SECTION II:
Enabling the Discourse

Introduction

Integrating an IESSP into the GLOBE community requires an understanding of our diverse constituency from all over the world. The GLOBE community contains many different cultures and technological capabilities and therefore requires us to develop a variety of communication strategies. This diversity opens up wonderful and rich opportunities for students. It also requires creative strategies to provide opportunities for maxium participation. In particular, it is important to employ locally-appropriate technologies that include both conventional and virtual types of interactions.

School Collaborations page on the current GLOBE Web site.

Since school networks can cover large geographic areas, most of the network development will be through Web-based and other forms of communication where students are not interacting face-to-face. However, when and where possible, providing opportunities for students to interact with each other in person is recommended, perhaps as a culminating event near the end of the project.

Principle 1:
Multiple audiences with multiple needs require a tiered approach to technology. The GLOBE Program is committed to working with new types of cutting-edge technology to provide exciting opportunities for students while still providing an alternative platform, Web-based or conventional, to engage students in learning communities. Table I (on the following page) presents examples of different levels of communication methodologies and technologies that GLOBE may want to utilize.

Communication methods are rapidly improving and changing around the world and include methods such as ground-based and mobile telephones in developing countries, text messaging for the hearing-impaired communities, and Web-casts. GLOBE can benefit from this growth by allowing options for communication that meet the local needs of our partners.

Principle 2:
Web-based technology can be used to expand global communication and technological literacy. GLOBE will create a meaningful experience using tools that present educational objectives in an exciting, engaging, and interactive environment.

Many countries where ground-based telephone lines were unavailable are now bypassing them and moving directly to cellular based communications.

Cellular phone users in many parts of the world rely on text messaging rather than talking over the phones. This also saves considerable money.

In some parts of the world where electricity is not present, cell phone users will send their phones to major cities to be recharged when their batteries run out.

Deaf and hearing impaired students often use text messaging and RIM (Blackberry) technology as their primary means of communication.

Level 1: Conventional			
Face-to-face	Postal Mail	Fax	Teleconference / Video Conference

Level 2: Handheld			
PDA	Text messaging	Blackberry/RIM	Podcast

Level 3: Low Bandwidth Internet			
Email (data entry, forum posts, list-serves, etc)	Low-graphic / text-based blogs	Instant Messaging (IM)/ text based forum	CD-roms of Internet content

Level 4: High Bandwidth Internet			
Forums	Wikis	Blogs	Webchats/Instant Messaging (IM)

Table I: Levels of Technology

Popular communication techniques grouped into conventional, handheld, low-bandwidth communication, and high speed Web-based applications.

Web Forums/Message Boards/Discussion Boards

A web forum (also called a Message Board or Discussion Board) is designed to facilitate discussion, often in conjunction with online communities. Discussions on several different subject matters may occur in one centralized location. Forums allow the user to determine their own level of communication.

Application to GLOBE/IESSPs:

Web forums would be valuable to GLOBE as a collaboration tool, but also as a way of demonstrating the many ways that GLOBE impacts students, classrooms, and communities. It is suggested that at least one forum topic is established for each IESSP that is working with GLOBE. Other possible forum topics include: Science Inquiries, Student Investigations, and Culture,

Implementation: Software is readily available in open source packages. It is easy to implement and configure.

Blogs (Short for weblog)

A blog is a journal or newsletter that is frequently updated and intended for general public consumption. They generally represent the opinions of the author or the web site. Blogs are great for disseminating information to the online community and include technology to provide users the opportunity to comment on entries.

Application to GLOBE/IESSPs:

A scientist blog is a very valuable tool that could be utilized by both the GLOBE Chief Scientist and the IESSP scientists to distribute information about initiatives and studies (used as an introduction and followup). Implementation: GLOBE has recently implemented a Chief Scientist blog. We will continue to evaluate the effectiveness of blogs in the GLOBE setting over time.

GLOBE Chief Scientist's Blog, Dr. Peggy LeMone, on the GLOBE Web site.

Wikis

Wikis allow users to add content, as on an internet forum, but also allows anyone to edit the content. They are commonly used in online collaboration and are useful when users are involved in a common project. Wikis are more focused and therefore would not reach the majority of the online community.

Application to GLOBE/IESSPs:

Wikis would be useful in composing documents and materials collaboratively and asynchronously. It would be effective as a collaborative tool for GLOBE projects. While not universal, it should be used sparingly as other technology serves to produce similar outcomes.

Web chats

A web chat allows two or more logged-in users to set up a typed, real-time, online conversation across the internet. They are somewhat exclusionary due to their synchronous nature. Web chats also require a great deal of coordination and GPO effort (requirements from Systems for set up, Scientist for content/discussion, Moderator to ensure that inappropriate material is not posted).

Application to GLOBE/IESSPs:

Web chats could be potentially useful in certain situations within GLOBE. When a project or group is in the same general geographic location (ie: GLOBE One), web chats can be very useful in generating online discussion. Web chats are not a great fit in all situations, though, and should be utilized as a supplementary tool to support online collaboration (not a primary mechanism).

Implementation: GLOBE currently runs web chat software and has the ability to archive chats.

Instant Messaging (IM)

These methods are very technology intensive. It is not advised that GLOBE rely on these technologies as a primary method of communication. GLOBE can, however, suggest these methods in situations where the technology is available and the application is appropriate.

Principle 3:
GLOBE is committed to providing a safe online environment for students. Developing an interface with IESSPs requires considering privacy and Internet security issues. In addition to child protection laws <www.coppa.org>, Internet security is an added and potentially more challenging topic to address. Many schools and other computer sites employ tools to prevent students from visiting non-essential sites or submitting forms. Permission may be gained from the schools' systems administrators. A permission letter for teachers to request access from their system administrators can be found in the appendix. (or make reference to shared drive)

To gain a fuller understanding of the Children's Online Privacy Protection Act (COPPA), please visit <www.coppa.org>.

For our purposes, here is a brief summary taken from the Coppa Act:

> *Parental consent is required for most circumstances when the online collection of personal information is requested of children under the age of thirteen. Under rare circumstances, consent is not required if identifying emails are discarded in a reasonable time.*

Principle 4:
Face-to-face interaction experience serve as an energizer for all constituents of the GLOBE community.

Project Team plans will need to include and budget for opportunities for student face-to-face interactions on the local, regional, and global scale. It is also important to expect local and regional spontaneous events depending on the specific IESSP focus.

When students percieve that what they are learning gives them the skills to problem-solve, create solutions, speak to issues, and choose behaviors that can make a difference in their world they will "glow" with new-found energy.

- *Face-to-face activities could be coordinated within GPO sponsored programs, such as a GLOBE Learning Expedition (GLE), GLOBE Games, and or strategic conferences.*
- *Regional science fairs, field campaigns, and/or strategic conferences provide for putting faces with names on a regional level.*
- *Local events can include scientist school visits, school community town hall meet ings, school science day and collaboration with other schools.*

GLOBE Learning Expedition (GLE)
in Croatia in 2003.

Section III:
Marketing the Opportunities

Introduction:

The GLOBE Program has approached marketing through Outreach to supporting partnerships and the development of GLOBE Learning Communities. The partnerships exist for mutual benefit. As IESSP development reaches the recruitment stage it may be helpful to consider some guiding principles in order to build on previous accomplishments.

Principle 1: Know Your Audience
As the GLOBE Program present its NGG vision of project-based learning and student research it is important to select marketing styles and content to speak to specific audiences.

GLOBE's Audiences:

- Scientists
  Highlight "real science" component of IESSP projects; Involve scientists within the community, Citizen Science (Outreach); Communicate with scien tists at NSTA meetings on importance of GLOBE; Market the value of GLOBE through presentations at conferences; Endorse scientists-student interaction to build excitement about a variety of careers in the field.

GLOBE Students in Qatar work with scientist David Brooks.

• Partners

Generate enthusiasm and interest in IESSP's by focusing on well-defined scientific study and specific geographic attributes; Communicate multiple ad vantages that can be offered the liai sons beyond the scope of the program; Direct design and implementation; Market the value of GLOBE at confer ences; Send e-mail messages, Provide Info kits, mass mailings in the form of letters, print material in U.S.; Consider ations may extend to other parts of the world; Internet (e-mail, Blog software, chats etc.).

GLOBE has over 100 partner countries, including Uganda, shown above.

• Teachers

Develop credibility for GLOBE through the success stories of other teachers (Pedagogical support); Advocate administration/ principal support for GLOBE in school; Demonstrate mean ingful ways in which GLOBE supports curriculum standards and goals; Teach ers' can write grants to support their participation with an IESSP; Involve schools in short-term projects that fit within a school year and support real in-field efforts; Ensure coherence with system level and goals for student and teacher learning; By changing the scale of projects, GLOBE can better develop and test educational materials; Rede sign of Website should benefit "time-limited" teachers to navigate more quickly, self-select projects that meet their needs and build excitement in the classroom; Build interest in GLOBE

membership at conferences; Send e-mail messages, Provide Info kits, mass mailings in the form of letters, print material in U.S.; Considerations may extend to other parts of the world; Internet (e-mail, Blog software, chats etc.).

- Students

Raise GLOBE's awareness socially through Science Clubs, GLOBE Website (GLOBE Stars), the Internet (via email, chats, Pen Pals etc.); Build on GLOBE reputation for being a "hands-on science program which distinguishes GLOBE from traditional textbook and curricula; Recognize GLOBE students' excellence in the school newspaper, community newspaper, various media; Publish GLOBE club events in the school Year book; create opportuni ties for students to present their GLOBE research at upcoming environmental conferences; GLOBE alumni meet with other students at conferences to share their enthusiasm and success story.

- Supporting Organizations

Build on 10 years of unique brand identity (GLOBE); build on support from affiliations DLESE and UCAR; Evaluate existing resources; Headquarters staff of over 30 professionals are invaluable resource for support; 107 partners; over 30,000 trained teachers; over17, 000 schools; Recognize that measurable results meet the needs of the corporate and foundation markets which could be critical in competing for IESSP's.

Considerations:

- *Identification of Schools*
- *Send Postcards to Schools Receiving Honor Rolls*
- *Web Site Announcements*
- *Partner/Sponsor Web site Announcements (e.g. NASA, NSF, State Department, UCAR, CSU, Etc)*
- *Items provided to CCs and Partners for recruitment:*
- *Invitations to distribute to schools*
- *Posters*
- *Other*

Principle 2: Spread the Word through Branding
- Logos
- Posters

Principle 3: Create Incentives and Establish Rewards
- Tiered level of branding
- Public Relations

The creation of Conference Proceedings (similar to that from the GLE in Croatia 2003) containing the research presented by Project School Networks would provide IESSPs, the schools within the network, GPO, funding agencies and supporters publicity of the event and sufficient evidence that the GLOBE/ IESSP collaboration was a success.

GLOBE school collaborations in Antarctica.