

What makes Informal Education (IE) Programs Successful? A Case History: Total Solar Eclipse 2001 — Live from Africa

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Evaluation and assessments of informal education programs, small or large, such as science museum traveling exhibits, interpretive kiosks, hands-on activities and very large public programs have been challenging due to the diverse nature of objectives, setups, and expected outcomes of these programs. Almost all institutions that develop and present IE programs include, in their staff, evaluation specialists. However, for very large public outreach efforts, which include participation of many institutions located across the country, larger evaluation groups/institutions can contribute more objective and extensive evaluation and assessment instruments. Such instruments will help to identify whether the program was successful and if the learning objectives were achieved. They can also lead to 'lessons learned' for future events and serve as possible model evaluation instruments for informal education institutions/museums/science centers where the budgets do not allow for contracting independent reviewers. The *Eclipse 2001* event was developed and executed with the partnership of the Sun-Earth Connection Education Forum, (SECEF), The Exploratorium (the Museum of Science, Art and Human Perception, in San Francisco), and NASA's STEREO Mission. American Institutes for Research (AIR), an independent evaluation company from Boston was contracted to develop and implement the evaluation. The following Informal Educational Goals were used to guide the event:

- Uses a "hook" to highlight science and engage the public
- Creates an experience where visitors learn and retain scientific knowledge
- Inspires interest in science and scientific exploration
- Provides wide dissemination and high visibility of national scope

Approximately 42,000 people participated in the *Eclipse 2001* event at museums, science centers, and planetaria: a total of 164 institutions worldwide, including 80 scientists, 71 Girl Scout troops, 15 universities and schools, and 2 mass-media outlets (CNN and NASA TV). AIR developed evaluation forms and these were sent to all the participating organizations. 972 evaluations from public participants were received and analyzed. In addition, 37 organizations and 32 scientists sent in their evaluations. The participants reported learning more about concepts such as Sunspots, the Solar Corona, the Diamond Ring Effect, and general information about the Sun. Several institutions mentioned frustration with technical difficulties, but overall, respondents in all categories

reported that they enjoyed (a) the broadcast of the eclipse, (b) the hands-on activities, and (c) interaction and on-line chats with the scientist. The majority of children and adult participants indicated that they would participate in a similar event in the future and evaluations demonstrated a statistically significant increase in their knowledge about the Sun after the eclipse event. The participating institutions wanted their sites to host in the next total eclipse event of 2006. The scientists reported that they were able to discuss their research with participants, that hosting museums and SECEF had prepared them well before the event, and that they will participate again in a future event. Scientists also mentioned that they were motivated to participate because they could turn kids on to the science, talk to the public, had the opportunity to discuss their research, and also enjoyed watching the eclipse web cast.

Looking back at our goals, we feel confident that through the *Eclipse 2001* where we could not see the event from our locations but 'observe' it remotely, we provided the "hook" to highlight science and engage the public for this event. We demonstrated that we created an experience where visitors indicated they learned and that this event inspired interest in science and scientific exploration. Through the science museum connections we provided wide dissemination and high visibility of national scope. The personal interest of the scientists in the content, publicity, connectivity to a group, educational value, and the capabilities of using high technology defined the success.

Encouraged by this event we plan future programs, such as *Journey to the Beginning of Time* – a video conferencing and web cast in Fall '03, *Venus Transit* on June 8th, 2004, *Ancient Observatories* in 2005, and the next *Total Eclipse* web cast on March 29, 2006. We hope you will participate in any or all of these programs. For information please visit our website: <http://solarevents.org> .