

# Resources for Doing Evaluation Research In Informal Astronomy Education and Outreach

A Beginner's Guide by Andrew Fraknoi

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## Key Documents

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Friedman, Alan, ed. *Framework for Evaluating Impacts of Informal Science Education Projects*. 2008, National Science Foundation. Free on the web at:

[http://insci.org/resources/Eval\\_Framework.pdf](http://insci.org/resources/Eval_Framework.pdf) (This new guide is full of practical hints and specific ideas and includes chapters on evaluating exhibits, mass media, youth and community programs, learning technologies and collaborations.)

Frechtling, Joy, et al: *NSF User-Friendly Handbook for Project Evaluation* (2002, National Science Foundation) <http://www.nsf.gov/pubs/2002/nsf02057/start.htm> (A more general introduction to evaluation from the education division of NSF.)

Elements of a Program Evaluation (from the NASA IDEAS Program):

<http://ideas.stsci.edu/Evaluation.shtml> (A concise introduction to and checklist for evaluation)

## Specific Web-based Articles Related to Astronomy Evaluation

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Bailey, Janelle & Slater, Timothy “Finding the Forest Amid the Trees: Tools for Evaluating Astronomy Education and Public Outreach Projects” in *Astronomy Education Review*, vol. 3, issue 2, p. 47: <http://aer.noao.edu/cgi-bin/article.pl?id=120> (Although the examples in this nice primer are drawn from evaluating teacher training workshops, there is much basic information here on evaluation that can be useful for informal projects as well.)

Broggt, Eric, et al. “Regulations and Ethical Considerations for Astronomy Education Research” (2 part article) in *Astronomy Education Review*, vol. 6, issue 1, p. 43:

<http://aer.noao.edu/cgi-bin/article.pl?id=242> and vol. 6, issue 2, p. 99:

<http://aer.noao.edu/cgi-bin/article.pl?id=257> (Under recent law, important issues arise when you interview or observe human subjects in any kind of research. This article sets out the issues and gives examples, including one from an informal learning setting.)

Dussault, Mary “How Do Visitors Understand the Universe?” at

<http://www.astc.org/resource/visitors/universe.htm> (Some studies testing the understanding of astronomical concepts -- rather than mere factoids -- by museum visitors.) See also:

Atlas, Toby, et al. “Front-end Evaluation for *Cosmic Questions* Exhibit” at

[http://www.cfa.harvard.edu/seuforum/download/Cosmic\\_front\\_end\\_eval\\_2000.pdf](http://www.cfa.harvard.edu/seuforum/download/Cosmic_front_end_eval_2000.pdf) and

Karp, J., et al “Summative Evaluation for *Cosmic Questions*”:

[http://www.cfa.harvard.edu/seuforum/download/CQ\\_Exec\\_Sum\\_Final\\_2003.pdf](http://www.cfa.harvard.edu/seuforum/download/CQ_Exec_Sum_Final_2003.pdf)

Flagg, Barbara “Summative Evaluation of the Planetarium Show *Black Holes: The Other Side of Infinity*” at: [http://www.informalscience.org/evaluation/report\\_view.php?id=283](http://www.informalscience.org/evaluation/report_view.php?id=283)

Goodman Research Group “Evaluation of the *Origins: NOVA* Mini-series (and its Outreach)” at [http://www.informalscience.org/evaluation/report\\_view.php?id=268](http://www.informalscience.org/evaluation/report_view.php?id=268)

Korn, Randi “Evaluation of the MarsQuest Museum Exhibit” at [http://www.informalscience.org/evaluation/report\\_view.php?id=34](http://www.informalscience.org/evaluation/report_view.php?id=34)

Storksdieck, M., et al. “Amateur Astronomers as Informal Science Ambassadors: Results of an Online Survey” at: [http://www.astrosociety.org/education/resources/ResultsofSurvey\\_FinalReport.pdf](http://www.astrosociety.org/education/resources/ResultsofSurvey_FinalReport.pdf)

Stroud, Nicholas, et al. “Toward a Methodology for Informal Astronomy Education Research” in *Astronomy Education Review*, vol. 5, issue 2, p. 146: <http://aer.noao.edu/cgi-bin/article.pl?id=229> (Proposes a technique called “action evaluation” and shows how it can be used in museums.)

## Useful Web Sites

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Boddington, Andy & Coe, Trudy “So Did It Work: Evaluating Public Understanding of Science Events” at: [http://www.copus.org.uk/pubs\\_guides\\_sodiditwork.html](http://www.copus.org.uk/pubs_guides_sodiditwork.html) A quick guide to event evaluation.

Informal Science Web Site Evaluation Page: <http://www.informalscience.org/evaluation/> (This is a web site for informal science education professionals, funded by NSF. Their evaluation page has a number of good general resources and a number of finished evaluation reports specific to astronomy and physical science.)

On-line Evaluation Resource Library: <http://oerl.sri.com/> (Funded by NSF, this is a repository of documents and plans for evaluation professionals.)

Visitor Studies Association Archives: <http://www.visitorstudiesarchives.org/index.php> (This is a place you can search the past publications of this organization, devoted to the systematic study of how their audiences perceive and use museums.)

Council for Advancement of Informal Science Education: <http://inisci.org/> (A new NSF-funded group to bring together those doing science outside the classroom. Their web site is just becoming populated, but has some impact studies and promises to grow into a useful resource.)

## Print Articles

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Burtnyk, Kimberly “Impact of Observatory Visitor Centers on the Public’s Understanding of Astronomy” in *Publications of the Astronomical Society of Australia*, 2000, vol. 17, p. 275. A first study of the impact of a visit to one of the observatories in Australia.

Miller, Jon “The Evaluation of Adult Science Learning” in Narasimhan, L., et al., eds. *NASA Office of Space Science Education and Public Outreach Conference 2002* (2004, ASP Conference Series vol. 319, p. 26.) Suggests some methods for measuring adult learning in a planetarium setting.

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