

Getting Inside Visitors' Heads: Utilizing Interpretive Carts as a Mechanism for Analyzing Visitor Conversations

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Introduction

The purpose of much of visitor research and evaluation is to try to get inside the heads of visitors, to determine how much they know or what they are interested in finding out about certain topics and, ultimately, what meaning and knowledge they derive. The challenge, of course, is to design a methodology that is as unobtrusive as possible, but that still yields the type of data enabling systematic analysis.

One rich source of data in a museum are visitor conversations. Visitors look at, talk about and interact with those objects in a museum with which they are most interested. They notice what they choose to notice about objects and use a vocabulary that is familiar to them, often less technical than that of the expert, yet the prevalent vocabulary of label and text copy. If an evaluator could capture natural visitor conversations, rather than asking focused questions in the language provided them by the exhibition team, one could potentially learn much about how these particular visitors are relating to objects within the museum, how much they know about them and what interests they might have. This methodology could serve a useful purpose in shaping exhibition label copy, while potentially influencing design and interpretation decisions as well, particularly in early phases of exhibition development.

In the course of assisting the Smithsonian's National Museum of Natural History with the redesign of its Geology, Gems & Minerals Hall, Science Learning, inc., (SLi) realized that just such a methodology was needed. As we began Phase 2, Storyline & Exhibit Development Testing, designed to further explore visitor understanding of major geologic concepts to be presented in the new exhibition, assessing visitor knowledge became difficult. Visitors seemed either intimidated by our asking questions or indicated that they knew nothing or knew relatively little about geology. This information was not very useful to us, nor did we feel that visitors' assessment was necessarily accurate. What was needed was a methodology that would not intimidate visitors, making them feel like they were being interrogated, and also, most importantly, would not put words into their mouths, but allow them to talk freely about the objects and associated concepts. We realized a big problem was how visitors perceived us, the

“Smithsonian” person walking up and asking them, John or Suzy Q. Public, questions about geology.

We realized there are times when visitors do freely talk with museum staff or volunteers and that is when they desire information in an interpretive situation. Why not create an interpretive cart and invite visitors to look at objects more closely, encouraging them to ask questions of one another or a “staff” person, about anything related to the objects? A data collector nearby could note these questions and conversations, thus potentially creating an effective way to assess visitor knowledge and interest about specific geologic concepts and specimens.

Methods

SLi collected data utilizing this methodology over a three week period in August and September, 1993. The “Rock Talk” interpretive cart contained appropriate specimens and photographs corresponding to topics that are to be part of the redesigned exhibition. The cart was placed in appropriate places within the existing exhibition (currently still installed), so that specimens were linked in some way conceptually to the surrounding physical context.

As one SLi associate supervised the cart, assuming the role of “educator,” fielding questions and comments from visitors, another SLi associate took detailed notes of all “rock talk.” For analysis purposes, each individual interaction was transcribed to a separate card, which included information on which specimen(s) elicited the interaction and the age, gender, social group and race of the individual asking the question. Conversations between visitors, as well as between visitors and the SLi associate, were noted.

SLi also noted the interest level and knowledge level of each visitor that conversed at the cart utilizing two indices that we have developed over the course of projects. The interest index, a classification of high, moderate or low interest, is based on the number of questions an individual asks and their associated affect (body language, animation) and interest in hearing the answer. The knowledge index, a classification of high, moderate or minimal knowledge, is developed for each project with input from the exhibition team and is based on the vocabulary level and content background expressed in visitor conversation.

Results

SLi staff spent 25 hours in August and September, 1993, collecting data at the cart. A total of 482 interactions were recorded with 280 individuals. The majority of the people coming up to the cart were in families (85%), 14% were adults, either in couples, alone or in groups, and

1% were all-youth groups. The majority of visitors to the cart were either children between 7-12 years of age or adults in their 30s and 40s.

Based on our interest index, sixty-eight percent of the visitors to the cart had high interest in the specimens and 32% had moderate interest. No visitors were categorized as having minimal interest. Since visitors were self-selecting to approach the cart this is not surprising. Based on the knowledge index developed for the Geology, Gems & Minerals project, 70% of the visitors interacting at the cart were categorized as having moderate knowledge of the content, 22% had minimal knowledge and 8% were categorized as having high knowledge of the concepts.

Visitors interacted with the cart in one of two ways, either asking questions or making statements. Allowing for multiple responses, seventy-four percent of what visitors said was in the form of questions and forty-one percent were statements. The majority of visitor conversations focused on the concrete qualities of the rocks and minerals. Visitors noticed, made statements and asked questions about the size, color, shape "prettiness" and other obvious qualities of the specimens.

Questions that visitors asked could be categorized into three major categories:

- Forty-six percent were Informational, asking about some concrete attribute of the specimen;
- Thirty-nine percent were Identification, asking for the identity of a particular specimen or part of a specimen; and,
- Fifteen percent were Elaboration questions, which focused on a higher level concept related to geology, gems and minerals. Elaboration questions were asked by only the most knowledgeable visitors.

Each of these categories of questions had two levels:

- At the most basic level was a simple question fitting the category: "Do you know the birthstone for March?" "Do you know where they found the Hope Diamond?" were examples (83% of the Informational questions)
- "What is it?" and "Which is the oldest rock?" were examples of Identification question (67% of the Identification questions); and,
- "How do you know that [meteorite] is from Mars?" "How do minerals get concentrated like that?" were examples of Elaboration questions (78% of the Elaboration questions).

In each of these categories a higher level confirmational type of question was also sometimes asked:

- Seventeen percent of the Informational questions were confirmational, "Diamonds are formed in volcanic rock, right?" "Am I right, this is what the uncut quartz looks like after it is cut?"

- Thirty-three percent of the Identification questions were confirmational, such as “Is this topaz?” “That’s malachite, right?” “What’s this, quartz?” and,
- Twenty-two percent of the Elaboration questions were confirmational, “Oh, so you can just look at a rock and know by the way it looks what its history is?” “How can you possibly tell the age of rocks? By structure?”

Statements could be categorized into one of five categories:

- (1) Forty-four percent of the statements occurred in situations in which visitors were answering questions or making factual statements about specimens to SLi staff or group members (“I know it is quartz; it is a very nice piece.” “This one looks like a meteorite because of its shape”—many of these statements were made by parents to their children; on a few occasions children shared with parents or adults in the group). Most of these statements were made by the more knowledgeable visitors, although occasionally erroneous information was shared;
- (2) Twenty percent of the statements occurred in situations in which visitors were sharing experiences related to specific specimens or rocks, minerals or geology in general (“I was just in Russia—lots of malachite,” “We just came from Maine, you can see big granite or quartz with basalt through it”—many of these statements described places where people had lived or trips they had taken that related to particular concepts or specimens on the cart. They were generally communicated with great emotion and reflected high interest on the part of the visitor);
- (3) Eighteen percent of the statements occurred in situations in which visitors were making comments about particular specimens: (“The way light reflects off the surface is neat,” “That is like the great big one you saw that was blue.” These were often communicated with great emotion);
- (4) Sixteen percent of the statements occurred in situations in which visitors were sharing an “I have” statement related to a specific specimen or rocks, minerals or geology, in general (“He has a small rock collection,” “I have some rutile, the mineral in the quartz, at home.” These statements were also communicated with great emotion); and,
- (5) The final 2% occurred in situations in which visitors were providing a view of what the exhibit should be like (“I wish we could touch more things in here,” “I would love to see geodes broken in half. You should show stages from geode to gem”).

Discomfort with scientific names seemed to distance the objects from many visitors. One visitor stated well what many visitors seemed to be trying to say: “It would be useful if there were more common names along

with the scientific names. I don't mind them [scientific names], in fact I'd like to learn them, but it is hard when you don't know what you are looking at" (said after discovering that corundum was the scientific name for the mineral from which the gems ruby and sapphire are cut). In general, people used colloquial language when talking about the rocks and minerals. Very little scientific or technical language was used.

We also performed a content analysis of these conversations, allowing us to explore the relationship of visitor conversations to specific proposed exhibition concepts and themes and to specific specimens, including many that will be in the redesigned exhibition. One specimen that will be featured in the new exhibition is malachite. Malachite was the most observed and discussed of the crystal specimens; 21% of the visitors conversed about it in some way. Visitors were fascinated by its color and shape and it was a specimen that seemed to lead naturally in conversation from concrete observations to more sophisticated wondering: "How does it get like that?" "Do they just grow like that?" "What makes malachite form like this?". Although often using colloquial language, visitors were very curious about how malachite was formed; 20% of the visitors discussed this and 9% wondered about its chemical composition. Because it was a popular specimen with visitors of minimal knowledge, many of whom rarely asked questions about formation or chemical composition, it seemed to serve as a useful bridge from the concrete to the abstract.

Our analysis enabled us to provide this depth of detail for a number of specimens, as well as various geologic concepts, such as plate tectonics and igneous rock formation. The length and purpose of this paper prevents us from providing more detail, but for more information or a copy of the full report contact Lynn Dierking, Associate Director, Science Learning, inc., or Linda Deck, Office of Exhibits, National Museum of Natural History.

Discussion & Implications

Utilizing the "Rock Talk" interpretive methodology enabled us to better understand how visitors made sense of geology, gems and minerals. Specifically, what they "saw" and thought when they looked at specimens, what questions they had and what statements they made. In addition to exploring visitors' conceptual perspectives, this research included investigation of the nature and extent of visitors' interest towards particular specimens and specific information about geology, gems and minerals. We were able to utilize many specimens that will be in the redesigned exhibition, as well as many quite similar to those that will be in the exhibition; SLI was able to provide direct information to the team about the appropriate level and nature of information to be communicated, as well as appropriate vocabulary and presentations to be utilized.

Visitors, for the most part, were impressed with the specimens and the wide variety of information related to them. "Rock Talk" cart results suggested that visitors did know something about the topic, although their

knowledge was not sophisticated or expressed in scientific or technical language. The majority of visitors were dealing with the objects and concepts at a very basic, concrete level. They most frequently asked simple informational or identification questions and desired information based for the most part on their concrete observations—What is it?, Where did you find it?, How did it come to be in the museum?—before they were able to wonder about the objects in more abstract ways. The statements that they made were equally concrete. Except for the most knowledgeable people (8%), visitors wanted to know and talk about the “whats” of a specimen before discussing the “whys” and the “hows.” In particular, children and adult visitors with minimal background knowledge (22%), approached the objects and the topic in this concrete way. Many of the visitors categorized as having moderate knowledge (70%) were equally concrete.

However, this study also provided evidence that it is possible to move visitors from the concrete to the abstract. Visitors with a basic understanding of the specimens or visitors whose need for basic information was met by the “interpreter,” seemed quite capable of dealing with more abstract concepts as long as they were linked logically to the concrete object. Some of the exciting specimens, such as malachite and amethyst geodes, resulted in very rich conversations, even among visitors with minimal knowledge. The results suggested that as visitors became more engaged with the object and the associated topics, they were motivated to look more carefully at the specimen, to notice more, to ask more thoughtful questions and to make more thoughtful remarks. They tended to ask elaboration or confirmational questions or make elaboration or confirmational statements. Elaboration questions and statements typically related to how or why some fact about the object was true—How do you know there is something of value inside?, How does that form?, What caused this stripe?

Twenty-four percent of all questions were “confirmational” in nature, suggesting that one-fourth of the visitors entered with at least some basic knowledge of the subject and enough interest to want that knowledge reinforced and confirmed. As Phase I research had indicated, most visitors to the Geology, Gems & Minerals Hall entered with moderate to high interest; that was certainly the case in this phase as well. Although not highly knowledgeable about all aspects of geology, gems, and minerals, there was high interest in the topic.

The implications of these findings suggest that interpretive information for the redesigned exhibition will be most effective if grounded in concrete, easily recognizable physical attributes of the objects. Abstract concepts can be communicated as long as they are linked to concrete, readily observable aspects of the rocks and minerals presented in the exhibition.

This research also demonstrated the value of providing real specimens that visitors could touch and real humans with which to interact. The ability to touch specimens seemed to stimulate visitor curiosity and heighten

aesthetic appreciation of the specimens. Visitors literally ran up to the cart at times with questions or comments and many visitors came to the cart to tell us about their personal experiences with the objects they were viewing. It seemed at times that many visitors were using the cart as a mechanism for personalizing the experience--an important factor to keep in mind as the exhibit is developed further. We strongly encouraged the team to think about interpretive carts in the redesigned exhibition as an interpretive strategy that provides a more personal, close-up view of the objects and concepts being communicated in the exhibition.

Of course, as with any research methodology, caution should be taken in interpreting the results and in not overgeneralizing. As we acknowledged, this was not a random sample; visitors self selected to be at the cart. As we have suggested throughout also, the public is exceedingly concrete in the way that it interacts with exhibits. We are reasonably confident in the generalizations we were able to make regarding the categories of questions posed, statements made, specimens admired and the implications of these categories for the future exhibition. However, it is important to appreciate that the specific conversations generated by the specimens on the cart were specific reactions to those specimens; other specimens might have elicited other types of interactions. We also manipulated some conversations to get the information desired by the team. For example, we focused visitors' attention on the identification of meteorite specimens, and consequently, visitors' conversations were centered around identification and physical characteristics, rather than other concepts related to the topic, such as where they are found. How much of an influence our presence and "spin" had on visitor perceptions and resulting behavior is difficult to say but we certainly had an influence that must be acknowledged.

Like any methodology, utilizing interpretive carts as an evaluation technique has limitations, as well as strengths. For this project, it has proven to be a useful and effective way to assess visitor understanding in a relatively unobtrusive manner and we highly recommend it as a tool in such situations.