

eGRANARY EVALUATION PROJECT:

Evaluating the Use, Usability, and Usefulness of the eGranary Digital Library

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THE eGRANARY DIGITAL LIBRARY

The eGranary Digital Library is an off-line educational information store. Also called “the Internet in a Box,” it is a high-capacity hard drive that contains more than ten million digital educational resources that can be accessed at extremely high speeds over wired and wireless local area networks without using any Internet bandwidth.

Each eGranary contains more than 30,000 books, 250 journals, and 1,200 Web sites and CD-ROMs that can be browsed and searched just like the Internet. The eGranary also includes multi-media resources such as sound files, instructional videos, and educational software. Permission has been received from over 800 authors and publishers to include their materials on the eGranary and more resources are continually added by the WiderNet Project staff.

The eGranary has been under development since 2001, with more than 200 eGranaries installed in institutions throughout the developing world.

The eGranary Digital Library is not just a supplement to existing library infrastructure – for most institutions it enhances library infrastructure dramatically, often multiplying a university’s collection by powers of ten. Subscribers have reported that 95 percent of their information needs can be fulfilled with the eGranary alone. When the eGranary Digital Library is put into a server and connected to the institution’s local area network (LAN), every computer in the institution becomes an information access point. Resources on the eGranary can be accessed instantaneously, at speeds up to 5,000 faster than the institution’s Internet connection, and for free – in contrast to the exorbitant prices and seemingly endless download times associated with the Internet. Also, since the system is independent of the Internet, essential academic resources are available even when the Internet connection is down. The eGranary Digital Library expands real access to vital information on science, medicine, and technology to the students, researchers, and clinicians that need it, by operating completely independently of endemic bandwidth constraints.

The eGranary Digital Library is a potential practical, pragmatic solution to the digital divide that can be implemented today.

EVALUATION OF THE eGRANARY DIGITAL LIBRARY

Our aim is to develop on-going, reliable mechanisms for evaluating the eGranary Digital Library’s impact in the field and improving the patron experience and feature set. This evaluation will garner feedback from a wide variety of stakeholders and analyze raw data generated by the devices. One goal is to develop, field test, and refine an evaluation system that can be used for the foreseeable future to meet the needs of a variety of project stakeholders.

The potential of low-cost, off-line information access – or hybrid systems that employ an off-line information store with a highly-managed Internet connection -- has been shown in five years of development and deployment of the eGranary Digital Library. Informal feedback from subscribers indicates substantial usage and cost savings in the tens of thousands of dollars per site. Our expectation is that gathering hard data on the current deployments of eGranaries will provide us with the tools to improve the system, increase usability and usefulness, and identify priorities for developing new features for various communities of practice, language groups, and age ranges. With the number of deployments projected to climb dramatically in the next few years, the impact of today's research will be multiplied many times over in our future efforts to serve the information poor.

SCOPE

Before addressing eGranary-specific questions, we will survey the environment into which the eGranary is deployed, looking for statistics on Internet connectivity and cost, number of workstations, patron-to-computer ratios, etc.

This evaluation process will investigate three major aspects of the eGranary Digital Library:

USE:

- How many eGranaries are currently being used in the field?
- How many patrons take advantage of this resource?
- What kinds of resources do they access?
- How many resources (Web pages, CD-ROMs, etc.) are used on a daily/monthly basis?
- How much bandwidth is conserved through the use of the eGranary?
- What has been required on the subscriber's part to install and maintain the eGranary?
- What are the major constraints to fuller use of the eGranary?

USABILITY

- How easily do patrons find the information they seek?
- How much is the built-in search engine used?
- How much does the catalog aid in locating resources?
- Do the various custom portals improve patron experience?
- How confident are patrons in their use of the search engine, catalogs, and portals?
- Are the patrons satisfied with the selection of resources available on the eGranary?

USEFULNESS

- How does the eGranary impact the core institutional missions of teaching, research, and service?
- How often does material found in the eGranary show up in classroom lectures? Student papers? Publications? Patient care? Etc.

- How do librarians, instructors, patrons rate the benefits of the eGranary versus the use of the Internet?
- What is the fiscal impact of the eGranary versus the Internet or traditional analog information dissemination techniques?

Given the connectivity constraints the eGranary is designed to address, our survey methods will accommodate the myriad of communication challenges that our subscribers face. Also, since many of our subscribers are unaccustomed to participating in such activities, we plan to develop incentive schemes to increase participation, employ champions and temporary field contractors to improve data gathering, and then make the results of these evaluations useful to our stakeholders so they are encouraged to continue their participation.

With over 200 eGranary Digital Libraries currently in the field (with the expectation that this number will double during the scope of this initial evaluation period), as well as over 1,000 contributing authors and publishers, we seek to devise procedures that are transparent, sustainable, and as uncomplicated as possible.

By the end of this initial evaluation project, we expect to have the process embedded into the eGranary itself (both user surveys and raw data gathering) as well as systematic routine annual follow-ups with the deployments of eGranaries around the world.

PLAN TO MEASURE USE

We will begin by identifying every subscriber and update their contact information on our database. Via the Subscriber Agreement signed by every organization purchasing an eGranary, we already have information on three Subscriber Contacts: a librarian, an administrator (who handles the business aspects of the transaction,) and a technician (who handles technical support and update matters.)

Contacting these individuals via email, telephone, and colleagues, we will find out how many eGranaries are still in use. We will survey these Subscriber Contacts to gather data on uptime, number of terminals, reliability of electricity, location of the eGranary, patron population, training programs being offered, whether the Internet is also available at the site and data on available Internet bandwidth (if any) as well as its reliability and cost.

We will develop a standard questionnaire to measure USE and make this available on a password-protected intranet site so that Subscriber Contacts can update their information on regular intervals. To maximize participation, Subscriber Contacts will also be surveyed by email, telephone, and/or personal contact if the other communication channels prove too onerous.

We will develop a separate questionnaire for the Administrator and Technician contacts to evaluate implementation, maintenance, staffing, troubleshooting, and technical support.

We will develop a campaign to collect as many eGranary logs as possible. These logs contain information about every file request and query handled by the eGranary.

To alleviate concerns about their eGranary use being made available to others, we will create a privacy policy -- soliciting feedback from subscribers -- and educate all stakeholders about the policy. We will create a password-protected intranet site for subscriber institutions to view their results, and then place only aggregated and anonymous results on a public Web site.

We will adopt standardized methods for counting users, page requests, search engine phrases, and measuring bandwidth conservation. We will create email and Web-based forum to discuss and refine the methodology.

To maximize participation, we will start with email and phone calls, then use field representatives to collect logs from patrons who do not respond to initial requests or who find the log submission process daunting. (While it is not technically difficult to locate and send logs, some may be discouraged by anomalies, a lack of connectivity, or transmission issues.)

PLAN TO MEASURE USABILITY AND USEFULNESS

We will develop survey instruments that accommodate anonymous inputs from a variety of patrons -- instructors, students, and practitioners -- to measure usability, reliability, content preferences, resource needs, and outcomes.

The survey instrument will be vetted on a single-editor-multiple-collaborator wiki-powered Web site that will be available to all stakeholders. This site will collect comments and suggestions on an on-going basis and track the permutations of the items as they evolve. At the onset, and as we add items in the future, we will work with established partners in the field, via email and the Web, to enlist their coaching on the form and substance of the survey instrument.

We will conduct a sample pilot of the survey instrument in the first months of the project and publish the results for our stakeholders to examine and critique.

The survey will be available on-line at an Internet site as well as off-line on the eGranary, so that patrons can provide feedback at any point in time. (The off-line results will be stored and transmitted with the log files.)

Patrons will be encouraged to participate through the eGranary's built-in rotating ads, printable posters, targeted email campaigns, and in concert with librarians.

We will create incentive systems to promote both anonymous and identifiable participation through a series of rewards system. For example, librarians who succeed in

encouraging a certain number of completed surveys might receive free content updates and be entered in a lottery to win a free eGranary.

We will supply librarians with token rewards, like pens and mouse pads, for their patrons who participate in a survey campaign.

We will develop in-person and focus group interview schedules for select Subscriber Contacts, power users (early adopters), champions, survey respondents with strong opinions, and random survey respondents.

We will also collect endorsements and stories from a broad swath of patrons.

Finally, we will seek out decision makers, like those who have inquired into the eGranary but chosen not to deploy an eGranary, to learn what swayed their opinion or hampered their progress.

Our expectation is that the field interviews will reveal concerns, requirements, and applications that we did not expect when starting this process, so we will be on the lookout for new ways to measure the impact and efficacy of the eGranary Digital Library.

As we intend the eGranary to grow into a world-class, customer-centric information access solution, gathering this feedback from subscribers and patrons will be critical to the decision making about new features and content. We will take advantage of this opportunity to inquire into those features that would make the eGranary a more productive tool for particular user groups (like practicing physicians, classroom teachers, etc.) and local content creators.

IMPLEMENTATION PLAN AND TIMELINE

We expect to begin this process immediately and have initial results in two months from a smaller sample of 20-30 eGranary sites.

These initial results will inform subsequent activities and we expect to have our surveys vetted and polished and a larger set of sites participating within six months.

By the end of the year we will have established a comprehensive and sustainable mechanism for collecting feedback and statistics from the majority of our subscribers, all of which will be available on the Internet and in the eGranary itself.

The on-going results of our survey will be posted on the WiderNet Project Web site. As well, we will prepare presentations and a paper for inclusion in IEEE and relevant public health forums.