

# MEETING VISITORS' EXPECTATIONS

## *The Perceived Degree of Museumness*

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**Abstract:** Defining a physical or virtual space as a museum, seems to have clear implications on visitors' behaviour and particularly learning behaviour. Past research shows that it is essential to identify different museum types and consider their similarities, differences and special features in order to be able to make valid research hypotheses. However, visitors would not always define certain types of museums as museums. Therefore, we wished to study how visitors view the different museum types and their main reasons for visiting different museums. Investigating visitors' different definitions and expectations, we used questionnaires which were also used to produce a scale of museumness, the degree to which a certain museum type fits visitors' museum stereotypes. The analysis of the data allowed the creation of a list of guidelines for the development of educational technology for museum use.

## 1 INTRODUCTION

What makes a museum viewed as such by researchers and also by museum visitors? Defining a physical or virtual space as a museum seems to have clear implications on visitors' behaviour and particularly learning behaviour, since our ultimate goal is the design of educational technologies for museum purposes.

### 1.1 The Perceived Degree of Museumness

A review of the literature reveals that different authors and researchers have employed axes to categorize museums, like the museum content (i.e. archaeological, art, etc.), the type of audience it refers to (i.e. children's museums), the presentation philosophy of the exhibition (i.e. constructivist museums), the virtual or the physical character (i.e. virtual collections), the educational theory different museums follow (i.e. behaviourism), and many other factors.

To begin with, it is important to provide a description of what a museum is. Some researchers choose to see museums as exhibition centres whose primary goal is education (Bitgood, 2002), or as some of many learning resources within a community (other community learning resources are

libraries, colleges, etc.) (Cross, 2002), or as places that store memories (Heumann-Gurian, 1999). According to Heumann-Gurian (1999), past museum definitions always contained reference to objects. As an example, we provide the AAM (American Association of Museums) definition of 1973: '...a museum is defined as an organized and permanent non-profit institution, essentially educational or aesthetic in purpose, with professional staff, which owns and utilizes tangible objects, cares for them, and exhibits them to the public on some regular schedule' (AAM, 1973, p.8).

In addition, museums started as places for the storage, protection and display of artifacts but they are transforming to learning institutions (Kelly, 2000). This view is shared between different professionals, like academics and curators (Falk & Dierking, 1997). This shift of focus from storage/display to learning and education seems to have complied with the increasing need for lifelong learning (Antoniou & Lepouras, 2008).

The main reason that a distinction between different museum types is considered essential is the possibility of generalizing research findings across museums. The field of museum and visitor studies is relatively new; consequently, relevant research is only developing within the recent past. In addition, it is also known that most research, especially involving museum learning, takes place in science

and technology museums (Hooper - Greenhill, et al, 2002). Furthermore, there is very little research that spans different museum types. ‘...while many very different organizations are technically labeled “museums”, this category is formed arbitrarily based more on economic and political reasons than on reasons of inherent cultural meaning. However, we believe that we can conduct parallel studies in different museum settings in ways that honor the distinctions among different museum types while generating some level of comparability across them.’ (Leinhardt & Crowley, 1998, p.4). Therefore, it is essential to identify different museum types and consider their similarities, differences and special features in order to be able to make valid research hypotheses and also to use existing findings.

Bitgood (2002) believed that the key to museum classification is education. In that light, he views education as the primary goal of museums that takes place through exhibitions. Therefore, museums are exhibition centres with education as their main mission. This definition ‘includes (but is not limited to) art museums, history museums, botanical gardens, science centres, nature centres, and zoos. The concept that connects these facilities is “educational exhibition”’ (Bitgood, 2002, p. 461). The diversity of characteristics of the above institutions implies a similar diversity in the learning processes within their boundaries. Bitgood’s definition actively excludes Theme Parks that contain the educational element but their primary goal is profit. Moreover, many researchers view museums as informal learning environments. Such environments include science museums, field sites, zoos, etc and experimental results demonstrate that they enhance learning significantly (Falk & Dierking, 1997). However, the boundaries of the different learning institutions are not clear. Mellor (2001) viewed museums as archival institutions and attempted a distinction between them. Museums, archives and libraries are all types of archival institutions. So far, we tried to ‘see’ what museums are, compared mainly to what they are not. To summarize the above literature, here is the museum definition we reached:

Museums are learning environments with education as their primary mission (and not profit). They are also archival institutions with relatively few collection boundaries and developed over time- as either specialist or generalist institutions- a commitment to the display of 3D objects (although this is not necessary). Collections could include books and documents, plants and living organisms

(however, this does not transform them into libraries, archives, gardens or zoos).

In additions to our definition, we also provide the current AAM definition of museums. Museums ‘...present regularly scheduled programs and exhibits that use and interpret objects for the public according to accepted standards; have a formal and appropriate program of documentation, care, and use of collections and/or tangible objects...’ (AAM, 1997, p.20).

However, very interesting results come from the field of visitor studies. It seems that not always visitors agree with the above definitions of museums. Visitors would not always define certain types of museums as museums! Although many researchers believe that art galleries are types of museums, in a study conducted by Kelly (1999), participants made ‘clear distinction between an “art gallery experience” and a museum experience. They felt that a museum is characterized by the active learning experiences it provides, which is stronger or more explicit than the learning experiences art galleries provide (Kelly, 1999). Thus, the notion of learning is a very strong museum defining factor in the visitor’s perceptions. As exhibition environments with explicit and active learning options, certain museums are perceived as of higher ‘museumness’, than exhibition environments with indirect and implicit learning options (like art galleries). We introduce the term museumness in order to describe visitors’ perceptions on a certain physical or virtual space and whether this space forms a typical museum or not. Museumness does not form a yes or no category; rather it suggests a continuum that different museum types can have higher or lower scores. For example, visitors might consider both an archaeological museum and an art gallery as museums, but of different degree of museumness, since the former collects all the stereotypical characteristics that form the notions of museums and the latter contains fewer of those characteristics. Therefore, although researchers view art galleries, zoos, aquaria and botanical gardens as different museums, visitors do not always agree with them, thinking that these do not follow the stereotypical characteristics of a museum in its traditional form. Apart from the direct connection to learning, visitors might also be influenced by the physicality of objects that the museum might or might not have. For example, a science museum does not necessarily contain historical objects. It could perform its purposes solely with the use of technology. However, some visitors might not characterize it as a museum, because of this physical absence of objects.

Therefore, visitors' perceived degree of museumness might affect their (learning) behaviour in a museum.

## 1.2 Museum Type

From this point onwards, and after having defined museums, we will attempt to identify different museum types. For this identification process different authors use different criteria. One of them is the objectness (term used by Heumann-Gurian, 1999) of a museum; many museums are heavily object dependent, like archeological museums, whereas others like science museums and children's museums, are more concept dependent. Heumann-Gurian (1999) elaborated further on a museum type classification, based on object properties. Such properties were: Object uniqueness (archaeological museums), ownership of object (art museums), purpose- built objects (science museums, children's museums), portability of objects (an opposite example is a Planetarium), etc. However, the analysis of object properties is not the only solution to the problems of museum-types classification.

Other researchers prefer to differentiate between museums based on the educational theory they follow. Educational theory consists of two major components: a theory of knowledge and a theory of learning (Jackson, et al, 1994; Russell, 1994). In that light, Hein (1995) produced a theory that combined the two dimensions of educational theory by treating those dimensions as axes. In the one end of the horizontal axis the theories that allow the learner to construct knowledge are placed. On the other end of the same axis, the theories that provide the learner with adding parts of information are found. Similarly, on the vertical axis, realism is placed on the one end and relativism on the other. This implied that every learning theory must have a core epistemology and this core must necessarily involve philosophical considerations.

Based on the learning theory museums follow, Hein also produced a taxonomy of museum types. In that light, a Systematic Museum follows the principles of learning that provide the visitor with adding bits of information and at the same time accepts realism. An Orderly Museum also follows the same learning theory but respects relativism. A Discovery Museum follows the learning theories that allow visitors to construct meaning within the theoretical context of realism. Finally, a Constructivist Museum, accepts learning theories that support visitor meaning construction and at the same time relativistic epistemological approaches. Hein did not focus on the museum contents, as most

classifications do, but on the learning philosophy they choose to follow.

Similarly, not focusing on the museum content but rather on the exhibition philosophy, Russell (1994) differentiates between two main museum types. The first type, the ancestral museum enhances top-down cognitive processes, by providing a notion of reality in a positivist fashion. The other type, the constructivist museum, supports bottom-up processes, allows experimentations, creativity, hands-on activities, and discovery learning. So, the distinction concentrates on museums that choose to narrate a story (i.e. by placing items in a chronological order) and on museums that provide opportunities for the personal construction of meaning (i.e. children's museums sometimes use ambiguous objects).

Moreover, some classifications are based on the use of technology and especially the development of the WWW. 'A virtual museum is a collection of electronic artifacts and information resources-virtually anything which can be digitized. The collection may include paintings, drawings, photographs, diagrams, graphs, recordings, video segments, newspaper articles, transcripts of interviews, numerical databases and a host of other items which may be saved on the virtual museum's file server.' (FNO, 1995). Many known museums also have a web site in which they provide a virtual experience. Additionally, galleries and also virtual galleries, simply provide the objects with limited explanations. On the other hand, museums and virtual museums, place a greater emphasis upon theme, interpretation and explanation (FNO, 1996). Although, there is, so far, very little research on learning through museum websites, the distinction between virtual and physical museums is an important one, since there is some evidence that visitor behaviour is different between the two.

In a bibliographic review, Hooper-Greenhill & Moussouri (2002) provided a very useful list of different museum types and also relevant research for each type. Briefly, these categories included 1) science and technology museums, 2) children's museums, 3) art museums, 4) history and archaeology museums, and heritage sites, 5) zoos, aquaria and botanical gardens. In each category learning demands are very different either due to the specific target group (children's learning vs. adult learning), or due to a direct connection to objects (archaeological museums vs. science museums), or due to the presentation philosophy (history museums vs. children's museums), etc. The unique conditions in each museum type make it difficult to generalize

findings from one type to another. This need to consider each type's characteristics separately is also reflected in a study by Dierking & Falk (1998). The researchers found that families and schools preferred to visit science centres, natural history museums, historical sites, children's museums, zoos, aquaria. Adult –only visitors showed a preference to art museums, historical homes, craft & design museums, botanical gardens and arboreta.

Finally, in the present study we wished to explore how visitors view the different museum types and their expectations in regards to learning or other activities they might want to be offered in a museum. Therefore, the different museum types are classified based on the visitors' perceptions. We wanted to explore whether the way people view the different institutions affects their activity preferences or not.

## 2 METHOD

In order to clarify issues on visitors' museum notions, we designed and distributed a questionnaire. The participants were undergraduate students of the Department of Computer Science and Technology, University of Peloponnese (Tripolis, Greece).

Visitors' definitions of a museum and expectations shape the learning experience they have. Similarly, any learning technology used in a museum should consider carefully the different stereotypes and attitudes that the visitors' might have and attempt to comply with the different environments and needs. We wished to explore the perceived degree of museumness of the different museum types, the participants' attitudes and expectations towards the different types and the role of technology.

Our research goals were:

- 1) To determine how high each museum type scored on a museumness scale
- 2) To find out the intended main activity in each museum type (i.e. education, entertainment, socialization)

Our research outcomes were:

- 1) A scale of the perceived degree of museumness
- 2) A list of guidelines for the focus of technology in each museum type.

The list of museums included zoos, art galleries, industrial museums, science museums, children's museums, botanical gardens, archaeological museums, historical museums, aquaria, and technology museums.

The main questions were:

- 1) Which of the following are typical examples of museums?
- 2) What will be your main activity in each museum type?

## 3 RESULTS

The 28 questionnaires that were used in total contained categorical (nominal data). The variables used were:

- Museum Type (i.e. Zoo, Archaeological, Historical, Children's, etc.)
- Perceived degree of museumness (values - yes it is a museum, might be, no it is not)
- Main activity (socialization, entertainment, learning)
- Secondary activity (socialization, entertainment, learning)
- Least preferred activity (socialization, entertainment, learning)

The statistical analysis used the Pearson chi square test.

**Perceived Degree of Museumness and Museum Type:** The first set of tests wished to explore participants' views on different museums. The null hypothesis was formed as following: There would not be any statistically significant differences between the degrees of museumness of the different museums. This hypothesis was rejected since the statistical analysis showed a highly significant value, with  $\chi^2(18,280) = .00, p < .001$

**Museum Type and Main Activity:** Comparing Museum Type and participants' preferred activity, the null hypothesis was that: There would not be any differences between peoples preferred activities for the different museum types. The results were once again highly significant, with  $\chi^2(18,279) = .00, p < .001$  and the null hypothesis was rejected.

**Museum Type and Secondary Activity:** Similarly the chi square test revealed high correlations, with  $\chi^2(18,269) = .00, p < .001$  when museum type was compared to the next preferred activity of the participants for the different museum types.

**Museum Type and Least Preferred Activity:** The results remain significant, with  $\chi^2(18,269) = .00, p < .001$  when the least preferred activity for the different museum types was tested.

**Perceived Degree of Museumness and Main Activity:** The analysis of the two variables showed significant correlations, with  $\chi^2(4,279) = .00, p < .001$

## 4 DISCUSSION

### 4.1 Museumness Scale

The statistical analysis revealed that indeed the different museum types are viewed as of different degrees of museumness by the visitors. In addition, this analysis allowed the formation of a museumness scale (Table 1). At the one end of the scale there are museums like zoos and aquaria, since the majority of participants did not think that these institutions gather the characteristics needed in order to be classified as museums. At the opposite end of the scale, one could find museums that the participants considered typical examples of museums, like historical and archaeological ones. The table below shows how its museum scored on a museumness scale, going progressively from the museums low in museumness to the ones with higher degrees of museumness at the bottom of the table.

Table 1: Museumness Scale.

	No, it is not a museum	Yes, it is a museum
Zoo	68%	7%
Aquarium	57%	11%
Botanical Garden	50%	7%
Children's	36%	29%
Art Gallery	14%	43%
Industrial	14%	68%
Technology	7%	75%
Science	0%	71%
History	0%	100%
Archaeological	0%	100%

### 4.2 Perceived Degree of Museumness and Main Activity

Furthermore, the different degrees of museumness highly correlate with the preferred and the expected activities of their visitors in their premises. The primary activity that visitors expect and want to perform in institutions that they consider museums is learning. When an institution is not seen as a museum, the visitors expect and wish to entertain themselves. These stereotypes seem dominant since the correlation found was highly significant. The findings imply that the design of a 'fun' activity in a historical or archaeological museum will at least surprise the visitor, or some visitors might see it as inappropriate. In the same way, institutions with low degrees of museumness require the implementation

of entertaining and/or edutaining applications in their premises.

### 4.3 Guidelines

The present study demonstrates the need to match the technology to the museums of different thematic content. Visitors seem to have strong expectations and stereotypes when it comes to museum related activities. It is important to recognize these variations and adapt the activity and the technology content accordingly. Past research shows that matching people's expectations, increases satisfaction and motivation (Vroom, 1964). Depending on what people think about a museum, affects what they expect to do in the museum premises. These findings influence the design of technology for museum use.

More specifically, the focus of technology in a zoo and an aquarium should be primarily on entertainment, secondly on learning, and thirdly on socialization. In children's museums people expect primarily entertainment, secondly socialization and lastly learning. Art galleries and historical museums demonstrate similar characteristics when it comes to activity expectations. In both museums people expect to learn first, socialize secondly, while entertainment is not considered necessary. Due to their high scores on the museumness scale museums like archaeological, industrial, science and technology require applications that enhance learning mainly and then entertainment and socialization.

In addition, the very nature of contemporary museums with education being their main focus, as discussed above, implies that the needs identified in this research could be also viewed within the framework of life long learning. In this light, the need for socialisation could be viewed as a need for collaborative learning, the need for entertainment as a need for edutainment and the need for learning as a need for more formal and/or more traditional learning approaches (Antoniou & Lepouras, 2008).

## 5 CONCLUSIONS

However, these findings might be culturally dependent and they might only function in a specific setting. In addition, the present work, due to time limitations, was restricted in a small sample size that nevertheless provided very significant results. The specific results found here should be cross checked in different settings. In this light, the main point is to

consider issues of museumness in different contexts before the design of applications for museums and how these issues might affect visitors' expectations.

Targeting the design of museum learning applications, clarifying issues of visitors' perceptions was important. The present work, at the initial phases of the design process, provides a basis for the development of design ideas. Therefore, knowing the museum type, the content of specific applications can be decided, whether that is primarily learning, entertainment, socialization or any other activity.

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