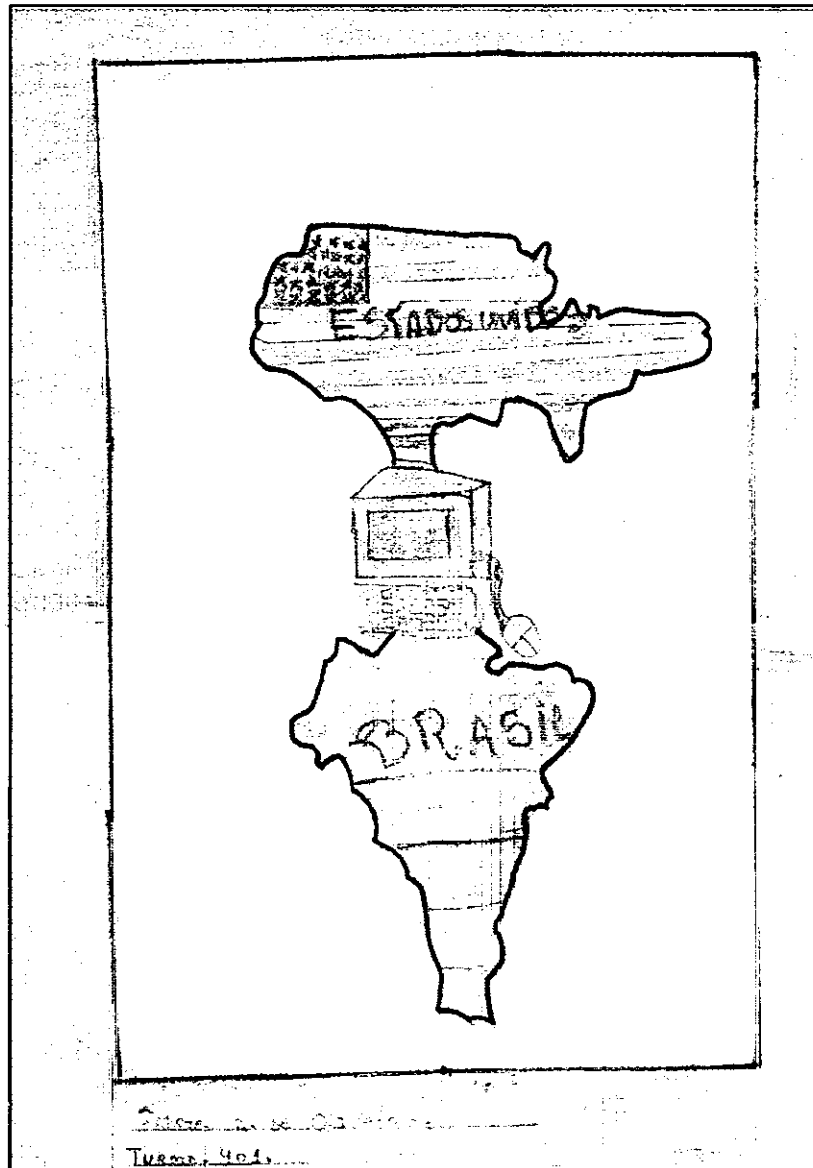# US/Brazil Learning Technologies Network (LTNet)

Final Evaluation Report

December 30, 2001
Barbara Fillip

Drawing by Gabriel, a student in Group 401, E. M. Rose Kablin School, Brazil.
Gabriel participated in the MultiRio Internet Generation Project in collaboration with LTNet.
More details about the project and LTNet's involvement are provided below.

EXECUTIVE SUMMARY

Objectives of the Project

For the past three years, from October 1998-December 2001, the US/Brazil Learning Technologies Network (LTNet) project has supported and strengthened efforts in Brazil to make effective use of educational technologies, thereby contributing to improvements in Brazilian public education. Specifically, LTNet successfully accomplished the following objectives to:

➤ Build and enhance, over the course of the project, an easy-to-use web site, bilingual in Portuguese and English and encompassing quality information, professional networking services, and teacher development resources for Brazilian and US educators;[1]

➤ Support and enhance other US/Brazil Education Partnerships activities, especially exchanges between Brazilian and the US educators and actively participate in Partnership meetings;

➤ Establish and strengthen links between multiple Brazilian educational programs and encourage improved use of educational technologies within these activities;

➤ Organize, carry out and participate in conferences, seminars and workshop in the US and Brazil that increase an understanding of the effective use of computer and Internet technology in education;

➤ Seek out and enable partnerships among US corporations and Brazilian counter part institutions and the Brazilian education sector; and

➤ Reach out to and expose US educators to Brazilian experiences with educational technology applications and facilitate collaborative links between US and Brazilian educators to exchange experiences and perceptions about using computers and the Internet to improve teaching and learning.

LTNet was funded by USAID's Latin American and Caribbean Bureau for three years starting in October 1998. The idea for LTNet originated at the first U.S.-Brazil Binational Dialogue on education, held in early 1998. The Brazilian Ministry of Education (MEC) was establishing a Centre for Experimentation with Educational Technologies (CETE) as a national resource to promote and research the effective use of educational technology and to support ProInfo, a national school computerization project. The Ministry suggested that a similar center or clearinghouse in the United States could be linked to CETE so that U.S. and Brazilian educators, researchers and policy makers could share what they were learning about using technologies in schools. As LTNet was developed, the initial partnership with CETE evolved to encompass a strong partnership between ProInfo and LTNet.

---

[1] LTNet was mandated to encourage and enable collaboration among US and Brazilian educators. At the same time, most of LTNet's project work was focus on collaborating with Brazilian organizations and schools to enhance the use of computers and the Internet to improve education in Brazilian public schools.

The US response to this request was LTNet, funded by the U.S. Agency for International Development's Latin America and Caribbean bureau and the Human Capacity and Development Center. The project was designed by USAID in cooperation with the U.S. Department of Education, U.S. Information Agency (now part of the U.S. State Department), and the Brazilian government.

The Academy for Educational Development (AED), through the USAID funded LearnLink project was contracted to implement and administer this collaborative effort. At USAID, David Evans, the Education Program Officer, oversaw this initiative and provided important leadership and advice to LTNet staff and was a strong supporter of this collaborative initiative. In Brazil, staff at the Cultural Affairs section of the US Embassy, specifically Michael Hahn and Marcia Mizuno, provided significant assistance to LTNet staff in planning and carrying out activities and projects in Brazil. At times, the US Embassy through the Cultural Affairs office provided critical funding assistance to Brazilian participants in LTNet and ProInfo collaborative activities.

On the Brazil side, the leadership provided by Pedro Paulo Poppovic, the Secretary for Distance Education at the Ministry of Education, and the support to LTNet provided by Claudio Salles, the Director of ProInfo, was instrumental in enabling LTNet to grow, evolve and become successful. The pattern of partnership demonstrate by these two men was imitated by their staff and colleagues at the Ministry and across Brazil. This enabled LTNet to be quickly integrated into several aspects of ProInfo and created opportunities for collaboration with states and municipal secretaries of education. Without the blessing and support of the Ministry of Education and ProInfo it would have been impossible to work directly with state and municipal schools and NTEs. And therefore, much of what LTNet has been able to accomplish would not have happened.

Achievements

Over the past three years, LTNet staff, often in partnership with the ProInfo staff,[2] developed and implemented, activities that improved the promotion and use of computers and the Internet in education.

The adoption of new technologies within education systems is often a slow and challenging process that was nurtured effectively by LTNet's Project Director, Eric Rusten, and other project staff who worked very closely with their Brazilian partners, particularly with ProInfo's pedagogical coordinator Vera Lucia Suguri. Through this close partnership, LTNet staff gained an understanding of the information culture among Brazilian educators, which enabled the project to develop and adapt activities to the specific needs and circumstances of Brazilian teachers and students.

Brazil does not lack experts in educational technologies and in making effective use of computers and the Internet in schools. In fact, make of the leaders in this field globally are from Brazil and have contributed to ProInfo's and LTNet's work. LTNet was able to draw on this local expertise to strengthen its work and in turn occasionally facilitated

---

[2] ProInfo is Brazil's national school computerization and education change program within the Ministry of Education (http://www.proinfo.mec.gov.br).

interrelationships among educational technology specialists and schools. Relying on sound educational theories, LTNet in collaboration with ProInfo contributed knowledge and skills for improving the way educators use computer and Internet technology in teaching and learning. In addition, the LTNet/ProInfo collaboration was able to 1) excite educators, especially at the classroom level, about the potential of educational technologies; 2) instill a belief in their own abilities; 3) show them how to achieve their goals; and 4) provide a web-based collaborative environment for using different technology in educational activities. Once an educational technology "comfort level" was reached, educators were able to link analytically initially-intimidating theory and practice. Also, the approach developed and promoted by LTNet and ProInfo imparted practical solutions to problems teachers faced and enabled teachers to immediately engage their students in online collaborative projects.

The first two years of the project were spent primarily building relationships, testing new approaches, developing the LTNet web site and an integrated set of virtual communication and collaborative tools, developing and applying a rapid training approach that best fit the needs of Brazilian educators. The third year was marked by a 50 percent reduction in funding and a rapid expansion in demands for LTNet services, specifically the use of LTNet's web site and the virtual collaboration and communication tools. This increase in demand forced staff to refine existing tools and identify and install new functions to make the collaborative learning environments as user-friendly as possible. The funding decline led to a reduction of paid-staff time that could be dedicated to managing LTNet. LTNet's Director was allocated 50 percent time on LTNet, while the other two staff were allocated 40 percent and 30 percent respectively. To compensate for this loss of paid staff, LTNet had to increasingly rely on staff from Brazil's ProInfo program and volunteers at Brazilian schools and NTEs.

LTNet, in collaboration with ProInfo, raised the level of interest in educational technology encouraged educators to network with each other and to experiment with creative uses of technology to improve teaching and learning. In addition, LTNet helped to change perceptions among many Brazilian educators about their capabilities and roles as educators. LTNet and ProInfo demonstrated with Brazilian educators what could be done with technology. Educators learned new ways to share learning experiences, build learning communities, and become innovators themselves.

These achievements and the success of LTNet become even more impressive when the relative lack of resources for developing and maintaining LTNet's web site and creating the collaborative learning tools and environments is factored in. Much of LTNet's success is directly attributed to the personal dedication of LTNet's Project Director Eric Rusten and LTNet partner at ProInfo Vera Suguri. Although LTNet's funding ended in December 31, 2001. LTNet's future will continuing under LTNet-Brazil, a newly-created NGO that was created by Eric Rusten and Vera Suguri. [3]

---

[3] Vera Suguri will be LTNet-Brazil's Executive Director and Eric Rusten will serve as a volunteer board member and chief technical advisor.

Evaluation History

In early November 1999, after one year of activity, Dr. Joan Dassin was hired to conduct a mid-term assessment of LTNet. In June 2000, LTNet contracted with Dr. Barbara Fillip to update the mid-year assessment, since the project was seeking a funded extension beyond the initial two years. At the end of year three of project activities, LTNet again hired Dr. Fillip to carryout the final project evaluation presented in this document.

This report refers to an analysis of information on project activities from November 20, 2000 through December 28, 2001. Much of this information was gathered from face-to-face meetings in Brazil and in the US with people involved in LTNet and those who benefited from participating in LTNet sponsored activities. The evaluation also assessed the LTNet web site, key project documents including quarterly reports, published papers, and PowerPoint presentations, and many in-depth discussions with LTNet and ProInfo staff.

The first part of the report focuses on an assessment of the third year of project activities. The second part of the report presents a broader perspective on the overall project results and lessons learned throughout LTNet's three years of activity.

Table of Contents

Part I: KEY ACTIVITIES DURING 2001

This first part of the evaluation report provides a description of key project activities, focusing on the last of the project's three years of existence.

Part II. RESULTS AND LESSONS LEARNED DURING 1999 - 2001

This second part of the evaluation report provides an overview of results achieved by the project and lessons learned over three year's of project activities.

Part III. CONCLUSIONS

APPENDICES

Part I. KEY ACTIVITIES DURING 2001
LTNet objectives during year three include:[4]

- ❖ Strengthen the shared agenda of priority issues of the U.S. and Brazilian Education Partnership (EPIC);
- ❖ Strengthen the network of relevant and interested participants in the U.S. and Brazil Education Partnership;
- ● Continue to strengthen and use the LTNet web site to maximize access to relevant U.S. Educational Technology Resources;
- ❖ Serve as a primary English-language information resource on Brazil's educational technology efforts;
- ❖ Expand knowledge about the use of online learning for teacher training and professional development with specific emphasis on ESL/EFL language instruction;
- ❖ Strengthen knowledge and understanding of research, monitoring, and evaluation of educational technology initiatives;
- ❖ Foster links between the US educational technology business sectors with the Brazilian education sector; and
- ❖ Work toward enacting strategies to sustain LTNet and the LTNet web site beyond USAID core funding.

These goals were fulfilled through an integrated combination of activities. This part of the report describes these activities by organizing them into in three specific areas:

- ❖ The LTNet web site;
- ❖ Presentations and papers developed and delivered by LTNet staff in collaboration with ProInfo; and
- ❖ Training activities facilitated by LTNet.

The LTNet Web Site: A Transformation for the Better

Originally, the LTNet web site was designed to primarily be a web-based clearinghouse for reports, case studies, web resources and other information (predominately from the US) on the use of educational technology to enhance teaching and learning in primary and secondary schools. As the project evolved and staff learned more about the needs of Brazilian educators, staff concluded that a web-based clearing house was not the most effective use for the LTNet web site. Few Brazilian teachers know English well enough to benefit from the majority of available resources because they were primarily in .Furthermore, at the start of the project, few public schools with computer labs had access to the Internet, and teachers with Internet access did not spend much time searching for reports and case studies on ICTs were used in US schools. Because of these conditions and an emerging understanding of how best to support Brazilian efforts to improve education with technology, LTNet staff in collaboration with staff from ProInfo, transformed the LTNet web site into a virtual space for collaboration and learning and encouraged Brazilian teachers to network with each other and with teachers in the US. This change gave LTNet's web site a vibrant life, made LTNet more responsive to the needs of teachers, and greatly enhanced LTNet's impact on Brazilian education.

---

[4] These objectives were copied from the project contract.

The transformation of the initial web site to an interactive collaborative leaning environment was accomplished within a project that lacked an explicit budget to support the design, construction, and maintenance of the web site.

A.1. Web Site Developments and Use [5]

A New "Cookie"
In December 2001, Eric Rusten added "cookie" technology to the start pages of the LTNet web site, which allowed visitors to bypass the configuration page after their first visit to the site. The configuration page was needed to ensure that the "text-only" version of the site would be properly displayed on different computer monitors.

A Low-Graphic Version of the Web Site Speeds Access
By October 2001, Eric Rusten and a volunteer web designer, Cheryl Hoffman, completed the development of a low-graphic version of LTNet.[6] Before this, many teachers in Brazil had difficulty accessing LTNet because of the graphics that were used for menus and banners. The low-graphics version made it possible for nearly all educators with Internet access to easily and quickly use LTNet. It is important to note, that this was accomplished while maintaining the same look and feel present in the graphics version of the web site. Most To correct this problem the

Usage
Both the size of the site and the number of people using LTNet increased dramatically over the three years and very rapidly during the fall and winter of 2001. During the first year of the project, LTNet received 3 to 5 help-desk inquiries per week, while during the October-December 2001 LTNet was contacted about 24 times a week, primarily by Brazilian teachers.

Several reasons explain why Brazilians started using LTNet's help desk more in the last year than in earlier years. First, as more teachers became aware of LTNet and met Eric Rusten at numerous conferences, workshops and seminars, the site became familiar, and teachers overcame reservations about contacting LTNet directly. Also, as LTNet's e-mail discussion list grew in popularity, teachers became comfortable with e-mail and other electronic communication means and accustomed to communicating with LTNet staff. Also as time passed, more teachers gained easy access to the Internet. Finally, LTNet experimented with a variety of communication methods that allowed users to communicate easily with LTNet staff and other educators using the LTNet web site.

---

[5] This section covers only improvements made during the last year of the project.

[6] This low-graphics version was nearly completely text-only. The only graphic used on the site were the logo and photographs of project activities. And a special pop-up system for photographs was implemented to improve performance.

One such method, collaborative learning environments (AACs),[7] was added to the site during the spring and summer of 2001. Consequently, visits to the site increased rapidly during this period, over 360,000 visits to LTNet were recorded for the first half of April (see table below).

The table below provides some data on user "hits" or visits to the LTNet web site from the fourth quarter of 2000 and through of the forth quarters of 2001. Activity peaked around April 2001 as shown the highlighted quarter below.[8]

	Q4 2000	Q1 2001	Q2 2001	Q3 2001	Q4 2001
Successful hits for entire site	336,332	401,625		565,172	915,958
Average hits per day	3,655	4,462		6,143	9,956
Average visit length	26 minutes	27 minutes		22 minutes	21 minutes
International visits	13.83%	15.65%		23.14%	21.97%
Visits from US	58.69%	46.31%		53.74%	51.18%
Unique visitors	2,186	2,665		3,554	3,670
Visitors who visited more than once	640	753		879	770

Instant Internet Publishing Tool for the AACs
LTNet's director continuously searched for, experimented with, modified and incorporated multiple, new Web-based collaborative and communication tools into the AACs.[9] One especially useful tool offers file management, allowing AAC users to quickly and easily publish their documents online on LTNet. This free tool was modified so that all menu items and instructions are available in both English and Portuguese.

Preparing the LTNet website for use and transfer to LTNet-Brazil
The business of transferring the LTNet site to LTNet-Brazil required additional time, energy and commitment from the project director to document and clean up the site for management by staff of LTNet-Brazil.

---

[7] AAC is the Portuguese acronym for "*Ambiente de Aprendizagem Colaborative*", or Collaborative Learning Environment in English.

[8] This peak occurred at this time because LTNet was being used as the foundation for a state-wide training activity for over 1,000 school principals and 300 multipliers from the State of Santa Catarina.

[9] The challenge of finding, modifying and installing appropriate tools was complicated by the need to only use free public domain tool so that others in Brazil could incorporate them into their web sites and to translate these tools to English and Portuguese so that Brazilian educators and students could use them without difficulty.

Auto-Subscription to the SchoolLinks e-mail discussion list

To make it easier for users to subscribe to LTNet's SchoolLinks e-mail discussion list, free software was configured and installed, allowing visitors to quickly and automatically subscribe to the listserv from numerous locations on the site.

Transforming the chat room software to a database driven chat tool

LTNet supports close to 30 chat rooms used by thousands of teachers and students across Brazil. With so many chat rooms running on LTNet performance of the site suffered. To correct this problem, LTNet's director configured and installed a database-driven version of this free software which offers full text streaming. All existing chat room will now be shifted to this data-base driven software and the whole site will move to a more powerful web server. This shift will enable more people to use the chat rooms without technical problems.

Listservs

LTNet set up the following listservs to facilitate communications among groups of educators. Details about these lists are provided in Appendix A. Four lists identified below are run by the web server at AED.

3. SchoolLinks
4. Brazilian Exchange Principals
5. Reganeste Coordinators List
6. Brazilian Principals List

The following 13 e-mail discussion lists were set up by LTNet use the free service offered by Yahoo Groups (www.yahoogroups.com). [10]

7. American University—UFPR (Federal University of Parana) Virtual Exchange Discussion List
8. Brazil Binational Centers (BNC)—Academic Coordinators
9. Brazil Binational Centers (BNC)— Brasil-ESL
10. Brazil Binational Centers (BNC)— Brasil-Tech
11. Brazil Binational Centers (BNC)— Presidents Discussion List
12. Brazil Binational Centers (BNC)— Technology & Education Group
13. Brazil Binational Centers (BNC)— Coordinators Discussion List
14. Brasilia Federal District Discussion list / DF Lista de Discussao
15. Diretores REME de Campo Grande—MS
16. Partners-DC—Brasilia Discussion List
17. RiverWalk-Brasil Project Discussion List
18. SchoolLinks/TVEscola Lista de Discussão
19. US-Brazil-International Education Week discussion list

Banco de Links

In October 2001, LTNet launched *"Banco de Links"* —a new on-line resource that enables users to add URLs on useful educational web sites to a links directory, organized by topic. This enables users to choose among web sites recommended by other educators. The *Banco de Links*

---

[10] There are a variety of web-based services that offer free e-mail discussion groups. LTNet selected Yahoo because it uses few graphics and therefore is fast. its advertising is minimal, and it is offered in Brazilian Portuguese.

is administered by a volunteer Brazilian teacher, Noara Resende from Belo Horizonte, "Banco" automatically routes emails of suggested sites to her for formal approval before the link can be included in the "*Bank*" on LTNet. Testimonials from teachers and "hits" after introductory training sessions indicate that the "*Banco de Links*" is a very useful LTNet resource.

LTNet's Enhanced Web Folio

Another important tool of LTNet's AACs is the web folio, which enables teachers, students, parents and multipliers[11] to instantly publish content and images within their AAC on LTNet's Internet site Initially, LTNet used a free on-line service called Blogger (www.blogger.com). Unfortunately, Blogger is only available in English and users were forced to register via the English language registration forms on the Blogger web site. Notwithstanding the language difficulties that inhibited some teachers from using this tool, the freeware itself also has limited options. Consequently, the project director looked for free replacement software that could replicate the instant publishing features of Blogger, while allowing for innovative, customized use and eliminating the complex registration process and the need to use English. A new tool, NewsPro (http://www.amphibianweb.com/newspro/), was identified after extensive searching and testing of a variety of options. LTNet's director then modified this tool extensively to meet the needs of collaborative projects in Brazil and created LTNet's popular web folio.

The first opportunity to actively test LTNet's new web folio was with the RiverWalk collaborative learning project. This further enhanced web folio tool was launched as part of the RiverWalk AAC in the summer of 2001, enabling large numbers of educators to publish within their own space in one folio and allowing published material to be organized by theme or question. The new web folio tool also made it easier for users to insert simple HTML code into their documents to enhance the presentation of content. The tool also made it possible for non-members to post comments to specific documents published in the web folio. One of the best advantages of NewsPro was its availability in Portuguese.

After a successful test of the new web folio tool in the River Walk ACC, it was installed on two other AACs. Eventually, this web folio tools will replace all older web folio tools. (See Appendix F for a screen shot of the enhanced web folio used in the RiverWalk AAC.)

Analyzing the Entire Web Site

An analysis of the LTNet site structure needs to include a history of its development and examination of both Portuguese and English sides of the site. At the very start of the project, the structure and basic site framework of content and functions were based on its conception as a web-based clearinghouse that was developed under the terms of the USAID contract. The site evolved as project staff learned about the realities of education in Brazil and responded to local needs and demands for appropriate services. Thus project activities were redirected to meet different educator-defined needs. As a direct result, some of the site's initial features received little on-going attention and development. Also, due to deficits in explicit funding for web site development, priorities were established that shifted the focus to interactive collaborative tools

---

[11] Multipliers are educational technology specialists and teacher trainers who work at state and municipal NTE's as part of the ProInfo program. Most, if not all, multipliers were initially teachers. They received between 160 to 200 hours of specialized training in technology and educational pedagogy.

and resources desired by teachers. Specifically, the AACs, were fully developed and received most staff time and project resources available for web site development.

Initially, web site content was topically arranged into four basic areas—communication, collaboration, virtual library, and learning environments.

Communication
This area of the site is devoted to posting a variety of announcements, which was never updated after the end of the year 2000 and lacked consistent dating of posts.

Collaboration
Meant to facilitate collaboration among teachers, researchers, and businesses, the researcher and business sections have remained totally empty. Also, the teacher-to-teacher collaboration section has quite limited input.

Virtual Library
The virtual library is missing quite a large number of links and omissions of some key topics. For example, the topic "math and science" learning offers a mere 16 links. Maintenance of a virtual library is very time consuming, requiring regular checks and updates. With limited human resources, this library became rapidly obsolete and a source of frustrations for users when links were dead. The new "Bank of Links" tool is now replacing many of the services provided by the Virtual Library and is essentially user managed.

Learning Environments
Although the following four environments were included as learning environments, content was never developed, except in one area.

- ❖ Integrating computers into teaching
- ❖ Technology enhanced teacher professional development
- ❖ Enhancing the school to work transition
- ❖ Monitoring and Evaluation for Technology Projects

The Portuguese side of the web site provides the same basic framework with additional tools, such as easy access to the LTNet chat for communicating in real time with LTNet staff, and the virtual collaborative environments (AACs).

Lessons Learned about Web Site Development and Maintenance

It is clear that given the lack of explicit funding allocated to the development and maintenance of the web site, decisions had to be made about the sites' updating and improvement. The Portuguese side of the site and, in particular, the AACs received most of the attention—a choice justified by project goals and teachers' demands. . The AACs are central to LTNet's success, allowing users to learn from each other, communicate very cheaply across vast distances, and publish their work. To encourage participation and learning, recent site improvements primarily involved making the AACs' more user-friendly and useful.

A combination of a lack of human resources for web site development and a commitment to use free of charge, online communications tools increased the amount of time that the project director devoted to web work— an extremely time consuming process of identifying, testing, configuring, modifying and translating tools for a bilingual environment. Other constraints on time and site development include the limited availability of online communications tools in Portuguese and a lack of bilingual web-based communications tools. Also, since many LTNet users are new to using the Internet, extra effort was needed to make the tools easy-to-use and develop online instructions. LTNet staff report that during the last year of the project, much of site's development and maintenance was done over weekends and late at night since funding allowed staff only worked part-time on the project during the work day.

AACs: *Ambiente de Aprendizagem Colaborativa* or Collaborative Learning Environments

The mid-term progress assessment for the LTNet project noted that the Virtual Exchange Environments (VEEs) were a key success during the project's first year and a half. During the second half of the project's life, the VEEs were expanded and eventually renamed AACs for the Portuguese "*Ambiente de Aprendizagem Colaborativa*" or in English, Collaborative Learning Environments (CLEs). This name better identify the main functions and goals of this feature of the LTNet web site. All AACs are easily accessible on the LTNet site, either through a drop-down menu on home page listing the different AACs or a link page to a list of all the AACs. See the web page for selecting ACCs in Appendix B).

Creating and improving the AACs required a considerable amount of time, discipline, and determination. It takes an estimated 8 hours to prepare a basic ACC and an additional 8 hours for registering users and posting content as it becomes available. While the basic template of all AACs is the same, details specific to each participant group in Brazil and/or the US must be entered individually for all AACs. Also, the ACC's chat rooms and listservs must be configured and installed individually.

Common AAC Tools
All AACs provide a set of common tools for participants to collaborate online: an e-mail discussion list, a chat room, a web folio, and a photo gallery.

A discussion list
A phone interview with a teacher from Brasilia participating in the RiverWalk project revealed that using the e-mail discussion list in the project's AAC enabled her to discuss project issues with other teachers during project implementation and to pay attention to the process and not just the product. Also, being able to communicate with teachers facing similar challenges helped her become a better teacher. The discussion lists offer a community of users with similar interests, a chance to share ideas and experiences, and to gain a sense of belonging to something meaningful.

Online communication is difficult and slow to establish. Also, the information culture in Brazil and many other places globally does not lend itself to enabling the immediate use and easy adoption of online communication tools. Further, some people are easily offended when critiqued by others and often leave the list after a lively discussion. As a result, the skills that

7

need to be developed to make effective use of discussion list are not simply basic computer skills for sending and receiving email messages. It is more important to develop skills in writing constructive criticism as well as communicating in ways that encourage further communication from others rather than exclude them. Building effective on-line communication skills as well as the self-confidence needed to actively participate are time-related and depend on a constructive community of peers and mentors and an effective on-line facilitator.

A chat room

A chat room is the tool that people often get most excited about! A chat room makes it easy for people to interact in real-time and stay excited and enthusiastic about using the Internet and computers. It is also a tool that is often responsible for increasing Internet use in schools.

As more and more Brazilian educators acclimate to using chat rooms, its use will expand, and educators will expand the variety of educational uses of this dynamic tool. For example, one of the multipliers Lourdes Matos came up with an innovative idea about integrating text-reader technology into a chat room for blind students to communicate with non-blind students. Although some educators are creatively self-motivated, others need extra reinforcement to expand their skills and initiative to explore new types of use. By backing teachers up with technical support and recognizing experimentation and innovation, LTNet has been able to stimulate new uses of technology in education, reinforce learning and experimentation.

A Web folio

Publishing documents online is instrumental to AAC users. For instance, a teacher in Belo Horizonte, interviewed by phone from Brasilia, said that she really appreciated LTNet's AACs for the capacity to publish students' work on the web. Publication of student essays in the web folio includes provision for adding teachers' comments and for review by peers. The web folio has the potential to become a powerful educational tool that is likely to increase in use as teachers experiment with new approaches, a time-related process.

A photo gallery

Photo galleries help people to connect on a more personal level when they are communicating at a distance without face-to-face contact.

Description of all AACs

All LTNet's AACs are either:

- ❖ AACs for continuous collaboration among teachers within specific geographic areas such as states and municipalities (equivalent to US counties);
- ❖ AACs for specific training events;
- ❖ AACs for specific exchanges between schools in different countries; and
- ❖ AACs for collaboration on common themes.

Many of the AACs established by LTNet were set up based on requests from teachers for virtual collaborative environments where teachers and often students from any of the 27 Brazilian states plus the Federal District could communicate with each other and share their experiences.

Example 1
Estado do Parana (State of Parana)
The State of Parana has 13 teacher training and computer resource centers (NTEs) providing courses to school teachers on the use of educational technology. To facilitate the NTE's work, LTNet established an AAC specifically for the educators in that state that included the usual tools (a discussion list, a web folio, a chat room and a photo gallery). This AAC also included a pilot activity for the coordinators of Brazil's TVEscola program in the Parana.[12] The TVEscola coordinators wanted to have a collaborative environment to enable them to share information about the effective use of TVEscola programs in schools.

Example 2
Estado do Espirito Santo (State of Espirito Santo)
The State of Espirito Santo with its four NTEs has access to an AAC that allows multipliers, teachers, and school principals to communicate with each other and regularly share their experiences. This is one of the most recent AAC and includes the usual tools plus links to home pages for the schools and NTEs, links to educational projects, and other resources.

Example 3
Estado do Ceara (State of Ceara)
The LTNet-established AAC is used to facilitate the work of educators in the State of Ceara. This was first established to be part a State conference on technology in education and was used in an intense two-day face-to-face training activity for all of the State's multipliers in the use of the Internet and collaborative and communication tools. LTNet and ProInfo staff organized and carried out this training activity.

Example 4
Estado do Goias (State of Goias)
This AAC was initially used as part of a State workshop on using the Internet in education and has since been used to facilitate the work of the NTEs in the state of Goias. Like all AACs, this AAC was developed after receiving an explicit request for the AAC and a training activity. Also, the use of this and other AACs is dependent on the interest and motivation of multipliers and teachers for whom the environment was crated. The AAC for Goias unfortunately has not been actively used.

---

[12] TVEscola is a nation TV education program that seeks to provide teacher professional development. TVEscola is administered by the Secretariat for Distance Education in the Ministry of Education, the same Secretariat that administers the ProInfo program.

Example 5
 Estado do Amazonas (State of Amazonas)
 The State of Amazonas with its three NTEs uses the LTNet-established AAC to provide
 opportunities for teachers and school principals to communicate with each other,
 exchange experiences and organize collaborative projects.

Example 6
 Municipal Campo Grande, MS (Municipality of Campo Grande)
 The municipality of Campo Grande in the state of Mato Grosso do Sul currently has 81
 municipal schools equipped with computer labs and most of these have connections to
 the Internet. Campo Grande's AAC enables educators from this progressive municipality
 to communicate with each other and exchange experiences through the AAC's four
 virtual tools with other schools in Brazil and the world. The AAC was initially created to
 support a training activity on using Internet communication tools for education organized
 and carried out by LTNet and ProInfo. After this initial training program, LTNet and
 ProInfo returned to provide pairs of teachers from 17 schools with a training activity to
 develop school web sites which were hosted on LTNet. After the success of this event,
 the Municipal Secretariat of Education and the NTE invited LTNet and ProInfo back to
 carry out a two-day training on the use of computers and the Internet with the principals
 from each of the Municipal's 81 schools. It is not surprising that teachers and multipliers
 from this school have be among the most active in using IT for education.

Example 7
 Estado do Pernambuco (State of Pernambuco)_
 LTNet-established an AAC to facilitate the work of multipliers at the NTEs in the State
 of Pernambuco. Unfortunately, LTNet and ProInfo staff were not able to carryout a
 training activity with Pernambuco multipliers to introduce the AAC and to help them
 learn to use the mix of collaborative tools. As a result, this AAC is presently not being
 used.

Example 8
 Estado de Minas Gerais (State of Minas Gerais)
 To support the work of NTEs in the State of Minas Gerais, LTNet established an AAC
 for the multipliers, teachers and school principles of the state to facilitate virtual
 exchanges among all participants. This AAC is a bit different from other state AACs
 because it includes sections for three NTEs each of which is carryout out their own
 collaborative projects.

 AACs for specific training events

In addition to being a primary mechanism for enabling on-line collaborative projects, the AACs
were also used as a medium for intensive training events with teachers, principals and
multipliers. These training activities focused on Internet collaborative tools and the AAC could
be used to improve teaching and learning.

Example 1:
> *Distrito Federal: Um Espaço para Professores e Diretores nas Escolas em Distrito Federal* (A Space for the Teachers and Principals of the Schools in the Federal District and Brasilia)
> In March 2001, LTNet created an AAC for training and post-training collaborative programs among the multipliers, teachers and school principals working in the Federal District and Brasilia.

Example 2:
> *Estado de Santa Catarina* (State of Santa Catarina)

During April 2001, over 1,000 teachers and school principals from primary and secondary schools across the state of Santa Catarina participated in a training program to prepare them to use computers and the Internet in their teaching and in the management of schools. Because of the large number of teachers and principals involved in the training, LTNet had to create 10 chat rooms, two listservs and two web folios.

Example 3:
> **Sinop-FUST**
> In an effort to expand access to computers and the Internet for teachers and students in secondary schools, the Government of Brazil created the FUST program (*Fundo de Universalização dos Servicos de Telecomunicações,* or universal access fund in English). The goal of FUST is to provide computer labs and Internet connectivity to every public secondary school in Brazil. To enhance support, the ProInfo program is responsible for collaborating with State Secretaries of Education to establish the labs and train the teachers in the use of these technologies.
>
> The FUST program was officially launched by Brazil's President in Sinop, Mato Gorso, Brazil on February 19, 2001. In preparation for this launch, ProInfo was asked to establish school computer labs in public schools in Sinop and to carry out an intensive training activity with the local multipliers and teachers. To assist with this training and the launch event, ProInfo's pedagogical consultant, Vera Suguri, asked LTNet to create an AAC for Sinop and FUST.
>
> In collaboration, LTNet and ProInfo staff developed a training program for teachers and principals that was based on integrating the use of computer and Internet technologies into teaching and learning through project-based education—an approach used in prior training. After two weeks of an intensive training of trainers activity, directed by Vera Suguri, and during the launch of FUST, LTNet demonstrated how the AAC's chat tool could be is used to enable collaborative projects. During the actual launch, students and teachers from across Brazil chatted with students in Sinop and the Brazil's President about using technology in Education. LTNet's director participated in this event and photographs commemorating the launch of FUST were added to this AAC. (See Appendix C:

Example 4:
Brazilian Principals

LTNet established an AAC for Brazilian principals. This was an outgrowth of a US/Brazil Education Partnership event that enabled 27 Brazilian public school principals, one from each state, to travel to the US to explore innovative strategies for school management and school community partnerships. After the study tour, Eric Rusten met with Michael Hahn and Marcia Mizuno of the US Embassy in Brazil to discuss the possibility of involving the participants in this study tour in a training activity in the use of the Internet and computers in school management and to improve education. As a result of this meeting LTNet and ProInfo organized an ambition training activity that took place in at ProInfo/State NTEs in Brasilia, Recife and Niteroi Brazil for principals and coordinators of a Brazilian network (REGANESTE) for improving school management. The training activity in each of these cities had two parts and occurred over two days. The first part involved a training of trainers activity where the multipliers of the NTEs in each of the cities were trained in using the Rapid Experimental Learning approach that LTNet and ProInfo developed for Internet and computer training. The second part, which took place on the second day in each city, involved the actual training of the principals and coordinators.

This training activity was made possible through the collaboration of and funding from several organizations and individuals including, ProInfo, LTNet, CONSED (the National Association of State Secretaries of Education), REGANESTE (the National Network for School Management), the US Embassy, Brazil, the NTEs in the three states where the training took place, the multipliers who were the trainers of the principals, each state secretary of education who provided the funds to send principals and coordinators to the training.

This training activity was the first such event to provide technology training to public school principals in Brazil. One outgrowth of this activity is that several states and municipalities across Brazil have now organized major training activities for their principals. For example, the event in Santa Catarina and Campo Grande described in this report occurred as a direct result of LTNet's initial effort to demonstrate the importance and benefit of providing principals with technology training.

AACs for specific virtual exchanges and collaborative projects between countries

AACs have also been used to link students and educators in different schools within Brazil or in a combination of schools in Brazil to schools in the US. For example, one of the most recent AACs was established to facilitate an exchange between US and Brazilian students during International Education Week in the fall of 2001.

Example 1:
Oxon Hill, Maryland, and Manaus, Brazil, Virtual Exchange Project for Special Education Students

This virtual exchange project linked two classrooms of special education students   The NTE in Manaus, Brazil facilitated the participation of learning disabled students from

12

Diofant Monterio School in Manaus, while LTNet facilitated the participation on the US side of learning disabled students from the Oxon Hill Elementary school in Oxon Hill, Maryland.

In October of 2000 LTNet created an AAC for this exchange and Eric Rusten and Gini Wilderson met with the students and teachers at Oxon Hill Elementary School in Maryland to introduce them to the program, demonstrate the program's AAC, and give them hands-on training with ACC tools such as software translation and the LTNet bilingual chat environment. This AAC includes the following features: an online virtual environment for communication among participants; a private, password protected online voice and text Chat room for the teachers and students to get to know each other and carry out projects; Space in LTNet to enable the participating teachers and students to create collaborative web pages to post their projects and pictures; translation software to facilitate exchange of messages in Portuguese and English; and a selection of resources focusing on building and strengthening the virtual exchange program, including those focusing on the needs of learning disabled students.

At the request of the Technology Coordinator in Montes Claros, LTNet held several chat sessions that included a young Brazilian man who suffers from Multiple Sclerosis but is able to communicate online and design web pages with his toes.

Example 2:
Federal University of Parana – American University, Washington, DC
January-March 2001
This LTNet sponsored virtual exchange activity (AAC) was an outgrowth of LTNet's support of a Fulbright exchange between EFL/ESL teachers in the US and Brazil that was organized under the US/Brazil Partnerships for Education. After the face-to-face exchange had been completed, one of the US participants contacted LTNet to ask if it would be possible to initiate exchange activities via the Internet with her students and the students of one of the Brazilian English language teachers that she met during her visit to Brazil. As a result of this request, LTNet created an AAC to enable an Internet-based exchange between the EFL students in classes at the Federal University of Parana in Brazil and the American University in Washington, D.C.

This AAC includes a private listserv, space within the LTNet web site to enable each participate to create personal profiles, a discussion forum, access to a voice chat tool, a private SchoolLinks Chat room to enable the teachers and students to engage in synchronous dynamic communication, and a selection of resources focusing on English language teaching and learning.

This AAC was developed to extend and expand English language learning opportunities by enabling students to share experiences, discuss common themes, and get to know each other while practicing their English. The two professors who managed this virtual exchange carried out activities two years in a row and are considering continuing with this activity.

13

Example 3:
> **Virtual Exchange Project between Rio de Janeiro, Brazil's Internet Generation Project developed by MultiRio and Oakton, Virginia students**
> LTNet collaborated with MultiRio, a multimedia educational organization that is part of the Municipal government of Rio de Janeiro, to offer a virtual collaborative program for fourth grade students in schools in Rio de Janeiro and Oakton, Virginia. Focusing on three themes—identity, space and culture LTNet enabled information exchange between Brazilian and North American students as a way of increasing understanding of individual identity as well as the culture of where the students live and learn.
>
> LTNet was asked by the US Conciliate in Rio to use this exchange activity to commemorate International Education week during a conference in Rio de Janeiro in November 2000.

Example 4:
> *Programa* **RiverWalk**
> LTNet established an AAC to facilitate the work of the Brazilian teachers participating in the RiverWalk Project and implemented quick changes and adaptations in response to the teachers' expressed needs. More details about the RiverWalk activity are provided below.

Example 5:
> **International Education Week Event (Nov. 14, 2001)**
> On November 14, 2001, an LTNet collaborative effort, proposed by Michael Hahn and Marci Mizuno of the US Embassy, enabled teachers and students in Brazil and the US to engage in an Internet chat event. The partners included the US Embassy in Brazil, in collaboration with ProInfo, LTNet and I*EARN-USA as well as the DC-Brasilia Chapter and the Nebraska Committee of the Partners of the Americas. Ten teams of three students each and one teacher from schools around Brasilia met at the US Embassy to communicate with similar teams of US students and teachers from schools across the US.
>
> In collaboration with the US Embassy staff, LTNet and ProInfo designed the activity, identified 10 schools in the US that would participate, organized the necessary training for the participating teachers and students in Brasilia, and facilitated the actual event. In addition, LTNet designed the AAC, created the needed chat room, helped participants use the chat room, participated in the chat, and provided technical assistance on the day of the event.
>
> *AACs for collaboration on common themes*

Towards the end of the project, a strong interest was expressed in Brazil for thematic AACs— an area where LTNet-Brazil may expand in the future. For instance. an AAC with a math focus would allow math teachers to collaborate online and discuss common issues, challenges, and experiences in integrating technology in math teaching. AACs are very flexible tools that can be adapted to many different needs as identified by the users themselves.

The most important thematic AAC was created to support the RiverWalk program which is described in detail below.

Other AACs

Brazil/Rhode Island Teacher Exchange Program VEE
This initial Virtual Exchange Environment (VEE) became one of the first AACs.

TV-Escola in Parana
TV Escola is a program of the Brazilian Secretariat for Distance Education that offers training to teachers through television. In collaboration with the coordinator of TVEscola in the State of Parana, LTNet and ProInfo launched a pilot activity to explore how Internet collaborative tools could be used to enhance this successful TV education program. LTNet developed the AAC, setup a listserv and with ProInfo carried out two training workshops in Parana for TVEscola coordinators and ProInfo multipliers in Parana.

Lessons Learned about AACs
AACs represent a very successful component of the LTNet project. They were in great demand towards the end of the project and were increasingly being used creatively by educators across Brazil. As a result of the intensive work on ACC design by Eric Rusten and Vera Suguri, educators received ongoing support and accessed a user-friendly online environment. Now educators are starting to innovate in their use of the AACs, and the pool of users and "hits" are rising.

LTNet-Brazil also has a long and growing list of requests from states, municipalities and special projects for new AACs. This young NGO believes that within a year all or nearly all states in Brazil will each have an AAC.

Presentations and Papers

B.1. Quality and Impact of Presentations

Presentations made by LTNet in cooperation with ProInfo had great promotional value and educational value, they also offered encouragement, providing a context for Brazilian educators to learn about and discuss their use of technology, and allowed LTNet and ProInfo staff to visit schools to learn first-hand how teachers and students across Brazil were using technology to enhance teaching and learning. School visits were important for enhancing the self-worth among teachers unaccustomed to outside support and enlarging educators' realm of contacts outside their schools.

The ProInfo/LTNet joint presentations demonstrate the power of partnerships and Brazil's commitment to IT learning and exchange. Also, due to the content and context—in locations not often receiving international Brazilian government visitors, presentations introduced educators to valuable concepts in IT and education, addressed critical local needs, and offered evaluation and impact feedback. The presentations opened up the possibility of schools connecting to the

Internet, catalyzed plans for infrastructure development, and stimulated discussion of connectivity and equipment either in anticipation or as a result of the presentation.
More than 11 formal face-to-face presentations were made from October 2000 and December 2001. All presentations were the result of a very close collaboration between LTNet's Eric Rusten and ProInfo's Vera Suguri both in the preparation of the PowerPoint slides, their translation, and the delivery of the presentation itself, whether in English, Portuguese, or a combination of both. Often state and municipal secretaries of education covered local costs for these visits including the costs for hotels and meals and local transport. In all cases, the states and municipalities covered the cost of air travel for Vera Suguri. Finally, in all cases, Eric Rusten and Vera Suguri traveled to different states and cities in response to formal invitations. A selection of these presentation are briefly discussed below.

1. Fulbright Math and Science Orientation in Brasilia, September 15th, 2000.

2. Math and Science educators' workshop at the Ministry of Education, September 2000.

3. "Virtual Educational Exchanges: What Makes Them Work," given at an international conference in Rio de Janeiro, Brazil on using the Internet for Educational collaborative activities on November 13, 2000, an EPIC sponsored event to commemorate US International Education Week.

4. "Better Education Through Exchange and Collaboration" presented by Rusten, Wilderson, and Suguri at two high schools in Montes Claros, December 10-14, 2000.

5. An intensive three-day workshop on "Advanced Web Technologies to Enhance Education" (December 10-14) LTNet, jointly sponsored with ProInfo and the NTE in Montes Claros for a select group of 15 teachers, multipliers, and students at the NTE computer lab in Montes Claros.

6. InfoSol Congress in Fortaleza, Brazil, April 12-15, 2001, keynote address "Avaliando o Impacto de Novas Tecnologias nos Sistemas Educacionais" (Evaluating the Impact of New Technologies on Education), at the invitation of the Ministry of Education. Rusten discussed the impact that computer and Internet technologies are having on teaching and learning in Brazil.

7. LearnLink TAG (Technology Advisory Group) Conference, March 2001 in Washington, DC: LTNet conducted a live chat session with the Pedagogical Coordinator of Brazil's Ministry of Education, a member of Partners for the Americas, and a newspaper reporter from the Brazilian media. LTNet's Gini Wilderson facilitated the chat, while USAID staff and other TAG participants observed and asked questions online. Translation software was used to facilitate communication in English and Portuguese.

8. The Pernambuco State meeting of Multipliers in the city of Garanhuns, May 31st to June 3rd, 2001, on integrating Internet technologies in the State's school computer program..

9. Partnerships for Education: *Abordagens, Impactos & Desafios. I Congresso Internacional de Telematica na Educação/ VII Encontro Nacional do ProInfo*, October 26, 2001, Fortaleza, Brazil. At this meeting Eric and Vera made a keynote address on the Power of Partnership in

Strengthening Education. Also, Eric made a presentation on the US of collaborative on-line tools in LTNet's AAC in project based learning. In this presentation he focused on the results of the RiverWalk program activity.

At this congress, which was attended by about 5,000 educators from across Brazil, two LTNet collaborators, Lourdes Matos and Noara Resende (with a teacher and two students) organized and ran a series of training workshops on how to use the collaborative tools in LTNet's AACs. These two collaborators had organized these workshops on their own.

10. "Multiple Mechanisms for Collaborating, Exchanging and Learning Through Technology" (Power Point presentation), *I Congresso Internacional de Telematica na Educação/ VII Encontro Nacional do ProInfo,* October 26, 2001.

11. "Enhancing ESL and Strengthening Brazil's BNC Network through Computer & Internet Technologies," given with PowerPoint slides at the Annual Meeting of Presidents of Brazil Binational Centers (BNCs), October 2001 in Sao Paulo. This presentation was given at the request of the US Embassy.

The number of presentations far exceeds what was required under the contract for 2001. In addition, the volume of presentations does not reflect the impact on furthering the project goals, contributing to the US/Brazil Partnership for Education and enhancing an understanding of how technology can improve teaching and learning in Brazil. Its impact is best understood on direct observation.

B. 2. Papers written through LTNet support

Two papers, written primarily by Rusten and Suguri and both published online in the January-March 2002 issue of TechKnowLogis.org, illustrate two learning activities. The first paper focused on a collaborative activity among LTNet, ProInfo, and 4 multipliers and teachers involved in the Chat Pilot activity. The second paper documents LTNet's and ProInfo's experience supporting the RiverWalk project in which 14 Brazilian schools participated.

❖ "The Pedagogical Uses of Web-Based Chat: A pilot Activity to explore the pedagogical uses of Web-based Chat," by Vera Suguri, Lourdes Matos, Noara Castro, Ieda Castro, Lurdes Marilene Jung and Eric Rusten, April 2001.

❖ "RiverWalk-Brazil: Virtual Journey, Real Learning," by Arati Singh, Eric Rusten and Vera Suguri, December 2001(?)

The Chat Pilot paper provided an opportunity for four teachers to take pride in their work and promote both nationally and internationally how Chat can be used a pedagogical tool. These teachers successfully participated in communication activities within and beyond Brazil that they had been deeply involved in.

The writing process forced the teachers to think analytically and to gain a better understanding of their investment in IT and education. Presented at a national conference, the paper gave three

17

teachers an opportunity to hone their speaking skills. The process of the action research and the presentation by teachers set an important precedent demonstrating that Brazilian teachers can carry out important action research and are important resources for national and International events. At the congress in Fortaleza where the Chat Pilot paper was present, the two teachers making the presentation were the only teacher/presenters at the entire event. The publication in TechKnowLogia (http://www.techknowlogia.org) also gives the teachers international exposure and recognition and enabled Brazil's ProInfo program to share a valuable experience with a global audience.

The second article on the RiverWalk project enabled all of the schools and individuals involved in the project to take pride in their work and be recognized nationally and internationally for their achievements. In addition, the online international exposure reflects well on LTNet and USAID for funding this initiative.

Training

Rapid Experiential Learning Approach
Through the collaborative effort between LTNet and ProInfo, Rusten and Suguri developed a rapid training method—referred to as **Rapid Experiential Learning (REL)**—that allows participants to acquire essential technology skills within very short periods of training and start using the tools immediately in collaborative learning activities with peers. The training also requires that participants be directly engaged in developing learning projects that will later be used in the classroom with their own students.

REL evolved from constraints and opportunities that presented themselves during the implementation of the project. Financial and time constraints prevented LTNet's project director from visiting Brazil more than four or five times a year and from staying longer than 5 weeks at a time. There were also significant costs involved in getting training participants to specific training sites. The result was that the training had to be carried out in one to three days to enable teachers and multipliers from states and municipalities to participate and for LTNet and ProInfo staff to be able to provide such training. While other approaches to training teachers in the use of IT for education tend to focus on theoretical aspects of technology for education, the REL approach focuses on providing essential skills that educators need to immediately start using IT within education. The key to the success of this approach is developing an enabling environment in which educators start using IT tools immediately. To maximize the benefits, this approach requires a strong ongoing support system and collaborative environments (the AACs) that teachers own and can use to apply their new skills. LTNet and ProInfo used the LTNet website for this purpose. Tools such as the very responsive help-desk system as well as peer support through listservs met the evolving needs of educators.

Examples of Training Activities

Principals' Training Program

As mentioned above, in the spring of 2000, 27 principals from 27 different Brazilian states were selected from the best-administered schools. These principals traveled to the US for a two-week

18

study tour to learn about innovative strategies for school management and school community partnerships. Although one of the goals of this USAID-funded activity was to maintain ongoing exchanges of information after returning to Brazil, unfortunately, the principals lacked the technical skills in computers and Internet use for collaborative exchanges.

In early December 2000, LTNet and ProInfo organized the necessary principal training in collaboration with CONSED[13], Reganeste[14] and three State Secretaries of Education, the three NTEs and the US Embassy in Brazil.

The LTNet team of Rusten and Wilderson, with Suguri and two of her ProInfo colleagues worked together to train over 30 multipliers (8-12 from each NTE) in the use of Internet communication tools for virtual collaboration. The multipliers then proceeded to train the school principals in their respective NTEs with the technical and pedagogical support of LTNet and ProInfo staff.

The REL approach was cost effective in time, resources and money. Training took place over one week—one day for each group of multipliers and principals in three different cities (Recife, Rio de Janeiro and Niteroi) located in three different regions of Brazil. If the training had requited more than on day, most, if not all, of the principals would not have been able to participate.

Workshop on Advanced Internet Tools & Collaborative Activities for Multipliers

Also, LTNet's Rusten and Wilderson in collaboration with Suguri developed and delivered a three-day workshop that provided participants with hands-on training in the use of advanced Internet technologies, who already had taken an online ProInfo course on web page development. The participants included multipliers, teachers, and students from the NTE in Montes Claros and Belo Horezonte. The goal was to develop a template for a series of workshops that the Brazilian multipliers could then give to other groups of teachers in multipliers around the country. As a consequence of that course and based on participants' observation of LTNet's site, demand increased for additional technical training in web development for educational web sites. While this was not one of LTNet's priorities, LTNet provided the assistance requested.

Annual State Technology and Education meeting in Fortaleza, (Ceara)

In June 2001, Eric Rusten with Vera Suguri and other ProInfo staff participated in a collaborative training activity that involved over 120 teachers, principals and multipliers from across the state of Ceara, who were attending an annual State Technology and Education Meeting. This meeting is a time when NTEs and schools come together to share what they have been doing with IT and education project experiences. LTNet and ProInfo were invited to participate and run an AAC workshop and develop an AAC for the participants. Training sessions focused on email and listserv, chat rooms, and online publishing and projects.

---

[13] The National Council for State Secretaries of Education in Brazil.
[14] A national network operating under CONSED to improve school management.

Part II. RESULTS AND LESSONS LEARNED

The combination of activities described in Part I of the report created synergies that resulted in important project impacts. While these activities have been described above, the impacts achieved as a result of these activities are highlighted below. Two key concepts are the focus of this section:

      A) the importance of **partnerships** and LTNet's ability to work with, foster and continuously nurture such partnerships for successful integration of technology into education;

      B) the crucial role of **innovation** and the importance of encouraging innovation in the use of available technological tools.

Partnerships

One of LTNet's strengths has been its ability to carefully foster and nurture a web of partnerships with a variety of actors in the US and in Brazil. At the center of this web of partnerships are LTNet and ProInfo. This core partnership has been symbolized by the close professional relationship between LTNet's Director, Eric Rusten, Vera Suguri the pedagogical consultant and Claudio Salles the director of ProInfo. The partnership has grown over the three years of the project and enabled additional partners to benefit and contribute to common goals of integrating technology into learning and teaching and innovating, both in the US and in Brazil. At the start of the third year of activity, the Ministry of Education, through the ProInfo project provided funding support for LTNet in terms of Vera Suguri's salary and her ability to commit considerable time and resources to being ProInfo's representative to LTNet. Ministry funds from ProInfo also supported many LTNet/ProInfo training activities. In addition, different ProInfo staff provided logistical and technical support to LTNet. Without this level of support and commitment to the Partnership in general and LTNet in particular, the success that was achieved over the three years and especially during the last year of the project would not have been possible.

The first principal's training that took place in 2000 is a good example of the kinds of partnerships that LTNet was able to foster. This training was part of EPIC and undertaken through the US Embassy. In Brazil, the Association of State Secretaries of Education (CONSED) was very much involved in identifying the principals that would take part in the program, encouraging individual State Secretaries of Education to send their principals to the training event, and facilitating local logistic support in the cities where the training took place. CONSED's involvement was also critical to increasing the visibility and importance of this effort in the minds of the participating principals and State Secretaries of Education. Without the partnerships with CONSED, the principals' training activity would not have been possible.

The training for the principals took place in three locations. At each location. the multipliers from the three ProInfo NTEs participated in the training activity, the ProInfo State Coordinators, and the municipal and State Secretaries of Education were involved in planning, organizing and implementing these training events and in some cases paying for high-speed connections to the Internet. In addition, REGANESTE—a network of school managers—supported this effort and

the Director of REGANESTE helped plan the event and was present to assist in activities in two of the three cities. REGANESTE's involvement also made it possible to add aspects of IT uses for school management in to the training program.

There was also a funding partnership with the US Embassy which paid the per diem and travel costs for LTNet staff and two ProInfo staff from the Ministry. The Ministry of Education in Brazil paid for the transport of one other ProInfo staff member and paid staff salaries and provided critical logistical and political support. LTNet also provided funding to cover a variety of workshop expenses and LTNet staff salaries.

Each State Secretariat for Education paid their principal's travel, lodging and per diem costs and provided access to NTEs in the three training locations. School principals at the three training locations were involved in coordinating lunches and local logistical support.

Also, it is important to note that during the second and third years of the project, all events LTNet was involved in were based on invitations from local partners—State and Municipal Secretaries of Education—who voluntarily co-funded local expenses (hotel's and meals) for LTNet and ProInfo staff. This local cost-sharing had not been a formal part of the agreement between the project and the Government of Brazil. This voluntary willingness to share expenses demonstrates how much educators valued these LTNet and ProInfo training events and presentations. LTNet's success in building robust partnerships enhanced the value of LTNet's work in Brazil and the US. Starting from a base of suspicion and misperceptions on both sides at the beginning of the project, LTNet was able to build trust and work with all partners. Brazilian confidence in LTNet is demonstrated by a variety of collaborative activities initiated by ProInfo. For instance, Rusten was invited on several occasions to represent ProInfo at events in the US and elsewhere.

Innovations

Innovation was a key element in the project's overall success and impact. It was LTNet's spirit of innovation that inspired teachers to try new tools, experiment, and to come up with new uses for the tools that LTNet provided. The cycle of innovation, training and learning had a mutually reinforcing effect among all partners. In many cases, a culture of local innovation has been instilled at the school and NTE level and teachers and multipliers will continue with this work and move forward with new ideas. LTNet has been a constant and continuing source of support to help make teachers' and students' ideas a reality. One more ingredient in this process is LTNet's and ProInfo's efforts to change educators' perceptions and attitudes and convince them of their own capabilities, resulting in a strong sense of local ownership and capacity to achieve.

Two activities that exemplify innovation and local ownership are described below.

SchoolLinks Chat pilot

In collaboration with Vera Suguri of ProInfo, LTNet launched a new program designed to foster virtual exchanges between schools in Brazil and between Brazil and the US. At the beginning of the program, Vera asked Eric if it would be possible for an on-line chat tool to be added to

LTNet so that teachers could "talk" real time with each other across the country. Eric agreed that this could easily be done. Before this discussion with Vera, Eric had identified a selection of free online chat tools and installed several in the testing section of the LTNet web site. This was done to see which one would be best for use with Brazilian teachers. Three days after talking with Vera about adding a chat tool to LTNet, Eric selected one of these tools, Ralf's Chat, had translated most of the English menu and instructional items to Portuguese creating a bilingual environment, added some additional features, and constructed a web framework in which the chat room could be easily used. As a result, this new function was created on the LTNet web site to support online chat activities among Brazilian teachers and students.

This new environment was first tested in a pilot, action research effort by a team of three ProInfo multipliers and one teacher working in four different schools in different cities in Brazil. This team of teacher-researchers had been selected by Vera. After two months of testing the Chat tool with students of various ages engaged in a variety of educational activities, the multipliers met with Vera, Eric and Gini Wilderson to discuss the most appropriate ways to present the results of the pilot activity. One of the multipliers, Lourdes Matos and one of the teachers, Noara Resende, who were involved in the pilot created a web site hosted by LTNet, describing the pilot activity and the results. (See Appendix C for a screen shot of the web page or visit the site itself at http://www.ltnet.org/SchoolLinks/ChatPilot/index.html).

In addition to the web site, the teachers and multipliers involved in the pilot, Vera Suguri of ProInfo and LTNet's Eric Rusten wrote a paper that was produced in English and Portuguese, to capture the lessons learned from this experiment with web-based chat so that educators across Brazil and the world could benefit from this work. This paper, "The Pedagogical Uses of Web-Based Chat: A pilot Activity to explore the pedagogical uses of Web-based Chat," by Vera Suguri, Lourdes Matos, Noara Castro, Ieda Castro, Lurdes Marilene Jung and Eric Rusten, was presented at a national congress in Fortaleza Brazil and published in *TechKnowlogia*, an internationally recognized electronic journal on educational technology . [15]

The paper describes how teachers and multipliers in four different schools in Brazil implemented a pilot project using Web-based chat with the assistance of ProInfo and LTNet. The Chat tool provided by LTNet was used in several different innovative ways including:

1) To enable students in two different regions of Brazil to learn about different aspects of their respective regions;
2) To enable students to discuss issues surrounding sexuality that were difficult for teachers to address on their own by allowing outside experts to contribute their knowledge and communicate with the students;
3) To enable students to obtain advice regarding their professional future but allowing them to discuss with a professor from a local university;
4) To enable teachers to communicate with each other regarding effective uses of computers and Internet technologies;

---

[15] The paper can be downloaded in Portuguese and English from http://www.ltnet.org/SchoolLinks/ChatPilot/estudosereflexoes.htm

5) Finally, to enable handicapped and special needs students to communicate with students far away, opening up their horizons.

Two of the researcher-educators involved in the pilot submitted the paper to the selection committee of the Brazil Computer Society for presentation at the Society's annual meeting. The committee selected the paper and LTNet funded the participation of these two educators at the conference so that they could present the results at a national technology and education forum. Vera Suguri and Eric Rusten were also present at this event. Toward the end of the year, Eric submitted the Chat Pilot paper to *Techknowlogia* (http://www.techknowlogia.org), an online technology and education journal for publication. The paper was accepted by TechKnowLogia and will appear in the January 2002 issue.

Lessons: This is particularly interesting effort because "chat" is often not regarded as a useful pedagogical tool. The teachers who enthusiastically participated in this pilot should be commended for their willingness to try untested approaches and their eagerness to reflect and learn from their own experience and share this with others. LTNet and ProInfo's joint support of these teachers is a good example of what LTNet and ProInfo's achievements in terms of transformations in thinking among teachers.

RiverWalk

The RiverWalk project is a collaborative project in which students and teachers from six countries (US, Brazil, Taiwan, Canada, Japan and Israel) research and share information about rivers in their communities. This project, managed by the University of Michigan's Interactive Communications and Simulations Group (ICS) was funded by Japan's Ministry of Land, Infrastructure and Transport and launched in November 2000.

The project already had participants from the US, Taiwan, Canada, Japan and Israel when Brazil was invited to participate. ProInfo's Vera Suguri helped to strategically select schools that would participate in the project and then called on LTNet's Eric Rusten to help develop a web-based collaborative environment (an AAC) for use by the Brazilian educators participating in the project.

The idea was to supplement the existing RiverWalk web site, which is used by students to publish their river projects, with a separate web environment that would allow Brazilian educators to work as a group and learn collaboratively from their participation in RiverWalk.

The site, as all other AACs, is accessible on the LTNet web site. http://www.ltnet.org/SchoolLinks/VEE/RiverWalk/P-AAC-RW-Base.htm

Unlike the RiverWalk site itself, the LTNet based RiverWalk-AAC is entirely accessible to all visitors and not restricted to participants in the RiverWalk program, making it a valuable resource for a broader range of educators in Brazil and elsewhere. (See a Screen Shot of the Chat room's login page for LTNet's RiverWalk AAC, Appendix D)

CONCLUSIONS

LTNet represents:

- A project whose greatest value emerged out of its ability to be organically transformed based on expanding and developing partnerships, emerging and evolving needs of the various partners, and most importantly, responding to the actual needs of Brazilian educators, while encouraging them to explore, experiment and learn from their own activities that were linked to LTNet's training and web-based collaborative tools.

- A project that is likely to survive through the continued use of tools that were developed and provided by LTNet, and through the continued impact of the training provided to multipliers and teachers across Brazil. An example of this comes from a multiplier interviewed at an NTE in Brasilia who mentioned that she was writing her thesis on using and adapting LTNet's AAC environment for visual arts teachers.

- LTNet's impact may expand under the auspices of the Brazilian NGO, LTNet-Brazil because of the tremendously increased need for the types of services and tools that LTNet provided during its three year tenure. In late December, a new set of partnerships was in the process of being established between schools in Brazil and in Africa, using LTNet-Brazil. This is a clear indicator of LTNet's success in creating rewarding collaborative processes and tools that will continue to benefit educators globally.

- In spite of very limited financial and staff resources, this project was able to self-adjust, innovate, learn, expand its reach, and impact large numbers of multipliers, teachers, and school principals in Brazil.

This was made possible because of:

- Quick response and flexibility on the part of LTNet staff. One multiplier in Monte Claros, Minas Gerais, who was interviewed over the phone from Brasilia noted that LTNet's Project Director, Eric Rusten, was always able to provide very helpful and timely assistance and that his support from a pedagogical and technical perspective has helped them to "change their way of working." She also noted that Washington, D.C. (meaning Eric Rusten) was able to provide assistance much faster than anyone she had access to in Brazil.

- Demand driven approach based on a good understanding of the information culture facing Brazilian educators. Instead of pushing for the implementation of what may have been initially thought to be needed, i.e., a web-based clearinghouse of information about educational technologies, LTNet listened and responded to the needs of Brazilian educators and open up opportunities for them based on a good understanding of the information culture and pedagogical environment facing teachers in Brazil.

- Flexibility within USAID's Global LAC Bureau, especially that of the project's USAID officer, David Evans, allowed the project to transform itself and evolve based on demand rather than some preset objectives.

- LTNet staff's ability to develop and nurture durable partnerships both with US and Brazilian institutions.

Important Results include:

- Thousands of educators trained in use of technologies for teaching and learning. Some estimates include:

  - ❖ 5,000 participants at the International ProInfo Congress in Fortaleza;
  - ❖ 2,000 participants at training activities in Faxinal (Parana) and Santa Catarina;
  - ❖ 1,419 multipliers at 263 NTEs who use LTNet on a regular basis;
  - ❖ 60,000+ teachers and coordinators (primary beneficiaries) a public primary and secondary schools across Brazil;
  - ❖ many more who participated at presentations and workshops; and
  - ❖ thousands of students who use the LTNet chat rooms with their teachers.

At many training events and presentations, LTNet received a lot of media attention in the form of live television coverage and newspaper articles. This resulted in a shadow audience that is difficult to estimate but potentially very large.

- ❖ More important than the numbers listed above, LTNet developed and implemented a training approach that works with Brazilian educators and can be scaled up to address the growing and continuing needs of Brazil. This training approach could also likely be used in other countries. LTNet's training works because it is experience-based, grounded in practice and is carried out within the context of a collaborative on-line environment that the trainees continue using after the event is finished. It also works because of the ongoing support that is made available to educators by LTNet and ProInfo staff and the network of people using LTNet. This effective training approach leads to immediate and actual use of technologies by the teachers in their classroom environment to improve learning and for their professional development.

- ❖ Brazilian ownership and expected continuation of LTNet's work through LTNet-Brazil (a Brazilian NGO created to carryon this work). While LTNet was originally meant as a network between Brazilian and US educators, and it has, indeed, fulfilled that mission. it has also emerged as a network to greatly facilitate learning among Brazilian educators. **Responding to where the needs were greatest,** LTNet turned a lot of its attention to supporting Brazilian educators. This attention was very much needed, very well received, and resulted in clear Brazilian ownership of most of LTNet's services and activities.

- ❖ Filling an important niche in Brazil's technology and education context. While Brazil has extensive expertise in educational technology, there is a gap between theory and

"expertise", and local school teacher's practical application. LTNet developed and implemented an approach that is beginning to fill this gap by providing tools for ongoing use of technology for educational applications, ongoing support, and collaboration with teachers, and encouragement and guidance during the application process.

❖ A large amount of learning on the part of LTNet staff and ProInfo partners about what works and doesn't work in training and enabling Brazilian educators to use technologies. This learning was partly the result of ongoing activities to satisfy the project's objectives, and partly the result of LTNet and ProInfo staff's willingness and eagerness to experiment, adapt, adjust and involve as many educators and others as possible in their activities, and even in some cases, facilitating experiments suggested by educators themselves and facilitating the learning process based on these experiments with technology.

Appendix A: Yahoo Group Discussion Lists set up by LTNet to facilitate Virtual Exchanges

AU-UFPR-Exchange · AU-UFPR Virtual Exchange Discussion List (48 members)
List started August 2001
> This discussion list is meant to enable the staff and students in the EFL program at the American Univ. and the Fed. Univ. of Parana to participate in a virtual exchange

BNC-AcademicCoordinators (24 members)
List started August 2001
This discussion list is meant to enable the BNC Academic Coordinators to share experiences, ideas and challenges with developing and coordinating English language programs.

BNC-Brasil-ESL
List started October 2001
This discussion list was established to enable educators working at all BNCs in Brasil to participate in e-mail discussions with their peers at other BNCs. This can be used to address pedagogical issues, the review of books, CD-ROMs and other educational materials, to share creative approaches to ESL, and plan collaborative activities.

BNC-Brasil-Tech
List started October 2001
This discussion list will enable staff from all BNCs in Brasil who are interested in applying technology to the teaching of English to share ideas, experiences and ask questions.

BNC-Presidents · BNC-Presidents Discussion List
List started October 2001
This discussion list is for the Presidents of ALL BNCs in Brazil. They will share knowledge, exchange ideas and seek answers to challenges they face.

BNC-TechEdGroup · BNC Technology & Education Group (25 members)
List started August 2001
This discussion list is dedicated to enabling staff of the BNCs in Brazil to discuss experiences, ideas and challenges with using technology in the teaching & learning of English.

Coligacao-Coordinators · Coligação Coordinators Discussion List (40 members)
List started October 2001
The Coligação Coordinators e-mail discussion list will enable staff from all BNCs to communicate easily with each other, share ideas, experiences, and challenges.

DFListadeDiscussao (24 members)
List started August 2001
This discussion list will enable teachers and multipliers in the Federal District of Brazil to share experiences, ideas and challenges with integrating the use of computers and the Internet into teaching & learning.

27

DiretoresREME · DiretoresREME de Campo Grande-MS (87 members)
This Portuguese language discussion list is meant for school principals in Campo Grande.

Partners-DC-Brasilia · Partners-DC-Brasilia Discussion List (13 members)
List started August 2001
This discussion list will enable the participants in the Partners DC-Brasilia exchange to share experiences, ideas and plan exchange activities.

RiverWalkBrasil · RiverWalk-Brasil (28 members)
List started September 2001
This is a Portuguese language list meant to facilitate discussions and the planning of project activities for participants in the RiverWalk project.

SchoolLinks-TVEscola · SchoolLinks/TV Escola Lista de Discussão
(41 members)
List started August 2001
This discussion list is for the staff of TV Escola Brasil.

US-Brasil-IEW · US-Brasil-International Education Week (4 members)
List started November 2001
This list enabled participants in the event to celebrate US/Brazil International Education Week to get to know each other, plan for the event and explore on-going exchange activities.

Appendix B: Screen shot of the Links to AACs on the LTNet Web Site

AccessVEE - Netscape

http://www.ltnet.org/TextOnly/T-Portuguese/AccessVEE.htm

LTNet & ProInfo's
Ambiente de Aprendizagem Colaborativa (AAC)

LTNet & ProInfo's *Ambiente de Aprendizagem Colaborativa* or *AAC*
is designed to help Educators in Brasil and the United States participate
in virtual exchanges and collaborative projects with other educators.
The *AACs* are also used during training activities to help educators learn
about Internet communication and collaboration.

Estado do Amazonas	TV-Escola PR	Estado do Parana
Município Campo Grande	Sinop - FUST	Estado do Ceará
Distrito Federal	Santa Catarina	Estado de Goias
Estado do Pernambuco	Fed.Univ. Parana American University	Brasilian Principals
Manause / Oxon Hill	Rio de Janeiro / Oakton	Programa Riverwalk
Estado de Minas Gerias	International Education Week Event Nov. 14, 2001	Estado do Espírito Santo

LTNet & ProInfo's *AACs* include access to:

Discussion Lists where educators can use email to easily share

Document Done

Appendix C: Screen shot of the Sinop/FUST ACC photo gallery showing the President of Brazil.

Appendix D: Screen Shot of the SchoolLinks Chat Pilot Web Page on the LTNet Web Site
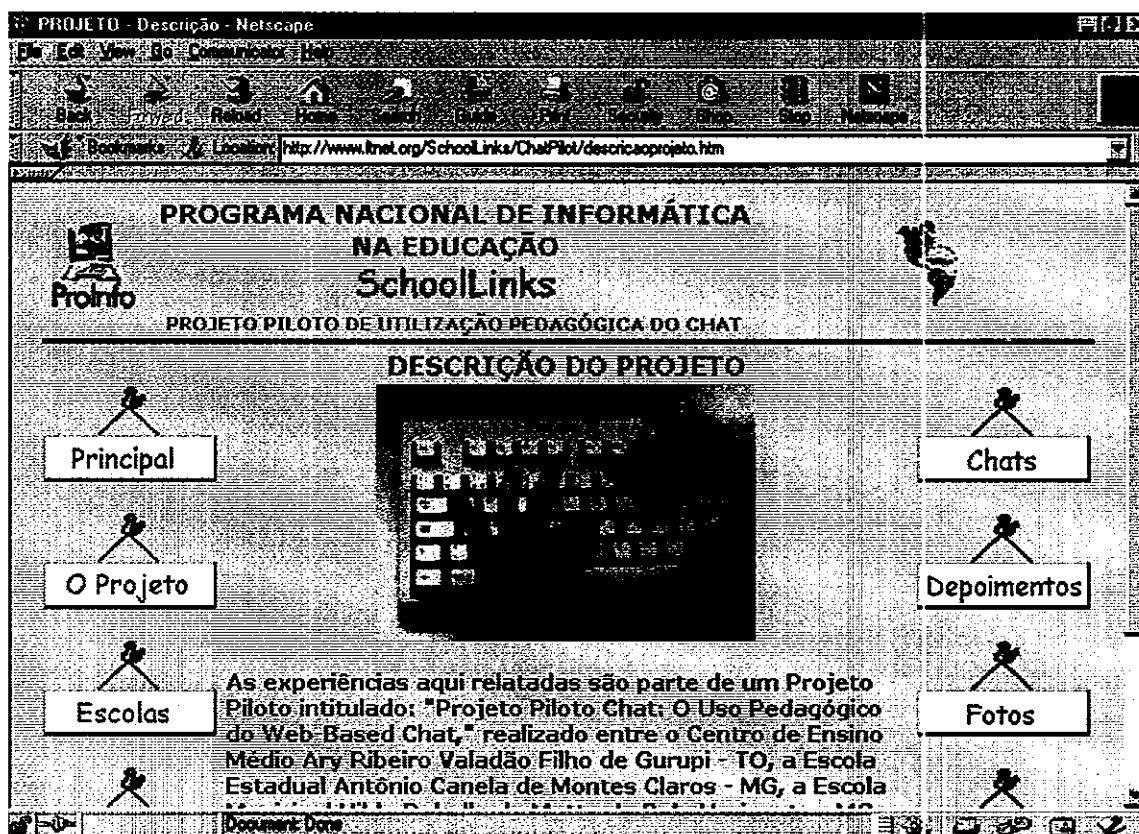
Appendix E: Screen shot of the RiverWalk Program's Chat room access page within the LTNet AAC

Note the On-Line Translation button on the top left and the Log File Request button on the top right. A multiplier interviewed in Brasilia mentioned that machine translations sometimes provide "funny results that help to break the ice" in the context of real time and asynchronous email exchanges.

Appendix F: Screen shot of the advanced web folio used for the RiverWalk Project.

WebFólio   E. E. Antonio Canela - Montes Claros/MG   ◁ Volte a AAC

(?) O que sabemos   (?) O que queremos saber

ProInfo   (?) O que aprendemos   (?) Como Fizemos

***** Clique Aqui para Selecionar uma Escola ******   POSTE Informação   Upload Foto

Os governadores dos estados beneficiados pelo rio São Francisco deveriam criar projetos de defesa e preservação do grande rio. (Cláudia Fernanda, Rosana de Cássia e Eliane Rodrigues 12 e 13 anos)

A situação do Rio São Francisco

O Rio São Francisco está se acabando, as pessoas sabem o que está acontecendo com ele , mas não fazem nada para ajudar. Os peixes estão acabando, os pescadores procuram e as vezes não encontram nada.
Olhando de longe, veremos uma bela paisagem, mas se vimos de perto notaremos que as suas águas estão sujas.
As águas da praia de Januária estão muito rasas, a profundidade maior pode ser de um metro e meio.
Antes, o Rio São Francisco era conhecido como o "Rio da Integração Nacional", mas hoje está pior, pois sua aparência mudou muito com o passar do tempo, e assim, já não merece mais este título.
As lavadeiras de lá gostam muito das suas águas, mas quando souberam que o rio estava poluido, começaram a se preocupar em ajudar o São Francisco. (Douglas de Jesus, Charles Aparecido, Rafael Partes - 12 anos)

33

Appendix G: List of Documents Reviewed

- Quarterly reports
- PowerPoint presentations
- Papers written by and with LTNet participation
- Web site (English and Portuguese versions)
- Web site access statistical data

Appendix H: List of Individuals Contacted
(Face-to-face meetings, phone interviews and email communications)

LTNet: Eric Rusten

ProInfo:Vera Suguri

Multiplers and others in Brazil
Ms. Lucia Bazzarella
Training coordinator

Mr. Crediné Menezes
General Coordinator

Ms. Marcia Alves
Multiplier, Espirito Santo State

Multipliers from Espirito Santo State
Ms. Sônia Alcantara
Ms. Yara Pontine
Ms. Mage Borgo
Ms. Luciane Negrini
Ms. Carla Santos

Ms. Sheilla Campelo
Multiplier in Brasilia's NTE

Bruna Ribeira
Student 8th grader (phone interview)

Naora Resende
Lab Coordinator in Hilda Rabello School, in Bela Horizonte (phone interview)