Museums as Interactive Spaces

NDSU | NORTH DAKOTA STATE UNIVERSITY

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Abstract

Museums are the storehouses for humanity. Modern museum designs aim to be more interactive to attract visitors. This study considers preferences in museum amenities and exhibit designs to inform a science museum design plan.

The goals were: to determine if there is a connection between different types of technology and users; to determine how interaction affects the popularity of exhibits; and to determine how users interact with different amenities.

Findings from this investigation confirm that visitors prefer museum exhibits that are hands-on and interactive. Preferences were also found for children's play areas, retail areas, and external design features to create a more experiential and inclusive environment. Results from this study will inform design strategies for a science museum with interactive elements and accommodating amenities.

Methodology

Measures

Data for this study was collected through an online survey of 20 questions, including demographics and both qualitative and quantitative questions.

Subjects

Participants of this survey had to be 18 years of age or older and were obtained through purposive sampling. A total of 643 participants completed the survey. 53.58% percent were college students.

Procedure

This survey was distributed through the North Dakota State University (NDSU) faculty, staff, and student email listserv systems and through social media.

Research Questions

- To determine if there is a connection between different types of technology and users (Zaharias, Machael, & Chrysanthou, 2013).
- To determine how interaction affects the popularity of exhibits (Jung, Perez-Edgar, & Zimmerman, 2018).
- To determine how users, interact with different amenities (Bartneck, Masuoka, Takahashi, & Fukaya, 2006; Zaharias, Machael, & Chrysanthou, 2013).

References

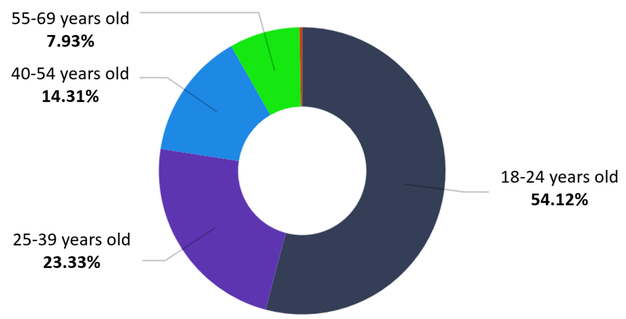
Bartneck, C., Masuoka, A., Takahashi, T., & Fukaya, T., (2006). The learning experience with electronic museum guides. *Psychology of Aesthetics, Creativity, and the Arts, S*(1), 18-25. doi: 10.1037/1931-3896.S.1.18

Jung, Y. J., Pérez-Edgar, K., & Zimmerman, H. T. (2018). A methodological case study with mobile eye-tracking of child interaction in a science museum. *TechTrends: Linking Research & Practice to Improve Learning, 62*(5), 509–517. doi: 10.1007/s11528-018-0310-9

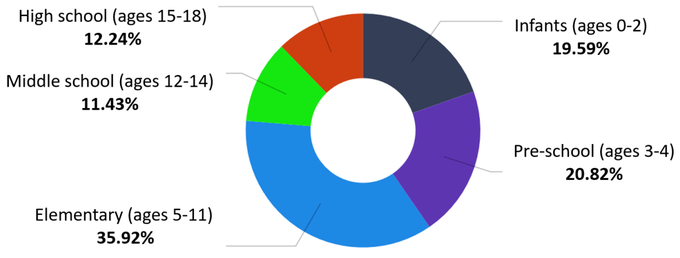
Zaharias, P., Machael, D., & Chrysanthou, Y. (2013). Learning through multi-touch interfaces in museum exhibits: An empirical investigation. *Educational Technology & Society, 16*(3), 374–384.

Discussion

- Hands-on features are quite popular and museum visitors like **amenities such as gift shops and outdoor features such as pocket gardens**.
- Most participants do not participate in museum programs, but in written responses, many said they enjoy expert lecture series and specialty events put on by museums.
- The ratio of participants who visit museums based on gender was Female (71.72%) to Male (28.28%).
- There is interest in a science museum in the Fargo-Moorhead area.
- Due to sampling strategies, the participants were mostly college age, and many do not have children.
  - What is the participant's age?



- Selecting participants who do have children under age 18, many agreed they would use indoor or outdoor children's play areas.
  - Are the participants a parent, grandparent, or guardian of a child/children under 18? If yes what is their age?



- **Play areas should have some interactive elements** as this was also a popular design choice selected by participants in this study.
- Participants who do visit museums tend to visit once or twice a year and many indicated they spend two hours or more in these spaces.
- Science museums are also popular destinations, followed by museums that focus on history, the arts, or nature.
- In museum exhibits, **participants prefer touch and feel exhibits, outdoor exhibits, and digital interactive designs**.
- Participants also enjoy reading materials associated with exhibits and based on written responses are looking for a more immersive experience that heightens other senses as well.
- It was discovered that a proportion of participants use mobile phone app translators (5.09%).

Results

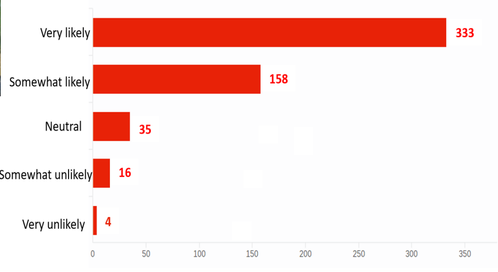
- As for types of museums visited, the results show *Science Museum* is a popular choice (17.52%) followed by *Historical Museums* (16.1%), *Art Museums* (15.73%), *Aquariums* (15.22%), *Nature Centers* (12.78%), *Children's Museums* (11.91%), and *Planetariums* (9.72%). Less than 1% of respondents gave additional written responses such as air, nature, cultural, and topic specific museums.

- When asked how often they visit a museum, roughly 1/3 never (6.53%) or rarely (32.5%) visit a museum, and most indicated they visit once (23.02%) or twice (30.95%) a year.

- Participants were asked specifically if they would like to visit a museum in Fargo-Moorhead and most said they would (34.55% very likely, 32.72% somewhat likely)

Interactive Elements and Spaces

- How likely is a participant to use hands on interactive elements in museum exhibits?



Conclusion

Science museums are **popular destinations**. People in our sample would like to see a science museum in the **Fargo-Moorhead** area. Respondents from all backgrounds enjoy **immersive**, **interactive** museum **experiences**.

Findings from this study will **influence a design plan** for a science museum which includes the following features:

- Hands on elements,
- Gift shop,
- Outdoor features such as pocket gardens,
- Interactive children's play area,
- Community classroom space to host expert lecture series and specialty events and,
- Elements that reference the Fargo-Moorhead area.