

Evaluation Guide for IYA2009 projects

The International Year of Astronomy 2009 will present itself as an excellent opportunity to promote events designed to increase public understanding and awareness of astronomy and space sciences.

All over the world, professionals and amateurs will work hard to bring to the public activities, exhibitions, shows, contests, websites, observations and other ways of promoting science in general and astronomy in particular.

But how well will these objectives be achieved? What will they really accomplish? Which lessons will be learnt? What will be done well and what could be done better?

If you are involved in organising IYA2009 activities, this guide will help you answer these questions and prepare an easy and thorough evaluation of your events.

What is evaluation?

Evaluation is the analysis of ongoing or completed activities and an effective way of learning how to do things better. It is a way of collecting information that helps those managing projects to understand and justify the results and impact, as well as building best practices.

Why evaluate?

Many organisations, particularly in the public and voluntary sectors, are turning to evaluation as a source of learning, as well as to justify their use of funds. Through evaluation, you can:

- Determine if the objectives of your project were reached;
- Obtain information on the outcomes of an event, along with suggestions for improvements;
- Identify changes resulting from the implementation of your project;
- Identify ways in which the project could have been more effective and efficient;
- Identify unexpected results;
- Crystallise ideas about the event and what it is intending to achieve;
- Find out who has attended your event, along with suggestions for improvement;
- Provide encouragement by demonstrating that your efforts have been worthwhile.



To summarise, although evaluation is often seen as a test or threat, it should instead be faced as an opportunity to **prove** what was achieved and to **improve** on what was not, for the sake of future projects.

Evaluation of projects is very important but also quite difficult and is therefore rarely done. This is why you should plan it as an integral part of the project itself.

What to evaluate?

You should begin by defining what the event or project intends to achieve:

Audiences. Who is in your audience? Children and their parents? School groups? Members of the public currently uninterested in astronomy? Journalists? A mix of several different groups?

Numbers. How large do you expect your audience to be?

Experiences. What will be their experience at the event? Just fun? Improving teamwork efforts? Problem solving?

Education. What will they learn about astronomy at the event? Better understanding of principles? Specific facts?

Attitudes. Do you expect your audience's attitudes toward astronomy to be changed by the event? Are you aiming for stronger support for astronomy, or more informed decision making?

Follow-up. What do you expect your audience to do after the event? Join a scientific society, or do projects in the classroom or at home?

Your evaluation should address each of these questions, but concentrate on those which are most important to you. You may also have formal objectives for the event, like raising the public's awareness of your institution and work.

To summarise, you must evaluate the **quality** of content, the **implementation** process, and the **impact** on your audience. Evaluation must be undertaken **before**, **during** and **after** your project.

Apart from evaluation of your activities, you should also pay attention to some more general indicators that might help you contextualise your evaluation results:

- average number per year of astronomy related news (general interest press and scientific publications);
- time of astronomy related news aired on TV and radio;
- members in amateur astronomy associations;
- number of "astronomy clubs" and their members in schools;
- poll to students on "general knowledge about astronomy";
- rate of astronomy school projects supported by your government;
- number of astronomy sites in your language, and their hits, downloads, etc;
- number of students in astronomy and physics university courses.

How to evaluate?

There are several methods you can use to evaluate your project, according to your needs, audience, type of event, objectives, manpower, time availability and, of course, your budget.

But first, please note the difference between **monitoring** and **evaluation**: while monitoring is the mere counting of numbers (number of attendees, number of sales, number of downloads), evaluation goes further and deals with the impact of the event on your audience (1000 people bought you book, but how many actually read it and learn from it?) A thorough and truthful evaluation will generally require the gathering of both quantitative and qualitative data.

When choosing methods of data collection and evaluation, you must carefully weigh the advantages and disadvantages of your choice, as well as the suitability to your own situation and evaluation objectives.

The next table gives an overview of the several evaluation methods.

Table 1. Evaluation methods

Method	Advantages	Disadvantages
Observation	Suitable for collecting data related to behaviour. Works well when subjects are involved in an activity and unable to provide detailed / objective opinions (for example, young children).	Subjects may change their behaviour if they are aware of being observed. Potential for observer bias or difference in interpretation between observers. Difficult to simultaneously observe and record.
Interview	Appropriate for complex situations. Allows collection of in-depth information. Respondents can be asked to explain their responses. Questions can be clarified.	Potential for interviewer bias. Requires skill on the part of the interviewer to elicit honest responses. Time-consuming and therefore expensive.
Focus group	Very "rich" source of data. Allows group interactions to be observed as well as opinions gathered. Group situation allows opinions to be challenged and clarified.	Time-consuming and expensive. Requires skill on the part of the interviewer as group dynamic is crucial to collecting useful data.
Questionnaire	Inexpensive. Can be completely anonymous. Large sample sizes possible. Can be distributed in a number of ways.	Appropriate questionnaire design is crucial to success. Inappropriate for young children, adults with poor reading / writing skills, etc. Potentially low response rate. Self-selecting sample bias. Clarification of questions not possible.
Secondary sources	Includes documents such as reports or previous studies. Generally inexpensive. Convenient.	Validity and reliability problems. Data format may not match format required by evaluator.

The next table will help you think about the type of information you want, depending on the delivery method you are using (events, products and projects), and how you might obtain information to see whether or not you have met your objectives.

Table 2. Types of information

	Discussion / Meeting / Talk	Website	Products e.g. poster / CD-ROM / video	Exhibition / Open day	Show / Play	Competition
Monitoring Data						
Number of people	Count people on entry. Categorise people at registration or by observation or questionnaire.	Count hits. Pop-up questionnaires on the site or registration procedures.	Number distributed. Use of order / request forms and questionnaires.	Count people on entry. Categorise people on entry by registration or questionnaire.	Count audience. Use ticket sales or booking mechanisms to gather information.	Count entries. Use entries to gather data on types of entrants.
Types of people						
Evaluation Data						
Benchmark	To measure change you need to have a baseline from before the audience engaged with your project and another set of data taken after they took part in your project. You will need to ask the same questions before and after.					
Change views / attitudes	Ask people for baseline views on a paper questionnaire while they wait for the event to start or when they register to come.	Registration questionnaire on the site to gather information.	Distribution methods will affect the ability to collect initial data. Using an ordering mechanism allows data to be gathered.	Ask for baseline views on a paper or e-mail questionnaire when people register to come or buy tickets.	Ask for baseline views on a paper or e-mail questionnaire when people book or buy tickets.	Building in an initial data gathering exercise to the competition process will allow baseline data to be gathered.
Change behaviour						
Increase interest						
Increase knowledge						
Quality / fit for purpose						
Strengths	Observe the event. Use exit questionnaires and/or follow-up focus groups or questionnaires.	Include questions on this in a questionnaire hosted on the site. Record dwell time per page and page requests.	Follow-up questionnaires and focus groups.	Exit or follow-up questionnaires. Short face-to-face interviews during the event. Observation.	Follow-up questionnaires. Group discussions.	Use entry mechanism to gather feedback.
Weaknesses						
Interaction with project	Observation of dynamics will help you plan better events in the future.	Record the order in which pages are accessed and dwell time per page.	Observation of users and questionnaires.	Observation. In-depth interviews or focus groups and questionnaires. Feedback from staff / colleagues.	Observation. Questionnaires.	Implicit in taking part, use entry numbers as a measure.
Dialogue						
Obtain views on issue	Listening to the conversations, record key points.	An interactive e-mail facility will allow this.	Not a good medium for getting people's views. Can use these as a stimulus and then use group discussions and questionnaires.	Comment books and exit questionnaires. Building opportunities for staff / colleagues to engage with visitors.	Not usually designed for giving feedback. Can use debate after the performance.	Can build this in to entry process, but not a normal mechanism for getting people's views.

Reporting

After you collect and analyse the data for your evaluation, it is time to write down your findings and build a report. The report may be aimed at your sponsors or your administrators. But you should also write it for yourself and for the team that worked with you on your project, as a way of self assessment. As with the methods of data collection and level of evaluation, you must choose the most adequate format for your report, in length, detail, language, etc.

Whatever the format you choose, there are some points that you should always address in your report:

Grant details: If your event or project received any kind of funding, you should reference the amount, including partnership funding and in-kind support.

Project details: project details including its aims and a summary of proposed objectives.

Project delivery: comments on successes and challenges with the project delivery.

Key outcomes - quantify: restate the key outcomes for delivery and audience sizes, and provide figures for actual deliverables and comments.

Key outcomes - impacts: give evidence of the impact of your project, for the key outcomes and any other impacts recorded.

Additional information: additional evaluation or project report that provides greater detail.

Media coverage: list items of media coverage generated by the project.

Dissemination: describe how the project was disseminated.

Further work: describe your project's legacy, if there is one.

Work plan:

To finish, on the following figure you can find a work plan for implementing and evaluation your project, which you can adapt to your own needs and objectives:

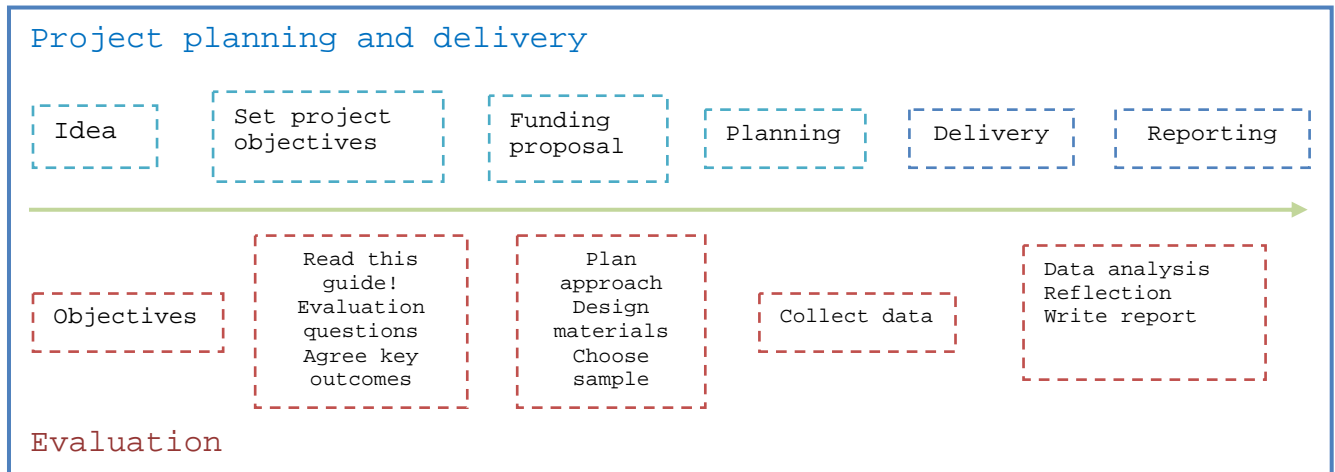


Figure 1. The work plan for implementing and evaluation timeline

References and further reading:

Sykes, Cathy, 2005, *Evaluation: practical guidelines*, The Research Councils UK and The Office of Science and Technology

Boddington, Andy; Coe, Trudy, 1995, *So did it work?*, COPUS

Paterson, Lesley, *Ingenious evaluation guide*, The Royal Academy of Engineering

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