

WHAT WORKS AND WHAT DOESN'T:  
MAKING EVALUATION USEFUL (AND EVEN FUN)

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Evaluation has not played an important role in programs to encourage women and girls in math, science and engineering. Ideally evaluation can be more flexible than research and more immediate; more able to meet program needs while still providing useful impact data. However evaluation has not lived up to that promise. Rather than being an integral part of ongoing program improvement it has too often become an ineffectual game of paperwork, defined by outsiders and imposed on insiders with results used by almost no one.

There have been a number of reasons this has occurred including:

- a lack of funding for evaluation
- a concern that evaluation will not provide a "fair" picture of the program
- a lack of awareness of the ways evaluation can help improve individual programs as well as provide valuable information about "what works and what doesn't."

This lack of confidence and awareness comes from years of experience with "black hole" evaluation. As most program staff and participants see it, their time, interview responses and reams and reams of questionnaires devoted to evaluation go into a black hole somewhere in space where nothing ever returns.

It doesn't have to be this way. Evaluation can be viable and even useful. First however there must a dramatic shift in power to "participatory evaluation" where staff and participants become involved in evaluation design, implementation and analysis. This can, and should, be done both with formative evaluation (the ongoing assessment of how a project is doing and how it can be improved) and with summative evaluation (the assessment of the impact or effectiveness of a project).

Participatory Formative Evaluation

There are several important components to "participatory evaluation." Key is the treatment of staff and participants with a combination of respect and just plain good manners. Be they 4 or 40, if you collect information from someone, you must let them know what you find. Short, easily understandable summaries of the data need to be shared with those from whom the data was collected as soon as

possible.

While we all like to know what was found, we also want to know what is going to be done with the results or, if nothing is going to be done, why. This feedback loop of results and action makes everyone more aware that the evaluation is "real". And when done as part of a formative evaluation, it makes the evaluation more effective in improving programs.

### Fun Evaluation Techniques

At least some of the formative evaluation techniques used with participants should be fun and visual. Possible techniques include:

#### ON THE BEAN

Take three different kinds of beans (i.e. pinto, kidney and black), buttons or poker chips (red, white and blue). Label one kind GREAT (or a smiling face), a second OK (or a neutral face) and the third AWFUL (or a sad face). Have participants put beans from each category in a clear, jar based on how they feel about "what's happening." By looking at the jar, you can tell immediately "how it's going."

#### WORDS, WORDS, WORDS

Ask people to list three words that best describe how they feel. By examining the most frequently listed words, you can get an idea of how participants feel about "what's happening" and its impact.

#### THE BIG THREE

Ask participants to list what they LIKED BEST and LIKED LEAST about the workshop, training or program and what would IMPROVE IT. Reading or summarizing the most frequent responses will give an overview of participants' feelings.

#### I THINK...

Ask participants to complete one or several of the following: I THINK THIS PROGRAM IS..., TODAY I LEARNED THAT..., IN THE FUTURE I WILL...

#### ON THE WALL

Any of the preceding three activities can be done on the wall as well as on paper. Put large sheets of paper on the wall with a marker attached to the wall with a string. On the top of the sheet, write WORDS, WORDS, WORDS or TODAY I LEARNED THAT... or whatever. Ask participants to write their responses on the sheets.

#### LET'S TALK ABOUT IT

The preceding three activities can be done as small group activities. In groups of three or four, with one person serving as the recorder, participants discuss their feelings/ideas based on THE BIG THREE, I THINK... or other questions than might be appropriate. Either the recorders report back to the large group or hand in their notes.

As participants begin to see that they and their ideas are taken seriously, they will provide the evaluation with more useful, thoughtful results. They then can easily become involved in deciding issues such as which information and data collection methods are providing the most useful results with the least amount of effort.

The involvement of staff and participants in evaluation shouldn't stop there. They also have an important role in the design and implementation of summative or impact evaluation.

### Participatory Summative Evaluation

The first step in any sound summative evaluation, is to determine what is meant by success. Paraphrasing the old expression, if you don't know where you are going, how can you measure if you are getting there? Before any impact assessment can be designed, project staff, funders and at least some participants need to determine how they would define project success.

If there are not at least some commonalities or overlap in the definitions, the project can be in serious trouble. An early task for many a good evaluator is to help bring different project populations to some consensus about project goals and definitions of success.

Whatever definitions of success are established, they must be assessed for validity and reality. A criteria for success is only valid if the project has the opportunity and resources to have an impact on it. Thus if a project is providing eighth grade girls with engineering role models and showing them that math can be fun, a definition of success that includes increasing the number of women in engineering is not realistic. There are just too many factors involved that are outside of project control. Increasing the number of girls taking algebra in project schools could be a realistic goal as could be increasing girls' interest in engineering or even increasing their self esteem.

The question then becomes how do you measure those areas. It is easy enough to measure who takes algebra; adequately measuring more complex variables such as interest or even self-esteem is much more difficult. The following activity may help provide some clues for "measuring the unmeasurable."

#### YOU CAN'T MEASURE LOVE (OR CAN YOU?)

Working with a small group of people, write down the word LOVE on a large sheet of easel paper. Now remind people they all know someone who loves them. Ask them how they know that person loves them. Write down their answers. Push people to give their reasons in measurable terms. For example if someone says "communication" ask them what that means. Keep asking what they mean until that which they say is easily measurable.

Get between 10 and 20 "measures" on the sheet and, with the group, examine them. You will find that any one or even two measures could be a measure of love or of something quite

different. However if five or six different measures are included, the results do begin to assess love. A similar process can be used to get people started thinking about how areas such as interest, motivation or self-esteem can be measured. The use of multiple measures are key to success in measuring complex variables.

Measures need to have some form of validity (that what you say is measured, is) and reliability (that it is measured consistently over time). In addition to behavioral measures that might come out the preceding activity, a wide variety of standardized measures can be found in the Educational Testing Service's Testing Data Base (Princeton, NJ 08540) and in the Mental Measurements Yearbook.

#### What We Have Learned From Evaluation

Good evaluation including follow up with young women after they have completed the program, has provided some useful information for programs including that:

An intensive summer program on math and sports can increase girls' math and science course taking plans and reduce their math anxiety. While returning to school decreases some of the program's impact, two and three years later, girls are taking more math courses than they had originally planned.

Interviews with girls who had participated in special programs in math and science, indicate that, unlike school, in the special programs they feel:

- math is more fun and exciting
- more comfortable asking questions
- they are more apt to get answers
- someone makes sure they understand
- and they "learn how to think", all of which appear to be related to the girls plans to take more math<sup>1,2</sup>.

Programs can also reduce the strength of stereotypes about girls and math/science. Having had the opportunity to be with numbers of smart women was particularly important to young women in one summer program to "disprove the saying that boys are smarter than girls in [math and science]" and to "find out that young women are, of course, not less smart than men of course!". As other two young women explained:

I always thought of science as a man's world, When I saw so many girls, intelligent girls in science--it felt good inside, we're changing our own world.  
By meeting so many intelligent girls, my whole idea of science and women in science changed. It is obvious that women are very smart, only the do not always participate in science field.<sup>3,4</sup>

Programs can reduce the isolation young women and girls interested in math and science often feel. For example at the end of one program 14% of the young women reported that what they had learned was that as young women skilled at and interested in science, they were not alone. As one young woman said, she learned "a lot of smart people are really much like me."

Fifteen months later the reduction of the sense of isolation as a smart girl with interests in math and science assumed a much greater role with 61% of the young women reporting some reduction in isolation thanks to the program.

Some of their comments centered around the comfort of not being alone.

It was comforting to know that there are many other women who are as intelligent and just as intrigued with math and science as I am.

At school I am unique, but now I know I am not alone

At [program] we were all equals. At my high school being an in an upper level science and math class, labels a student as being very different from the general population. Gifted students are branded as elitist.

Some valued being able to share interests and problems to be "around people who understood things I was going through" and with whom one could "share ways of handling certain things." Others found that being with the other young women in math and science gave them confidence to "feel more comfortable being myself. I am less apt to hide my interest in math and science" and to "stop feeling like intelligence sets me at a disadvantage" <sup>3,4</sup>.

#### An Overview of Evaluation

Evaluation can make a difference but only if program people actively participate in the evaluation. The following overview gives some ideas of the whys and hows for the program person who would like to do a useful evaluation. It is important to remember that not every evaluation need be (or can be) a full blown long term study of program impact. Indeed that study may be best done by an organization such as WEPAN using different programs from different sites. However every program can and should have some form of evaluation that can, at a minimum, provide program people and participants with useful information about the program and how it can be improved. So...

#### Remember You Are Evaluating:

- to determine the effects the program is having.
- to spot potential and actual problem areas as early as possible and recommend possible solutions.
- to provide information on needs being met and not met and assist in program planning.
- to identify program strengths and weaknesses and develop strategies to improve weak areas.
- to show funders, and potential funders, what the program does and how it is working.

#### To Start An Evaluation:

1. Decide the specific questions you want the evaluation to answer. One question always asked is "Is the program a success?" However before you can begin to answer this question, you and your staff need to decide what it

would take before you, and others, would see your program as a success.

2. Decide if you want to have the evaluation done by your staff or by an outside professional evaluator. It is frequently better to do the evaluation jointly so you can call on the expertise and objectivity of the outsider while keeping cost down and relying heavily on the program knowledge of the staff.

3. Decide on the type of evaluation you want to have. For example you could focus on documenting what was done, the collection of information that can be used to improve the ongoing program, the effects of the program on individuals and institutions or some combination of the above.

4. Decide on the information you want to collect.

5. Get started.

#### References

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