

GROUP COST-BENEFIT ANALYSIS

- A. SCIENTISTS
- B. SCIENCE EDUCATION PROFESSIONALS
- C. SCHOOL TEACHERS

A. BENEFITS FOR SCIENTISTS

1. Students collecting data can contribute to existing data sets and create new ones
2. An education program can create a focus for intra-site synthesis activity
3. Increased interaction with students
4. Can effect change in education system
5. Can develop sources for outside funding
6. Opportunity to work with people from different fields
7. Opportunity to gain new perspective on research – discover new frontiers for research
8. Develop new career pathways for graduate students and post-docs
9. Infuse new energy and excitement in research
10. Gain understanding of role of LTER research in greater community/world
11. Opportunity to improve teaching and communication skills
12. Opportunity to demonstrate the importance of long-term research in addressing societal needs
13. Provides context of information for science teaching research and data
14. Opportunity for greater public relations and appeals to NSF
15. Sustains interest of scientists who like teaching
16. Develops information sources for a changing community
17. Opportunity for grad students to learn to be mentors

COSTS FOR SCIENTISTS

1. Time
2. Mission creep – distraction from initial purpose, career
3. ‘Saganization’ or over-simplification of science when communicating to public
4. Potential loss of property – working on a big project that scientist had no part in development of
5. Potential problems in dealing with children – don’t want to babysit, difficult to develop relationships
6. Having to deal with students who are low on the learning curve – potential problems with quality control
7. Educational activities not supported by department/administration/institutions, such as federal research agencies
8. Researchers spending time on activities that don’t support career objectives, working on things that don’t lead to publications
9. Costs to datamanagement, for time spent on extra data, on websites (making them usable to classrooms), takes datamanagers resources and time away

B. BENEFITS FOR SCIENCE EDUCATION PROFESSIONALS

1. New research opportunities
2. Opportunities to work on long-term innovations
3. Opportunity to Enhance credibility and quality of science content
4. Opportunities for pre-service and in-service professional development and Involving pre-service teachers in real world of research and the culture of science
5. Potential reduction of insularity of science education community
6. Access to research protocols, supplies and equipment
7. Improves quality of ecology teaching
8. Administrative infrastructure to support communication of science / ecology
9. Better integrated outreach product
10. Opportunity to develop curriculum incorporating researchers and instructors

COSTS FOR SCIENCE EDUCATION PROFESSIONALS

1. Time
2. Mission creep – distraction from career goals, loss of control
3. Frustration of trying to work across institutional boundaries
4. Outreach in science education is not institutionalized and creates dependency on soft money (a stakeholder without turf)
5. Is biology education research “counted” for teachers?
6. Have to learn something new
7. Hybrid position – difficult to fund, inherent lack of respect, few colleagues, “is this a real job?”
8. Lack of training in areas
9. Philosophical inconsistency
10. Emotional costs of trying to make connections and collaborators with those who view you as something lesser than they

D. BENEFITS FOR TEACHERS AND NON-FORMAL EDUCATORS

1. Access to university resources for themselves and their students
2. Professional development opportunities
3. Continuing education credits
4. Financial (participant stipends)
5. Networking benefits (ideas, resources, etc)
6. Other types of recognition
7. Student's see real research and participate in real research
8. Students feel enthusiastic and get more involved
9. Students see scientists addressing real issues
10. Technical money and help
11. Help with writing grants
12. Scientists get exposure to real class rooms
13. Visits from scientists/ expertise
14. Career exposure
15. Students exposure to university setting

COSTS TO TEACHERS AND NON-FORMAL EDUCATORS

1. Time
2. Reduced instructional time
3. Potential lack of support by colleagues, administrators, parents, or students
4. Must plan around a given curriculum
5. Planning is intense
6. Hard to rally administrative support and even approval
7. To do school-wide, creates scheduling problems with other teachers
8. EVALUATION
9. Negative reactions to scientists (feeling lesser-than, talked DOWN to, etc.)
- 10.

Current budget included this workshop, + about \$10,000 for "follow-ups"
Put a tree-graph of LTER structure on website

Here we should decide what these should be.

– Defining the committee:

- Identify options for funding, inform sites of the possibilities. Centralized information point for all the LTER sites
- Must have a definite chair to have a focus point for funneling information to
- Expertise is not easily found within LTER community, or even the CC – could present a problem for developing a committee
- To advocate role of education in LTER
- To "Keep science in science education"
- Advocating for LTER education to NSF
- Advisory body to NSF for RFP
- Establish partnerships between scientists, educators, datamanagers, teachers, -- these partnerships should be reflected in composition of Committee
- Plan future workshops
- Mentoring proposal writing
- Prepare a white paper to argue for somekind of competition for cross-fertilization between EHR and DEB – allows LTER to list why it should be in education, demonstrate how sites function as individually, and show what they could do at the Network level
- Together with OBFS could develop as a systemic initiative for education reform – science up instead of education up
- Mentoring for post-docs who become Education Personnel at sites (biology phd pursuing alternative career pathways)

"A service and a science"

ROLE OF THE NETWORK OFFICE

- Information clearing house – feeding information from NSF to committee members through e-mail announcements
- Provide logistical support
- Develop and maintain extensive website for dissemination of information and forum

NEXT STEPS

- Use left-over money to have a proposal writing session both at site level and network level
- Identify and form a committee
- Make recommendations to Bruce Hayden for future money (mentioned in Scheiner's talk – second workshop, second 15k supplements) – should be done by January 1999

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CAP?
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names of folks

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