



**CONSIDERATIONS UPON ACQUIRING  
or  
CREATING SCIENCE EXHIBITS**

A Presentation for the  
**ECSITE CONFERENCE**

Cardiff, Wales

November 25, 1995

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## Value and Cost

- 1) **An inexpensive exhibit which fails provides no value.** Failure can occur in several ways.
- 2) **An expensive exhibit which educates and entertains provides increasing value with every passing day.**
- 3) **Cost does not determine value.** It is possible to pay a great deal for exhibits which work very well--or very poorly. Good educational exhibits can sometimes be created at low cost.

## Educational Institutions Need Reliable, Interesting, Educational Exhibits

- 1) **Bad exhibits represent liabilities.** If they remain on the exhibit floor they are an embarrassment while occupying valuable public display space. They may create a bad reputation for the institution. Such exhibits consume staff salaries in repair and storage. Attention spent on fixing marginal exhibits might be better spent on new work--opportunities lost may be a great cost indeed.
- 2) **“Bad” in one of three ways:**
  - a) Non-functional-the worst case
  - b) Boring and bland-a somewhat better case
  - c) Exciting, but lacking educational value-the slippery slope.

## Nonfunctional Exhibits -- The Worst Case

- 1) **Some don't work from the start. Reasons vary:**
  - a) Poor concept
  - b) Poor functional design
- 2) **Many cannot be maintained**
  - a) Poor functional design
  - b) Too much maintenance required--high staffing costs
  - c) High consumables cost
  - d) No spare parts available
  - e) Safety issues.
- 3) **Poor design may give visitors little clue as to what to do.**
  - a) Bad “mapping”--which handle does what to what effect?
  - b) Too much time required to use in the science center setting.

## **Boring and Bland Exhibits -- Somewhat Better**

- 1) **Boring for some, but not for others.** Given a broad audience, technical, age-specific or narrow exhibits may appeal to an important part of your audience.
- 2) **Perhaps great as a teaching tool.** Some exhibits really come alive when used in teaching. They may support--help explain--other exhibits that are more popular.
- 3) **Part of the mix of education and entertainment.** In a good science center, not all exhibits are wild fun; many exhibits should be more educational than others.
- 4) **But if largely unused, bad as the worst case.** An exhibit which shows no wear, which people very rarely use, just takes space.

## **Exciting and Little More -- The Slippery Slope**

- 1) **Fun and learning sometimes go together.** It can be fun to learn so if people are having fun with your exhibits, take a good look at what they might be learning!
- 2) **Part of the mix of entertainment and education.** Exhibits should be fun in a science center and some can be more fun than others.
- 3) **Attendance is important.** If no one attends your science center, no one is learning. Boosting attendance is important and in particular pay some attention to the diversity of your audience. Are you attracting all segments of the community?
- 4) **Theme parks entertain, science centers educate.** It is important to stay educational for several reasons:
  - a) Education is the goal and rightful task of most science centers
  - b) Loss of tax-exempt status, while rare, is a possibility
  - c) Science centers are unlikely to win in direct competition with large commercial organizations.
- 5) **Intense, and very real, economic pressures can compromise educational efforts.** Risks might be to:
  - a) Over market--hype--marginally educational movies and temporary shows.
  - b) Fail to develop strong educational programming associated with exhibits.
  - c) Incorporate arcade type games and events in public offerings solely to sustain or boost attendance.
  - d) Focus marketing efforts toward affluent segments of the population which may be converted to members, donors and benefactors--while ignoring the issue of appealing to a diverse audience.
  - e) Work on earned income endeavors at the expense of creative exhibit and programmatic development and/or ongoing operations.

## Exhibits are Only Part of the Greater Institution - Five Elements Need Careful Integration

- 1) **Place**--usually a building in its setting, but sometimes a series of separate venues.
- 2) **Staff**--the people who care for, build and operate the science center.
- 3) **Exhibits**--tools for teaching, learning and fun.
- 4) **Programs**--things the Staff does in the Place with the Exhibits.
- 5) **Visitors**--the raison d'être for the whole endeavor.

## Make a Unique Institution, Not Unique Exhibits

- 1) **Exhibits are only tools.** No one judges a worker less skilled than another because they share the same tools. Judge the institution based on its mission and how well it achieves it.
- 2) **Every carnival has a merry-go-round.** An exhibit which educates and entertains in Tokyo is likely to do the same in Paris. And residents of neither region will care whether the exhibits are unique or not. Designers care, directors sometimes care and some museum professionals care, but most visitors neither know nor care.
- 3) **Appearance can be changed-with some risk.** As Exploratorium Cookbook exhibits have demonstrated, the same exhibit can be constructed in many ways. Sometimes the exhibits are improved, often they are not.
- 4) **Judge efforts by the results-not by the tools.** If an institution educates and entertains, likely it is successful. To do so it probably has to:
  - a) Earn the support of the community.
  - b) Be well attended and used.
  - c) Manage itself well enough to stay operating.
  - d) Create mechanisms to address new needs and to change.

## New Exhibits vs. Tried and True

- 1) **Match the exhibits to the goals of the institution.** The mix, number and nature of the exhibits in any institution must reflect the goals of the institution. Remember goals may change over time.
- 2) **"Tried and True" exhibit are cheaper and less likely to be flops.** This is true if:
  - a) Excellent and complete documentation is available and/or
  - b) Skilled builders are employed to create the reproductions.
  - c) Appearance is secondary to function.
  - d) The design team is of an appropriate size and in intimate communication with the fabricators.

- 3) **New exhibit concepts.** This is where it gets interesting, difficult and often expensive. Some strategies for success are:
  - a) Anticipate failures: you will have a few at the very minimum.
  - b) Manage expectations: if failures are expected, the team will be in a position to learn from them, will not invest too much energy in any particular prototype and will be quick to move on to other more promising possibilities.
  - c) Prototype the exhibits: it is nearly impossible to anticipate everything if the exhibit is at all interactive.
  - d) Select the winners, discard the failures.

### **Exhibit Design - A Few Comments**

- 1) **Favor operation over appearance.** Create a flexible design palette which allows the design of almost any exhibit. Don't constrain a design because of appearance.
- 2) **Create topics for the long run.** Will a particular exhibit be interesting in a year-- in five years?
- 3) **Design to accommodate change in the prototype.** In making a prototype, don't invest a great deal of work in the fit and finish--you may throw the whole thing away if it doesn't work. Delay the finish work--painting or the application of laminates--until after the prototype has been tested. Make for flexible designs where elements can be moved or replaced, without a complete rework of the structure.
- 4) **Easy maintenance is important.** Notwithstanding the above, the prototype may become the exhibit. Use standard replaceable components, allow for quick access--usually via a single cabinet lock--to any element which must be replaced or adjusted often. Good access is especially handy during the prototype process itself. Try to create freestanding exhibits which can be moved easily from the exhibit floor to the maintenance shop. Think of the exhibit's cost over its lifetime--look past its initial cost.

### **The Nature of the Problem**

- 1) **Interactive science exhibits are fairly new inventions and custom work.** Thirty years ago, nearly no interactive science exhibits as we know them now existed; the creation of such exhibits began to grow in the late 1970's. Therefore as a profession we still have limited experience with such exhibits. Moreover, the global market for interactive science exhibits remains small and almost every client has particular needs. Economies of scale do not apply; science exhibits remain custom work.
- 2) **What constitutes success?** While it is relatively easy to evaluate something like a can opener. (What does it cost to make, does it open cans well, does it last?) It is very hard to evaluate an educational exhibit or a science center. Indeed a whole

discipline--“evaluation”--has sprung up to determine if we are building exhibits that teach and inspire people to learn. While valuable, this mini-field has the weaknesses of the social sciences, essentially telling us only in a general and fallible way what works and what does not. This still leaves unclear guidelines for success. Moreover since the goals of individual institutions differ, success for one group may actually be failure for another.

- 3) **Admit failure as part of success.** In building an individual exhibit or especially a new science center, few willingly admit the failures which are part and parcel of creative work. And people are often satisfied with a less than perfect exhibit or exhibition because the alternative is to assign responsibility--and the blame is often with the designers and the staff of the institution itself. To reduce resource consuming political maneuvering, expectations must be managed so that all are aware of the possibility of failed exhibits and programs. Failure should be seen as essential to the process which leads to new and successful work.

### Comments on the Design Process

- 1) **Architects, designers and consultants are rarely involved in on-going operations.** Any design process should be tightly managed by knowledgeable, experienced staff who have the long run in mind. Crossover staff, those who, for example, understand business and creative work, are especially valuable.
- 2) **Two dimensional presentations as “deliverables.”** Both architects and designers are selected and judged primarily on two dimensional presentations so for them a good looking building or exhibition may be more important than flexibility, ease of operation, maintenance or effectiveness.
- 3) **Diffuse responsibility and a lengthy process.** Large project teams divide up responsibility and rewards over a long period. With so many involved in the work, there are many others to point to if the project goes awry. Plus a real tendency to underplay problems exists to avoid any unpleasantness; a honest, close working relationship is the only way I know to develop “buy-in” on the part of team members.
- 4) **Fees as a percentage of the gross budget.** Designers often take a percentage of the exhibit budget for conceiving, documenting and managing the creation of an exhibition. But paying a percentage of the total project budget provides little incentive for crafting truly original designs. Why try something new and inventive when it might fail in an obvious way and when there may be no tolerance for failure on the client’s part.

### Staff Must Understand and Manage the Process

- 1) **Staff best interpret the goals of the institution.** The director and staff must carefully lead outside groups in their work. This means key staff must be onboard early in the creation of a new institution or in the management of a large new project. Staff should stay engaged in the process!
- 2) **A reasonable approach must be taken.** Appreciate the needs and problems designers face, and:
  - a) Provide clear direction concerning the exhibits and greater exhibition, but
  - b) Do not provide so much direction so that the designers and builders cannot exercise their skill and so that there is reduced opportunity to try new things.
  - c) Accept that failures occur when creative work is done.
  - d) Set reasonable budgets and timelines.
  - e) Plan, review, design and build alongside the various design firm and sub-contractors involved.
  - f) Understand an acceptable turnkey solution is impossible without your effective and constant support.
- 3) **Operational experience is critical to design.** The exhibits and buildings are only the setting and the props for the work of any science center. Design with the institution's mission in mind. And consider the daily work involved in pursuing this mission.
- 4) **To buy good exhibits, you should be able to build good exhibits.** Essentially, a knowledgeable and active client is a fundamental requirement for a successful exhibition--at least for an exhibition which is successful by the client's criteria. So to buy a good exhibition the client really needs all of the skills required to create such an exhibition. Clients should seek to amplify their own in house skills with outside contractors, not replace them.
- 5) **Create an organizational "engine" to insure institutional change over time.** Attend to change and anticipate change. To be original and unique, recruit and train creative staff who can produce new content for your institution and who can, if needed, remake the organization itself.