

**Session Title:** Understanding learning impacts

**Moderator:** Carrie McDougall

**Note taker:** Lexie Brown

**Panelists:** Elizabeth Ban – Smithsonian NMNH Ocean Hall

Manjit Goldberg – Maryland Science Center

Shawn Rowe – Hatfield OSU

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**General Notes:**

- Manjit Goldberg
  - Evaluations show that live presentations on SOS were engaging and interesting
  - Visitors have difficulty understanding content when SOS was on autorun
    - Installed interpretive panels around SOS to supplement autorun
      - Not a lot of people looked at panels
    - Tried kiosks with SOS
      - Slide show directly related to SOS autorun datasets
      - Also had interactive version that allowed visitors to choose dataset
      - 74% increase in understanding after using interactive kiosk
  - Now have 3 kiosks with SOS
    - 6 choices for interactive content
    - Measurable impact on learning
    - Kiosks increased time spent at SOS and increased curiosity (want to learn more about certain things)
    - Visitors learned how to use geographical references and color scales
    - Kiosks are engaging to multi-generational groups
    - Kids more likely to stay in exhibit longer if they are using the kiosk
    - Important to have:
      - Multiple levels of interactivity, include basic information (definitions, etc.), have enough kiosk to allow many people to be involved, visually appealing screens and consistent graphic elements
  - Still working on:
    - How to easily update kiosk for new content on SOS
    - How to add enough content without program being too cumbersome

- Demand for more information from visitors
      - Trackball vs. touchscreen kiosks
    - Worked with an outside firm to do programming, but content developed in-house
  - Elizabeth Ban
    - Ocean Hall visitor study (5 months after opening) – not just focused on SOS
    - Average visitor time – 20 minutes in Hall and 3.5 minutes in SOS room
    - One of the most popular parts of the Ocean Hall
  - Shawn Rowe
    - Published in Public Understanding of Science about false color images (by Phipps and Rowe)
      - People can make sense of false color if it follows common sense (green for chlorophyll) and uses labeling (need context)
      - Label where there is no data (poles), people assume it is cloud cover
      - Color bars and legends need to go on the sphere to make more sense
      - Contents should be earth-colored, not black
    - Currently involved in videotaping users at Magic Planet and SOS to capture interactions and they show the visitor and interview them
      - They can record their voice over their video to explain it and can use a pointer to highlight things
      - Results: some conceptual changes, but require multiple opportunities to engage (different information at different depths, related exhibits around SOS, etc.)
      - Don't need to reach everyone in the group – they can look at related exhibits and explain to each other
      - Dealing with adding more content as people request it
      - Will be published in spring and on SOS website
  - Questions:
    - (to Manjit) Are kiosks controlling what they see on the sphere?
      - Manjit: Kiosks are independent of SOS display.
      - Manjit: Tried to have visitors changing datasets on the sphere, but removed it because it was too difficult with multiple visitors trying to control it
      - Manjit: Will post evaluation results on the website
    - (to Elizabeth) How did you get visitors to understand concept of ocean as one big system?
      - Elizabeth: That is our main message throughout the entire hall and is repeated a lot. I do think SOS really help deliver that message.
      - Carrie: People did report that they did learn that message from SOS
    - (to Manjit) Were experience improved solely by kiosk or also by related exhibits?
      - Manjit: Only SOS and kiosk are in the gallery, so just kiosk.
    - (to Manjit): Did you ever turn off SOS and find out if it was just the kiosk that was effective?
      - Manjit: No.
    - (to Manjit): Was it confusing to see SOS on one subject and see something else on kiosk?
      - Manjit: A lot of people didn't pay attention to audio so it wasn't confusing.

- Shawn: We are going to look at differences in flat screen vs. SOS in terms of learning. If you are interested in working with us, let us know.
  - Frances Kruger: Are these software programs for kiosks available or are they proprietary?
    - Manjit: Ours was funded by NOAA, so available to SOS network
    - Fiske: Ours was created by students, so it was free.
    - Tech Museum: There is a fee to get software for their kiosk (~\$1,000)
  - Maurice Henderson: Labels for hearing-impaired? Working on looking at sphere and then four-five words show up in label field.
    - Shawn Rowe: Text on kiosk but not on sphere and no research on that
    - Bryan Kennedy: Using fifth projector as subtitle projector and have SOS ping computer every so many seconds to display text on SOS
      - Will share once they figure it out
      - Need to transcribe films first
      - Would be interesting if NOAA might require transcription for autorun films when they are completed

**Recommendations to NOAA (Office of Education, Earth System Research Laboratory, National Visualization Laboratory):**

- Would be interesting if NOAA might require transcription for autorun films when they are completed
  - Lots of interest in seeing transcription/closed captioning implemented for SOS

**Actions/Next Steps:**

| <i>Action/Next Step</i> | <i>Responsible Network Member/Institution</i> |
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**Research Questions for Further Exploration:**

- When increased learning is shown by a use of interactive kiosk, is it the kiosk only or is it SOS also?
- We are going to look at differences in flat screen vs. SOS in terms of learning