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Moving Beyond the Box

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Museums sometimes ask multimedia producers for the ultimate exhibit: it actively involves groups of people in educational interactions, it enhances the visitors' understanding of the museum as a whole, it gives each visitor the impression that the exhibit is learning about and responding specifically to him or her, it requires no staff to run, and it is unlike anything ever seen before on this planet. Oh, and it should be very inexpensive.

What is the box?

These museums are asking for more than the box. The box is the most common implementation of interactive multimedia: a single monitor (with perhaps a larger slave monitor) with some sort of input device. It is a very self contained exhibit experience.

The box is at its best when used by a single visitor, though a well designed box exhibit will easily accommodate groups of up to five or six. Boxes can be seamlessly integrated into the overall exhibit space, though often they seem like discontinuous portals into another world.

Why the box is prevalent?

Why do nearly all multimedia exhibits fit into the box? The simplest answer is that the box tends to be easier to design and less expensive to produce than the sort of exhibits I will describe in a moment.

There are, however, other good reasons for producing a box. It uses very little floor space. It allows visitors to explore in very personalised ways (it is difficult for everyone in a large group to feel that they are getting a personalised presentation, one-on-one makes it much easier). The box allows for simplicity (though doesn't require it), and the best exhibits tend to tell one simple story. It is reliable and maintainable.

Limitations of the box

The box has not yet lived up to all the demands placed on it, and it has come up rather short where group interaction is involved. It is cumbersome for the box to provide and respond to more than one source of input. The box, therefore, is at its best with one operator, and perhaps a small group of people discussing what should be done next. Once a larger group is involved, nearly everyone becomes a passive observer. It is no fun to watch someone else have a personalised experience.

It is also difficult for the box to pull off the illusion on entering a whole environment or world - an illusion that can entertain and teach visitors in powerful ways.

The group exhibit to date

There have been, however, some good attempts at moving beyond the box, and they give us some hints at what can be done.

The nature of group interactions

There are a variety of ways to provide a group interaction. They vary in degree of interactivity, style of interaction, and system complexity (which usually correlates to price and reliability). Following are some of the styles of group interaction that have been tried to date.

Voting

At the Explorers Hall in Washington, DC, visitors are treated to a theatre which allows them to vote at selected points in the presentation. The exhibit presents an overview of world geography, and visitors vote for their choice of answers to a variety of geography quiz questions. The exhibit tallies the visitors votes, offers the correct answer, then moves on to discuss another topic. School classes seem to have great time with the exhibit, and the voting gets them into a friendly competition that helps to involve them with the material. When the theatre is filled with disconnected individuals, however, the effect of the interaction is underwhelming.

This exhibit demonstrates the limitation of voting as an interaction. When I make a choice at a box style exhibit, I get a specific (and hopefully satisfying) response; when I vote at a group exhibit, the response is at best diluted by majority rule (at Explorers Hall, the exhibit makes no attempt to respond beyond a tally of answers). One of the powers of interactive multimedia is its ability to pull people in with personalised response. Voting takes this power away. It is possible to conceive of good uses of voting (for class groups, or to teach about democracy or group dynamics), but it is a very limited group interactive technique.

Role playing

A new video game is drawing extraordinary crowds at my local arcade. It is a variation on the classic 'drive a race car' game. Its twist is that it seats up to four drivers. Each driver has his (I don't say her because this sort of racing game seems to attract only males) own monitor, but each player is driving on the same virtual racetrack. Each sees any of the other three who are in out in front. The big kick for the players seems to be that they effect and are effected by other people, not just computer simulated drivers. The four drivers are taking on roles in a group interaction.

We can easily apply role playing to museum topics. Visitors could take on the roles of environmentalist, industrialist, farmer, and policy maker in a rainforest country. As they make decisions in their own slice of the world, they could see the effects of decisions being made by the other players. This style of interaction can pull visitors in to the complexity of any situation that involves either competing or co-operating interests. It tends, however, to lead to a large number of possible outcomes (several people making several choices), and therefore can be very expensive to design and produce.

One of a crowd

The Kentucky Derby Museum offers a simplified role playing exhibit called Place Your Bets that gathers and holds excited crowds. In order to teach visitors about the parimutual betting system, the museum offers a simulated betting experience. A visitor steps up to one of three interactive video betting windows, and places a bet with a video clerk. Visitors can look up from the windows to see how their bets have changed the odds on a mock-up odds board. While visitors are placing bets, a race handicapper appears on a large projection monitor behind the betting area and offers tips and trivia about the races. Finally, the betting windows close (a video grate slides down on the monitors), and a computer graphic horse race is run on the projection monitor. The exhibit space is filled with the announcers call of the race, horse sounds, and the roar of the crowd. The visitors get very involved with these fictitious races, as they have placed their bet. Several computers converse over a network to create this environmental illusion.

This exhibit offers visitors the chance to be one of the crowd at an exciting event, and it gives them a way of becoming invested in the event. Perhaps this style of exhibit is limited to events like betting on races, or perhaps there are some other novel ideas that this example may spawn.

Threading the beads

At the Denver Museum of Natural History, the Hall of Life offers a series of exhibit stations that help visitors to build up a personal health profile. Visitors carry a magnetic striped card which identifies them to each exhibit station, and the stations converse with each other over a computer network. Each station, taken individually, is essentially a box style exhibit. The exhibit stations, however, are threaded together like beads in a necklace.

One station weighs visitors and measures their height. Another takes their pulse throughout an exercise/recovery test. Yet another tests their blood pressure. Visitors order a typical meal at an interactive video restaurant, and they plan an exercise routine at another exhibit station. All the while, the exhibit is taking in information that is used at successive stations, and finally printed out in a summary health profile at the end of the exhibition.

Visitors feel that there is more to these exhibits than there is to the typical box because they are greeted by name, and each exhibit responds to things that happened at earlier exhibits. Though visitors dont interact with each other in a group context, the Hall of Life is a favorite for school class field trips. By creating a unified experience out of several smaller exhibit experiences, the Hall of Life has moved beyond the box.

Open conversation

The largest group computer interaction has nothing to do with museum exhibits, though it may suggest a few ideas. The Internet is a worldwide computer network that was set up to aid in the exchange of information and ideas. Though it was created for loftier

purposes, one finds a large amount of casual conversation and argument on the Internet. It is possible, for instance, to subscribe to a series of home beer brewing notices, and to send out a call to find out about local brew-pubs in a city one might be visiting soon. Surely this is not what justified the creation of the Internet, and yet this free and open exchange is fascinating. If you are not familiar with the Internet, ask around. Chances are, you know someone who has uses the Internet at a business or university, and chances are, they have used it for some less than lofty purpose, perhaps just sending a note to a friend.

It is difficult to say what the Internet example offers for a museums exhibit halls. Visitors could, however, be offered some sort of forum to converse with visitors at other museums. Perhaps visitors could take part in a large scavenger hunt where they had to ask visitors of other museums what they see around them in their immediate environment to pull in clues from remote locations. Visitors would learn about communication and about the broader cultural world around them.

Shared "push-to-start"

The most simple box style interactive exhibit is the push-to-start. A visitor hits a button, and a video sequence plays, then the exhibit returns to waiting for another visitor to push the start button. Likewise, the simplest group interactive exhibit is the shared push-to-start. At the Carnegie Museum in Pittsburgh, visitors can go for a ride on the Stratavator. Up to about fifteen visitors enter a mock-up elevator cab, and someone pushes the start button. The Stratavator doors close, cutting the group off from the rest of the exhibit hall, and Rocky, the exhibits video host, welcomes the group. The video takes visitors down through the strata below the museum. As the strata move by in video, the Stratavator cab sways back and forth, and elevator lights flash to show how deep below the earth visitors have traveled. Rocky stops the ride at specific levels to tell how that layer was created. The Stratavator really feels like a ride through the earth.

Visitors leave the Stratavator saying that they really feel that the rocks being described in the video are below their feet. They are able to connect an abstract geology lesson to their own experience because they took part in a realistic simulation.

Though the Stratavator not interactive (other than the initial button push), it does manage to captivate a group of people, and it was created on a budget thats only incrementally higher than it would have been for a one-on-one box style rendition of the same material.

What have we learned?

There are no rules for what can be done, only suggestions gathered from observing the past. What are some of the common threads that run through these and other successful exhibits?

The interactivity/production value ratio

The Stratavator engages visitors despite a lack of interactivity. It works because Rocky is played by a good actor, and the piece is well produced. The Stratavator has high production values. The race car game at my local arcade used chunky graphics, and has anything but high production values. It, however, offers continuous interaction for the group. These examples lead to a useful observation: as interactivity goes up, production values can usually go down, and as production values go up, interactivity can usually go down. In an ideal world, we would all have infinite budgets, but in the real world this observation is the sort of stuff that makes good trade-offs.

What's in a name

Part of the lure of the Hall of Life is that the exhibits recognise the individual visitor, even his or her name. Visitors get a big charge out of that recognition, even if it is only used in trivial ways. The important thing is, the exhibit knows me. Visitors are willing to share intimate personal information with the exhibits, information that they would never share with a docent. Exhibits can therefore give visitors very satisfying personalised experiences.

Real crowds are better than virtual crowds

Part of the reason that the Stratavator and Place Your Bets are so engaging is that they make use of a hard to define group dynamic. These exhibits channel a group into a shared simulated experience. Though each of these exhibits can be experienced by a single individual on slow days, they are much more engaging when there is a large group to share the experience with.

We like to meet each other in safe ways

Many of the volatile Internet conversations are between strangers, and would almost never occur in person. Though the world is large and overwhelming, we appreciate any opportunity to break through our own bubbles in safe ways, to reach out to others without being bitten. Whether in the context of a networked conversation or a shared group simulation, visitors can grow through opportunities to meet their fellow museum goers.

What next?

How can the exhibit design community move towards ever more engaging group interactions? In addition to sharing the preceding thoughts, I have two general ideas.

Don't race with Nintendo

I have heard people at museums say we have to compete with what people are seeing at home. Rubbish. Museums should be aware of what visitors are seeing at home, as it helps to define a glossary of usage for the video age. Visitors, however, have different expectations when they come to museums. While a Nintendo style game would certainly attract a segment of the visitor population, most of that segment will also be attracted by any of the exhibits that I have described above, exhibits that appeal to a broader group of visitors, exhibits that are affordable to produce, and exhibits that meet educational goals.

Don't try to beat the home TV experience. Design good interpretive exhibits, use interactive multimedia when appropriate, and create group experiences when possible to get the most engagement for you dollar. You can only lose a race with Nintendo.

The technology-design interaction

It seems ideal for design goals to drive the technological implementation of an exhibit. Unfortunately, this approach often leads to designs that are too expensive for museums to produce. The reverse, allowing available technology to drive the design process seems to lead to exhibits that fail to educate. The ideal is an iterative interweaving of design and technology constraints. These sort of exhibits require an interdisciplinary team of designers, educators, and engineers to work together during the design process. Many ideas can be tried out and modified in a short span of time. Only in this way can new technologies be introduced to the design process in a grounded and realistic fashion. By involving the right players at an early stage, a museum will more likely arrive at a design that meet its interpretive goals without busting the budget.