the learning behaviours exhibited by 1800 students aged 10-12 (4th, 5th, and 6th graders) as they engage with interactive exhibits in order to draw insight regarding the design of the exhibits. The outcome of the study revealed several design elements that contribute to engagement with exhibits in science museums. For example, exhibits that have familiar activation encourage visitors' interaction, exhibits that facilitate social interaction are more likely to increase engagement, and the highest levels of engagement can be found in exhibits that support large groups.

Archer, Louise; Dawson, Emily; Seakins, Amy; Wong, Billy, (2016), carried out a small case study on ten urban families' and studied their experiences as falling into three discourses, as "disorientating", "fun" or "meaningful" visits. The major focus of the study was to study was, how the families' experiences, and the likelihood of deriving science learning from the visit, were shaped through interactions of "habitus" and capital.

Chung, Beom Sun; Park, Eun-mi; Kim, Sang-Hee; Cho, Sook-kyoung; Chung, Min Suk, (2016), placed more than 20 comic strips that were associated with exhibits in a science museum. The idea was to evaluate how these comic strips contribute to science exhibitions. The outcome of the study revealed that most visitors responded that the comic strips were helpful in understanding the exhibits and in familiarizing themselves with the science. They also described and pointed out the comic strips' deficiencies for future revisions. It was also observed that comic strips are likely to enhance interest in and comprehension of science exhibitions. Furthermore, these strips are expected to enrich science museums in various ways such as establishing their uniqueness.

Suter, Larry E.(2014), supported that student attendance at science museums finds that student achievement in science and mathematics is somewhat higher for those students who visited science museums frequently during the school year or summer.

Briseno-Garzon, Adriana, (2013), examined the influence of the Mexican socio-cultural context on the participant family members' learning outcomes from a Mexican science museum. The researcher has discussed the cognitive and social outcomes of the participants with reference to their socio-cultural elements that define Mexicans as museum learners.

Thomas, Gregory P.; Anderson, David, (2013), investigated parents' meta-cognitive procedural & conditional knowledge in relation to their own and their children's thinking & learning processes. The research revealed that parents aware that this meta-cognitive knowledge influenced their interactions with their children, seeing this as appropriate pedagogical action for them within the context of the particular exhibit and its task requirements at the science museum. These findings have implications for exhibit and activity development within science museum settings.

Chen, Guang; Xin, Youlong; Chen, Nian-Shing, (2017), found that the mobile label assisted system can effectively guide visitors to interact with exhibits, conduct thoughtful learning, and prolong the visiting stay-time through his research on development of mobile label assisted system using the 5E Learning Cycle approach based on iBeacon technology in a science museum. The researcher further added that Visitors were willing to visit the science museum with it. The application of iBeacon to design mobile label system was used proved to be useful in a science museum. This experiment revealed that iBeacon technology has huge potential applications for the future science museum.

Morentin, Maite; Guisasola, Jenaro, (2015), studied Primary and Secondary Teachers' Ideas on School Visits to Science Centres in the Basque Country and reported that there is

consensus that in the case of pupils visiting a science centre, learning improves when the visit is connected to the classroom curriculum.

Nehru Science Centre incorporates innovative ways to communicate science to enthuse, entertain, initiate, excite and bring the developments of science & technology to the doorstep of common people for prosperity, awareness, and improving the quality of life. The centre attempts to enhance public understanding of science and spread scientific literacy.

Science centres are part of the movement striving to enhance public understanding of science. The educational aspects of science centres have been the subject of numerous studies, while there is much less tangible information on the economic, political, or public impact of institutions. There is clear evidence that learning behaviours occur in non-formal settings.

**Aims of the study:**

1. To study visitors behaviours of Nehru Science Centre in relation to its educational programmes.
2. To analyze visitors perceptions about Nehru Science Centre with respect to its activities and educational programmes.

**Objectives of study:**

1. To study visitors behaviours at Nehru Science Centre with respect to educational activities and programmes.
2. To analyze visitors perceptions about Nehru Science Centre with respect to its activities and educational programmes.
3. To draw inferences from visitors views about Nehru Science Centre with respect to its activities and educational programmes.

**Scope of the Study:**

This study covers the perceptions and views of visitors of NSC with respect to the exhibits and the educational programmes conducted. This analyzes feedback of visitors to improve the quality of exhibits and other services of Nehru science centre to make it more likeable by the visitors.

**Significance of study:**

The findings of this study will benefit the society by drawing the attention of the people to Science centres. This study will help in ascertaining the role of science centres in creating the awareness and scientific knowledge in the field of science and technology among its visitors.

### **Research Design:**

For the present study, the researcher used the descriptive study of comparative type. Stratified random method was used to collect data. Data was collected from 100 students and 100 general visitors of Nehru Science Centre. The tool was constructed with a purpose of collecting data from students and other general public/visitors. The items included in the questionnaire were kept with a purpose of seeking their perceptions, views and opinions about the various galleries, exhibits and activities of Nehru Science Centre.

### **Data analysis and finding of the study:**

The following observations were made about the exhibits were visited by students and other general visitors:

1. Brain And Senses – 90% Visitors Visited This Exhibit.
2. Liquid Painting – School students showed greater interest in this exhibit than general public.
3. Doppler Effect – All the school students visited this exhibit, were as two third general public visited this place.
4. Human And Machine Gallery - Both students and general visitors enjoyed this exhibit, with very few students who didn't get time to visit.
5. Mobile Science Exhibition – More number of students mentioned about visiting mobile science exhibition than the general visitors.
6. Tiger Month Aircraft - The more general visitors visited this gallery than students.
7. Origami - Highest % of students rated origami as excellent showing great interest in it where as highest % of general visitors rated it as good.
8. Kabad Se Jugad (Making of Toys From Trash) – Highest number of students rated this as excellent showing great interest in it where as highest number of general visitors rated it as very good. The graph shows how much students have liked this workshop.
9. Tod Fod Jod (Dismantle & Assemble Household Gadgets) - Highly popular and liked by students than general visitors. It was found that secondary school students found this activity interesting.
10. Ligo (Virtual Visit To Usa) – Highest number of general visitors rated this as good with less than 20% students rating it as Excellent.
11. Lunar Eclipse – Highest percent of students rated this exhibit as excellent and highest percent of general visitors rated it as good.

12. Making Of Water Rocket - Most of the students found this as a good working model very few students rated it as excellent. Highest % of general visitors rated this as a very good exhibit.

### **Conclusion**

As most of the respondents both students and other general visitors of science museum clearly indicate that they found the various exhibits and activities of Nehru Science Center either good or an excellent. It means they were happy with the way the scientific exhibits are placed in science museum. It clearly indicates that they found the exhibits and activities educationally effective and valuable. Suter, Larry E.(2014), supported that student attendance at science museums finds that student achievement in science and mathematics is somewhat higher for those students who visited science museums frequently during the school year or summer. Even Chen, Guang; Xin, Youlong; Chen, Nian-Shing, (2017), found that application of iBeacon to design mobile label system was used proved to be useful in a science museum. Whereas Morentin, Maite; Guisasola, Jenaro, (2015), also found that Primary and Secondary Teachers' Ideas on School Visits to Science Centres in the Basque Country and reported that there is consensus that in the case of pupils visiting a science centre, learning improves when the visit is connected to the classroom curriculum. Form these observations, it can be concluded that secondary school and parents shall take their children to the science museums so that they can gain scientific knowledge from these informal and non formal agencies of science education. This kind of education will add significant scientific knowledge and scientific temper in our younger generation.

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