Small Traveling Exhibitions

Demands of the *REALLY* Small Exhibition and the *FREQUENT* Traveler

October 19, 2008
ASTC Annual Conference
Chris Wallace

DAVID HEIL & ASSOCIATES, INC.
Innovations in Science Learning
4614 SW Kelly Avenue, Suite 100, Portland, Oregon 97239
(p) 503.245.2102 (f) 503.245.2628 www.davidheil.com

Case Study

An NSF-Funded Collaboration

Participants:

The Imaginarium, Anchorage, Alaska
The Exploratorium, San Francisco, California
Discovery Center, Rockford, Illinois
Lakeview Museum, Peoria, Illinois
SciTech Museum, Aurora, Illinois
Children's Science Museum, Terre Haute, Indiana
Evansville Museum of Arts and Science, Indiana
Science Central, Fort Wayne, Indiana
Bluedorn Imaginarium, Waterloo, Iowa
Science Station, Cedar Rapids, Iowa
ScienceWorks Hands-On Museum, Ashland, Oregon

Outreach To Space Objective

Provide rural and non-museum opportunities to learn STEM concepts highlighting current research in Space Exploration with the use of a highly portable exhibition.

Images Removed for Participant Confidentiality

Exhibit Criteria

Created by OTS Museum Collaborators

1. **INTERACTIVITY**
   a. Does the exhibit invite prolonged engagement?
   b. Are there a variety of outcomes?
   c. Are there multiple entry points?

2. **VISITOR USE**
   a. Is it engaging to the visitor?
   b. Does the visitor know how to use the exhibit?
   c. Is it attractive and appealing from a distance?
   d. Do visitors have positive feelings about the exhibit after use?

3. **MESSAGE and MESSAGE CLARITY**
   a. Is the main message of the exhibit clear?
   b. Do we think this message is sufficiently important?
   c. Do visitors have to read the signs to understand the exhibit?
   d. If a clearer presentation is discovered, can the signs/graphics be easily and economically replaced?

4. **WIDE AGE-RANGE APPEAL**
   a. Does the exhibit appeal to a wide range of ages, knowledge base and reading ability?

Exhibit Criteria

Created by OTS Museum Collaborators

5. **PORTABILITY**
   a. Can the exhibit be transported and set up by 1 to 2 people?

6. **DURABILITY / MAINTENANCE**
   a. Can the exhibit be maintained effectively by staff or volunteers when at an offsite location?
   b. Can the exhibit be left unstaffed?
   c. Can the exhibit be safely stored at on offsite location?
   d. Is the exhibit appropriate for transport and outdoor use?
   e. Are the consumables or parts used available and easily replaced?

7. **FLEXIBILITY**
   a. Does the exhibit have flexibility as a table top?
   b. Does the exhibit require the presence of other exhibits to make sense to the visitor?

8. **ACCESSIBILITY**
   a. Is the exhibit physically accessible to people with:
      - wheelchairs
      - low motor skills
      - low vision
      - low hearing
      - small children (especially for height and depth reach)
   b. Are the signs bilingual?

Exhibit Selection Process

Selected Evaluation of Exhibit Prototypes by Museum Collaborators

Criteria # 1: Exhibit Rank on Interactivity

Exhibit	Invites Prolonged Engagement	Invites Discussion	Variety of Outcomes	Multiple Entry Points	Average Rank
A-7 Space Colony (U-Build)	2	2	2	1	1.75
T-5 Mars Rocket	1	1	1	5	2.00
T-6 Escape Velocity	4	2	3	4	3.25
U-10 What is gravity	3	1	7	3	3.50
U-2 Plasma Sphere	6	1	10	3	5.00
U-14 Infrared Camera	5	2	5	13	6.25
U-1 Telescopes	9	6	8	6	7.25
T-1 Stick to that Diet	13	11	4	3	7.75
A-1 Life Circle	11	12	6	2	7.75
U-16 Glow in the Dark	4	10	9	9	8.00
U-18 Expanding Universe	7	8	15	7	9.25
U-15 Dark Matter	8	3	16	12	9.75
U-13 Infrared Constellations	12	7	11	11	10.25
U-9 Planetary Hopscotch	9	14	14	5	10.50
U-4 Big Dipper	14	5	18	8	11.25
T-3 Heavy Air	12	9	13	11	11.25
U-3 Spectrum of the Stars	15	4	17	10	11.50
U-17 Long, Long Distance Call	10	13	12	14	12.25
T-2 Dirty to Drinkable	16	15	19	15	16.25

Criteria # 6: Exhibit Rank on Durability/Maintenance

Exhibit	Maintainable Offsite	Can be Left Unmanned	Safely Stored Offsite	Transport and Outdoor Use	Ease of Restocking and Replacing Parts	Average Rank
A-1 Life Circle	1	2	1	1	7	2.4
U-9 Planetary Hopscotch	2	1	4	4	5	3.2
A-7 Space Colony (U-Build)	3	7	5	3	3	4.2
U-16 Glow in the Dark	6	4	2	13	1	5.2
U-10 What is gravity	2	8	4	6	8	5.6
T-6 Escape Velocity	10	6	3	5	5	5.8
U-15 Dark Matter	4	3	6	10	7	6
T-2 Dirty to Drinkable	7	4	10	4	6	6.2
T-5 Mars Rocket	11	10	7	2	2	6.4
U-1 Telescopes	5	4	7	4	12	6.4
T-3 Heavy Air	12	6	8	6	2	6.8
T-1 Stick to that Diet	9	12	7	8	9	9
U-3 Spectrum of the Stars	11	8	11	12	4	9.2
U-4 Big Dipper	8	5	11	11	12	9.4
U-2 Plasma Sphere	8	8	11	12	9	9.6
U-18 Expanding Universe	13	9	9	9	10	10
U-17 Long, Long Distance Call	14	12	7	7	11	10.2
U-13 Infrared Constellations	15	11	12	14	14	13.2
U-14 Infrared Camera	16	13	13	14	13	13.8

Exhibit Selection Process

Summary of Exhibit Prototype Ranking Among Museum Collaborators

Member Rankings of Exhibit Prototypes

Exhibit	Mean Ranking Across Characteristics	Ranking Score:	Number of Responses for each Ranking										
			1st	2nd	3rd	4th	5th	6th	7th	8th	9th	10th	Not Ranked
T-5 Mars Rocket	4.2	73	2	3		3		1					0
U-1 Telescopes	7.3	65	4	1		1		1	1				1
T-6 Escape Velocity	5.5	57	1	2	3			1					2
U-2 Plasma Sphere	5.7	45		1	1	1	1		3	1			1
U-4 Big Dipper	9.0	41		1	1	1	2				2	1	1
A-7 Space Colony (U-Build)	4.7	38	1		1		1	1	1	1	1		2
U-10 What is gravity	3.5	33	1			2				2		3	1
U-15 Dark Matter	8.8	27		1	1		1				2		4
U-3 Spectrum of the Stars	8.7	26			1			1	1	2	1	1	2
U-17 Long, Long Distance Call	10.0	17						1	1	1	2	1	3

Experience in the Field

Visitor Observation

Telescope

Is the way an exhibit can be used intuitive and safe? Can changes in exhibit or signage address the problem in a low staff environment?

Steering with Thrust

Experience in the Field

Visitor Observation

What is Gravity?

Does the visitor understand the concept of the exhibit and how it ties into the overall theme?

Different Worlds

Experience in the Field

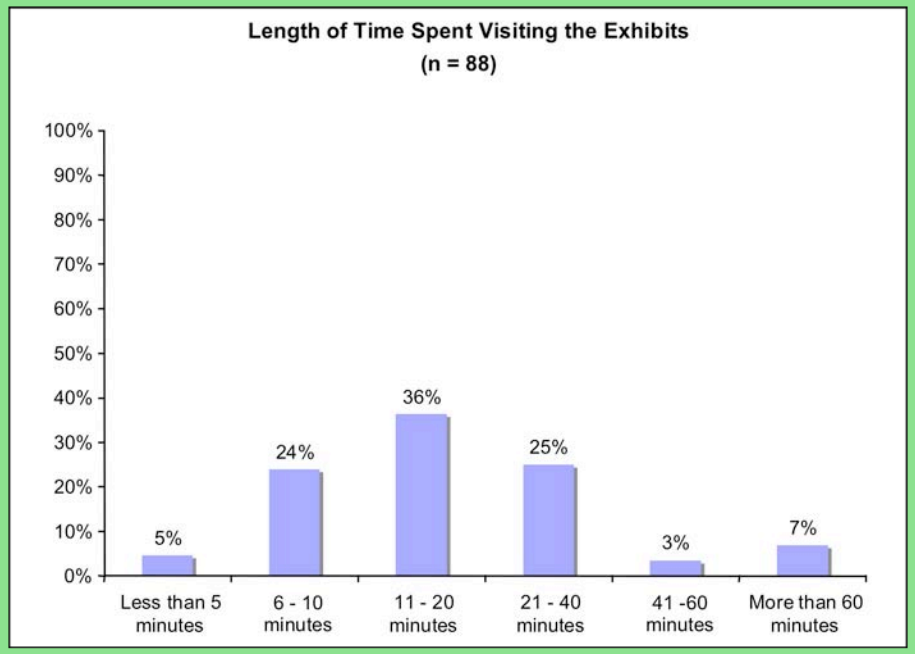
Visitor Observation

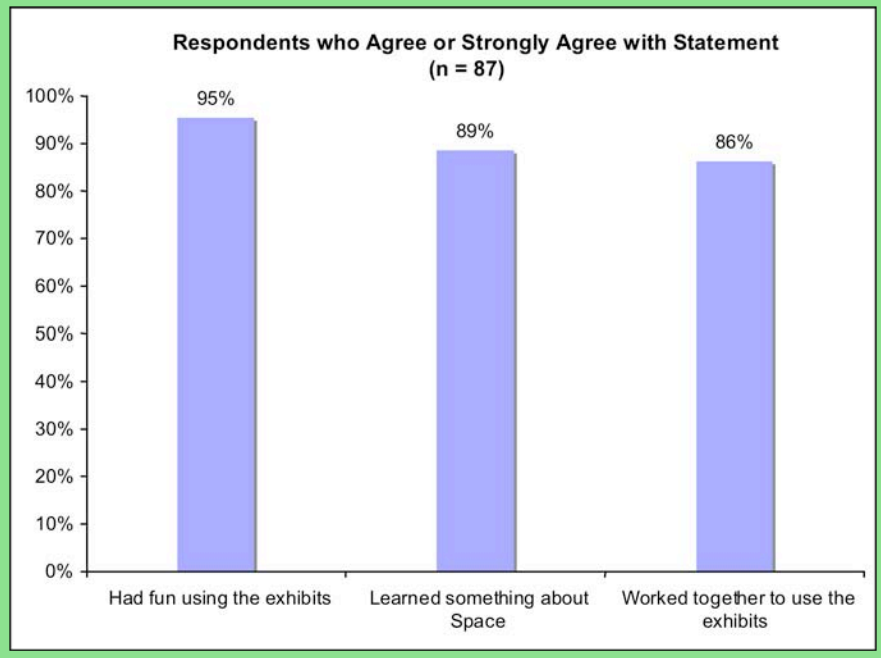
Pressure Suit

Can the exhibits stand up to a non-museum environment, transport and setup, extremes of heat and cold, as well as enthusiastic visitors?

Experience in the Field

Selected Visitor Feedback





Experience in the Field

Museum Staff

Who provides maintenance if staff and volunteers are not available?

Dealing with uneven ground.

Taping electrical cords.

Setting up Clear and Informative Procedures

Guidance for Transportation and Set-Up of OTS Exhibits

- **Arrive at location at least an hour before event.**
- **Transport exhibits in a truck that is at least 14 feet long.** *Note:* Truck size may need to be larger to accommodate office OTS tent-poles.
- **Use care in loading and unloading the exhibits:**
  - Use sufficient blankets and padding (and keep extras on hand)
  - Load heavy and large exhibits first, against the wall of the truck adjacent to the cab, and lighter/smaller objects last toward the door in the back. This will minimize shifting.
- **Minimize tripping hazards associated with electrical cords.** Tape over the cords with duct tape or use cord covers designed to reduce tripping.
- **Plan to have at least two people at set-up or take down.** *Note:* This requirement may change based on the official OTS tent.
- **Bring an A-level and shims to level the following exhibits:** Mars Rocket, Escape Velocity-PinBall, and Escape Velocity-Gravity Well.
- **Bring a dolly to move exhibits.** *Note:* Collaboration members are currently discussing adding wheels to the exhibits.
- **Clean exhibits with disinfectant regularly.**
- **Be attentive to exhibit layouts** (especially with regard to lighting requirements).

Experience in the Field

Museum Staff Selected Feedback

Science Center:	Venues	Exhibit Visitors
Overall	**64**	**232,831**
Bluedorn Science Imaginarium	9	11,195
Terre Haute Children's Museum	0*	0
Disocvery Center Museum	1	4,905
Evansville Museum of Arts, History, and Science	7	9,987
Imaginarium	4	125,000
Lakeview Museum of Arts and Sciences	10	18,020
Science Central	6	32,540
Science Station	9	9,067
ScienceWorks	11	13,052
SciTech Museum	7	9,065

*No data reported as of September 11, 2008

This was a well received event by both staff and kids. It was not a high volume event and many kids visited the OTS exhibits 2 days in a row, but we reached many kids who might not be able to visit the Museum. Low income and at-risk youth in particular.

We were very busy! Visitors really enjoyed the exhibits and many came back multiple times. We had a hard time packing them up because kids kept wanting to play. We could not use the exhibits needing electricity because there was no outlet. We also could not use the rocket launcher because there were too many people around.

Although it rained steadily, there was a large audience. They took shelter in our tent and ended up enjoying all of our exhibits.

We received great reviews and a high turnout, but the pavillion we were located in was not easy to see. This was a high staff/volunteer cost and required quite a lot of time with no generated revenue.

Lessons Learned

1. Develop consistent thematic ties across exhibits to suit a chaotic environment.
2. Provide additional instructional signage in non-museum environments.
3. Use signage/cues to clarify objectives / activities.
4. Address maintenance, durability, transportation and safety concerns.
5. Provide staff and volunteer guidance for transportation and setup.
6. Eliminate exhibits that are not well suited to transport or no-museum venues.
7. Provide opportunities for museum staff as well as visitor feedback.
8. Collaborative approach allowed museums to address or learn from challenges at other museums.