NOMINAL GROUP TECHNIQUE (NGT)

Research in group dynamics indicates that more ideas are expressed by individuals working alone but in a group environment than by individuals engaged in a formal group discussion. NGT is a method for collective inquiry. Group consensus can be reached faster and everyone has equal opportunity to present their ideas. Individual ideas and judgments are generated and effectively aggregated. The technique is helpful in identifying problems, establishing priorities, and postulating and exploring policies and problem solutions. The method helps foster stakeholder participation in planning.

Results

- A list of 20 to 100 ideas about an issue.
- A preliminary prioritization of these ideas according to a specific relation (for example, educational programs or activities related to LIGO science).
- Increased understanding of generated ideas.
- Opportunity to assure that ideas of each member of the group are part of the output.

Resources Required

- Two people will serve as group leaders, sharing the responsibilities, one working as a facilitator, one as a recorder.
- A carefully prepared trigger question.
- 6-12 task-oriented individuals with issue-related expertise.
- Papers and pencils for each participant; flip chart and felt-tip pens.
- Meeting room with adequately sized table, chairs, and surfaces on which to tape ideas.
- 1 to 3 hours time for the process.

How the Method is Applied

- Silent generation of ideas in writing by individuals in response to oral presentation of a carefully prepared trigger question.
- Round robin recording of ideas in which each group member presents, but does not discuss, one of the ideas on his or her list. The ideas are recorded on a flip chart. The facilitator then asks each person for a second idea, and so on, until all ideas are recorded. All ideas are recorded as presented.
- Spontaneous hitchhiking of ideas is encouraged, but no discussion or justification of ideas.
- Clarification of the resulting list of ideas. The facilitator reads each idea on the flipchart and asks if there are questions, interpretations, or explanations. Each idea should be assigned a number.
- Ranking the priority of generated ideas. The facilitator asks each person to write down, in a few minutes, the ideas that seem especially important. Some people may feel only a few items are important; others may feel all items are important. The leader then goes down the list and records the number of people who consider each item a priority.

Ranking

- Finally, participants rate each item from no importance (0) to top priority (10). A person may have several top priority items (all 10s), or only one top priority. The facilitator then collects and calculates the ratings and records the cumulative rating for each item.
- Starting with the issue receiving the highest priority, you may search for solutions to the issue using the same method.
- Ideas and/or elements need to be thoroughly discussed and analyzed by the group before the evaluation or prioritization takes place.

- The ranking is owned by the group doing the prioritization. A different group would probably have a different ranking.
- Action steps may then be identified and prioritized according to a set of criteria. These may include
    - Time Required (for both educators and scientists)
    - Resources available (financial, personnel, infrastructure, supplies)
    - Internal capability (availability of researchers, mentors)
    - Internal management (broad dissemination, user participation, leveraged funds, implementation strategy, evaluation)

Example: Mentoring system via a school partnership. Caltech provides post-docs and graduate students who act as teaching assistants in local high school science labs.

Time Required	***Resources*** *(Financial, Personnel, Infrastructure, Supplies)*	***Internal Capability*** *(Faculty Availability)*	***Internal Management*** *(Broad Dissemination, User Participation, Leveraged Funds, Implementation Strategy, Evaluation)*
Existing investment by CIT-EO office (J. Andrews), Graduate Student Volunteers (GSVs). GSVs spend 30 hours/person per 10-week term.	5 CIT GSVs, 1 Post-doc, 4 Middle School teachers, 2 High School teachers, CIT-EO personnel Brachman, Andrews.	Scientists support GSVs and Post-docs who mentor.	As capacity is built up (volunteers and teacher participants), program scales up over time. Implementation underway via existing pilot program. Will establish evaluation mechanism w/ GSVs and teachers.

Agenda

1.	Understanding the Trigger Question	5 minutes
2.	Silent Generation of Ideas	15 minutes
3.	Round Robin Recording of Ideas	30 minutes
4.	Clarification of Ideas	30 minutes
5.	Ranking of Ideas	40 minutes
	Total:	120 minutes (2 hours)