

# PEDAGOGICAL USES OF WEB-BASED CHAT:

## *A Pilot Activity in Brazil*

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### INTRODUCTION AND BACKGROUND

Many educators around the world are making extensive use of computers and the Internet to enhance teaching and learning. For over four years, the ProInfo program in the Ministry of Education in Brazil, in collaboration with teachers and multipliers<sup>1</sup> across the country, has been seeking ways to help educators integrate these technologies into learning activities. Much of this work has focused on using a variety of basic software applications in school computer labs to enable teachers and students to develop interdisciplinary projects. To build on this solid foundation and to expand opportunities for using computers and the Internet in learning, Vera Lúcia Atsuko Suguri, a pedagogical coordinator at ProInfo, proposed to four multipliers, Lourdes Matos, Noara de Resende e Castro, Rosalva Ieda Vasconcelos Guimarães de Castro and Lurdes Marilene Jung, that a pilot project be developed to explore the pedagogical uses of Web-based chat. Together, the project team asked Eric Rusten, the Director of the US/Brazil Learning Technologies Network (LTNet)<sup>2</sup> to create an easy to use Web-based chat environment in the LTNet web site that the team could use to carry out the Chat Pilot Project. This pilot, which took place from July to December, 2000, had three main objectives:

- to test the use of a simple web-based chat tool in collaborative educational projects;
- to identify effective strategies for integrating the use of Internet chat into Brazilian curricula; and
- to learn what impacts, if any, that Internet chat may have

on teaching and learning and in carrying out interdisciplinary and collaborative projects.

The following schools participated in the Chat Pilot Project:

- Ary Ribeiro Valadão Filho Middle School Center of Gurupi, state of Tocantins;
- Antônio Canela State School of Montes Claros, state of Minas Gerais;
- Jacob K. Neto School of Novo Hamburgo, state of Rio Grande do Sul; and
- Hilda Rabello Matta Municipal School of Belo Horizonte, state of Minas Gerais.

This article discusses the technologies that were used in the project, describes the different project activities, presents an analysis of project results, and discusses the lessons that were learned from the Chat Pilot Project.<sup>3</sup>

### PROJECT TECHNOLOGIES

Internet chat is a form of synchronous on-line communication that uses software to allow two or more people to engage in real-time discussions by typing. Unlike many Internet chat applications commonly used today, the chat software used in this pilot activity, *Ralf's Chat*,<sup>4</sup> was embedded in a web page in the LTNet web site. This made it possible for users to par-

ticipate in synchronous discussion, or to *chat*, without having to download and install any special software. This software also saves a copy of the chat discussion as a log file. This log file, which proved to be one of the most important pedagogical tools of this pilot, was used by the project coordinators, teachers and, most importantly, by the students to reflect about the discussion after it was completed. A more detailed description of the importance of the log file is presented later. Participants in the project only had to have access to computers connected to the Internet and to use a recent version of Internet browser software such as Microsoft Internet Explorer or Netscape Communicator. The chat “room” is displayed in the user’s browser just like a regular web page.

As with all forms of Internet chat, the software used in the pilot allowed people from different locations to engage in discussions by typing their messages. Internet chat allows people to remain anonymous if they choose and they often use nicknames or even take on new identities when chatting. These characteristics of chat are greatly responsible for chat becoming one of the most common and entertaining uses of the Internet.

These same characteristics are also responsible for many educators believing that chat has little educational value. As mentioned earlier, an important aspect of the software used in this pilot activity helped overcome this concern by maintaining a digital record of the chat dialog, in the form of a log file, so that the project coordinators, teachers and students could study the text of the exchange after it was completed to reflect on aspects of the discussion, to identify errors of expression they may have made, and to expose questions for further discussion and research. The log file also helped teachers overcome one of the most challenging aspects of project-based education; identifying and responding to students’ needs. These log files were also used to plan future chat sessions and help to keep participating students from using rude or inappropriate language. This chat software is also available for free as a download from the Internet (<http://www.ralfchat.de/>) and because it is written in Perl, a programming language, it was easily modified so that all menu items and instructions were in both Brazilian Portuguese and English.

Teachers and students who were involved in the pilot project did not need to buy or install any special software on their school computers. They only needed to have a connection to the Internet and recent browser software, either Internet Explorer or Netscape Navigator. Because the software runs on the Internet server and only text files are posted on the Internet, it is possible to participate in chat discussion using a basic dial-up Internet connection. The software is also very easy to learn to use. Participants only need to register a user name and password and then enter the room. There is a space to type their messages and then by tapping the return/enter key or clicking on the “post” button, the message appears in

the main part of the screen. Users can also change the color of the text they use to post their messages so that it is easy to tell the difference between the dialogues of different users.

## PILOT ACTIVITIES — INTERNET CHAT USED IN EDUCATIONAL PROJECTS

The pilot project focused on using Internet chat within the context of different educational projects and themes. This was done to test the effectiveness of Internet chat under different conditions and for different groups of users. To help evaluate the effectiveness of Internet chat, the pilot’s activities were organized into five main categories. It is important to note that these categories do not represent the only ways that Internet chat could be used in education. Other educators are encouraged to be creative in the use of chat and to apply this communications tool to their specific needs. The categories selected were:

- Collaborative Discovery;
- On-line Seminars and Interviews;
- Professional Orientation;
- Professional Development; and
- Chat with Handicapped and Special Needs Students.

The rest of the article briefly describe each of these uses of Internet chat and assess the benefits from them for teaching and learning. Only one or two examples of a variety of chat activities are used to illustrate each category.

### Collaborative Discovery

On September 6, 2000, a group of 14 and 15 year old students from the Jacob K. Neto School of Novo Hamburgo, Rio Grande do Sul, the most southern state of Brazil, met in a chat room with students from Antônio Canela State School of Montes Claros, state of Minas Gerais, a state in the center of Brazil (see map). Lurdes Marilene Jung and Lourdes Matos mediated this chat session. The focus of this chat was to allow students to explore the differences and similarities between the two regions of Brazil where the students lived. During their discussion, they compared the climate, vegetation, industrial production, life styles and traditional festivities.

During this chat session the students of Novo Hamburgo became very curious about why the people of Montes Claros would celebrate a festival for Pequi, a fruit that they had never heard of. This sparked an animated discussion about Pequi and the importance of this fruit to the economy and culture of

Montes Claros. In another situation, when the students of Novo Hamburgo mentioned that their economy was based on leather, a student in Montes Claros stated that the production of insulin was central to Montes Claros' economy. Questions were raised about insulin that none of the students could answer and as a result, one of the Montes Claros students started, with his teacher's help, eagerly to research about insulin. It is unlikely that the student would have been as eager or done as complete a job, if the teacher had assigned this research topic. This result illustrates how useful Internet chat can be in exposing students' educational interests and topics for learning projects.



### Online Seminars and Interviews

On October 3, 2000, a chat interview session, moderated by Lourdes Matos, took place between a group of high school students from Antônio Canela and Dr. Kátia Liliane a Psychologist at the Regional Superintendents office of Montes Claros. This chat session focused on student projects on early pregnancy among adolescent girls. Chat was used as part of the project because the teacher felt that the questions being asked by the students required more specific and scientific responses that she could not provide.

A similar interview chat session took place on October 20 with 11 to 14 year old students at Hilda Rabello Matta Municipal School in Belo Horizonte, Minas Gerais, and a team of specialists from Gurupi, Tocantins. The Science teacher at Hilda Rabello, Ms. Geralda Sueli da Silva, was developing a project with her students on Adolescent Sexuality. Early in this project Ms. Silva realized that the students wanted to have more specialized information about adolescent sexuality than she was capable of providing. To meet this need, she

and the local school's multiplier, Noara Resende Castro, decided to use the Internet chat to allow the students to have a virtual interview with experts in this field. A psychologist, Gilvane da Silva Terra and Vilma Borges de Moura Perini, a science teacher, from Gurupi, Tocantins were invited to join the students for this seminar. They had a very open and animated discussion and the psychologists and science teacher were able to provide the students with accurate and detailed information. This virtual seminar also allowed the psychologist and teachers to discuss other important topics such as the negative impact of early pregnancy on young women. Without using Internet chat, these experts would not have been able to collaborate with these students on this topic. It is also likely that in a face-to-face meeting, the discussion of this topic would not have been as open as it was with Internet chat.

### Professional Orientation

In another example, 16 to 18 year old high school students from Antônio Canela School of Montes Claros, Minas Gerais participated in a chat with Professor Carlos Meira, the coordinator of a technical business course at the University of Montes Claros. This chat, which was mediated by Lourdes Matos, the multiplier at the Montes Claros NTE, focused on having the students learn about different career opportunities and the education required to prepare for those careers. This chat session provided the students with a rare opportunity to speak directly with a university professor about different courses, fields of study and related carrier opportunities. This provided the students with critical information important to making decisions about which courses to take and the challenges they would face at college. Presently, few students have access to this first-hand information through conventional channels. Internet chat allowed the professional to spend a little time from the convenience of his office to meet with a group of students. It is unlikely that a face-to-face meeting for this purpose would have been possible.

### Professional Development

On November 1, 2000, teachers from three schools, Colégio Estadual de Gurupi, Colégio Bom Jesus and CEM Arizinho, Gurupi, Tocantins met in a chat room to discuss how interdisciplinary projects are developed using computers and Internet technologies. Noara Castro and Ieda Castro of Belo Horizonte and Gurupi mediated this chat session. The discussion focused on the important roles of interdisciplinary studies on effective learning. The teachers talked about different teaching methods that can be used when working collaboratively in an interdisciplinary way. During this chat, teachers shared their doubts, fears and experiences regarding work in interdisciplinary projects at schools that have computer labs.

### Chat with Handicapped and Special Needs Students

One of the most remarkable chat experiences of the entire study occurred when one of the project coordinators, Ieda Castro, joined an ongoing chat activity. A group of students from Montes Claros was in the chat room talking with students from Novo Hamburgo. When Ieda joined their chat session, the students became curious about who she was and where she was from. As the discussion progressed the conversation became very animated and diverse and they all started asking specific questions about Gurupi, Tocantins and comparing conditions in their communities. Since this was an informal chat, the conversations were mingled with personal tastes and preferences; some spoke about courtship and the discussions flowed naturally and enjoyably. At one point, the multiplier from Montes Claros, Lourdes Matos, sent a private message to Ieda Castro, explaining that the Montes Claros students were special needs children with a mixture of mental, visual and hearing disabilities. This was a great surprise to Ieda Castro who later remarked that, "in spite of one of the girls having shown a lack of attention, nothing else seemed to be different from having a conversation with, *normal people*. I only imagined that I was chatting with children." A few months after meeting the students in the chat room, Ieda visited Montes Claros to attend an international conference. At this time she visited the school and met the students with whom she had chatted. However, in contrast to the open and dynamic chat discussion, when she met the students in person they became very shy and spoke little. Also, since Ieda didn't know sign language and the children were deaf they could communicate very little. This example illustrates the power of anonymous dialogue and chat discussion for people with disabilities.

Soon after this chat session started, a deaf girl from Montes Claros began shaking. Lourdes Matos quickly moved to her side to see what the problem was. The girl explained that there was no problem, she had just become overwhelmed by being able to communicate for the first time in her life with someone who lived far away and she didn't need anyone else's help to communicate. Internet chat had provided a means for her to communicate equally on her own with children who were not deaf and who did not know sign language. Suddenly, opportunities for her to learn and share with others had grown from the confines of her home and school to the rest of Brazil and the world. In short, her worldview had been transformed.

## ASSESSMENT AND LESSONS

The project coordinators carefully observed the behavior of students and teachers and the way they related with each

other. The research coordinators also reviewed and analyzed the digital records from each chat dialogue to learn more about the dynamics of this environment. Even though the chat pilot did not use scientific control activities to compare with the chat sessions, the coordinators did compare the behavior they observed with the behavior of students and teachers in conventional classroom activities.

### Fondness and Friendship

One of the things that impressed the participants in this project the most about all the chat sessions that took place during this pilot activity was the great expression of fondness and friendship that emanated from the on-line conversations even though most of the participants had never met each other. Initially, the project coordinators had expected the chat sessions to be dry and emotionless. From this it can be concluded that **people participating in chat-enabled collaborative learning environments can share emotions as well as information and develop friendships as well as constructing new knowledge.**

### Overcoming Disabilities

Another important factor, observed clearly by teachers during the chat sessions, was related to the possibilities for deaf and other special needs students to overcome certain difficulties that they encounter when trying to communicate, especially at a distance, with others. The student's teacher and the project coordinators were also surprised to learn that participating in the chat environment enabled the deaf students to gain a better understanding of how prepositions and articles are used in writing. When used in isolation, prepositions and articles have little intrinsic meaning, and deaf students have a difficult time understanding how these words should be used. During the chat, the students had a chance to see these words being used in written conversations and they started asking questions about them and discussing the usefulness of these words with the teachers and other students. This example **shows how helpful guided chat activities can be in assisting students in becoming more reflective about language and the challenge of writing clearly so that others can understand.**

### No Inhibitions

Even though the people participating in the chat sessions were not completely anonymous, since they used their real names and everyone knew where each person was from, they did not see the faces of the other participants during the discussions. This situation allowed the participants to feel anonymous and discussions were less inhibited. This was especially true when younger students were talking with adults. Usually, students are relatively shy when talking with teachers and will rarely ask questions or talk about topics that may be considered as personal or controversial. In the chat

sessions, however, discussions were animated, open and free flowing. Students who usually exhibited very shy behavior in face-to-face situations were uncharacteristically candid and talkative. This allowed the open discussion of topics that might normally not be talked about. As a result, **information and opinions were easily exchanged and all participants, even those who might be inhibited in conventional discussions, were able to communicate equally.**

### Thoughtfulness and Accuracy

Because the dialogues were written rather than spoken, the participants had to spend more time thinking about their questions and comments than they would in verbal discussions. They were also able to read what they had written and then edit their sentences and expand on ideas. This combination of factors contributed to discussions that were very thoughtful and meaningful. The focus on written communication also highlighted to the student participants the importance of good spelling and proper grammar. Internet chat is often characterized by a very relaxed approach to spelling and grammar. However, when used in educational environments, especially among participants from different locations, it is possible to focus students' attention on the quality of their communication. Similarly, students became quickly aware of the need to describe things to other participants in the chat very accurately and completely. Since facial expressions, hand gestures and the tone of voice could not be used to help communicate, the participants were required to be more accurate in the use of written language. At the same time, students' formulation and use of questions over the course of a chat session showed signs of becoming more focused and accurate. The Chat Pilot Project did not, however, investigate if the changes in the use of written communication used during chat sessions had an effect on students' overall writing skills.

Teachers involved in the chat pilot commented that they consistently have difficulty getting students to write and students consistently complain when asked to do writing assignments. However, **students were extremely eager to participate in chat activities where they had no choice but to write and to become concerned about the quality of their communication.**

### Learning from the Past

As mentioned earlier, the log file created during the chat session provided a digital record of the discussion that students and teachers could study on their own and as a group. The importance of the log file, especially to the students, surprised the project team. At one level, the students showed great pride when reviewing the log file with others and pointing out what they had written and what questions they had asked. At another level, students became very reflective when reviewing the chat log file and started to identify in-

consistent spellings and grammar. Many participating students, without being told by their teachers, quickly turned to dictionaries and other books to learn which spelling and usage was correct. And overall, they showed much greater interest in proper Portuguese.

**Studying the log file also helped the students discover topic areas that arose during the discussion, which they knew little or nothing about.** This realization was often followed by a personal quest for additional knowledge and information—a quest that would have been unlikely if the teacher had assigned it.

### Connecting Diversity

The pilot project also demonstrated the power of Internet chat in connecting people of different age groups and from distant locations. Experts and specialist who would not be able to visit distant schools for conventional face-to-face meetings were able to spend time from the convenience of their offices with students in distant schools. Similarly, teachers who have few opportunities to participate in professional development activities or to network with peers from different schools, discovered that **Internet chat allows them to explore new educational ideas and practices and to share challenges and skills with colleagues across the country.**

### Discovering Students' Real Needs and Desires

Internet chat was found to be a very effective tool to help teachers discover students' interests, needs and problems. One of the cornerstones of constructivist education and project-based learning is that teachers should seek to respond to the real interests, needs and problems of students rather than impose their perceptions of need. Unfortunately, discovering students' *real* needs and desires is one of the most difficult parts of effective project-based educational activities. However, as the coordinators of the Chat Pilot Project discovered, the students themselves naturally exposed their educational needs and desires as they engage in Internet chat discussions. And since these needs were preserved in the form of the log files, **teachers were able to follow-up and guide student efforts to satisfy their natural desire to discover answers to questions and doubts raised during the chat.**

### More Is Not Better

**The chat pilot also showed that the quality of discussions degrades if too many people participate.** The pilot did not seek to determine the optimum number of participants in a chat environment, but it seems that if more than 15 people are actively chatting at one time quality suffers. It is possible, however, for part of a group of students to chat actively while the others observe and offer suggestions for what to type. Then partway through a chat session the students can

switch control of the keyboard so that their partners can type. In Hilda Rabello Matta Municipal School of Belo Horizonte, for example, students are organized into groups that are named for the planets. Each group logs into the chat room under their planet name and the members of the group take turns typing responses and questions generated by group members. This not only makes it easier for participants to follow a chat discussion but it also helps students develop good teamwork skills.

### CONCLUSIONS

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The Chat Pilot Project clearly demonstrates that Internet chat can be a powerful pedagogical tool that can definitely enhance teaching and learning in many different ways. Achieving the educational benefits of Internet chat, however, requires that educators carefully plan and moderate chat events. It is also important that teachers take a long-term perspective with using chat so students are able to follow up on topics that are exposed during early chat sessions. Chat becomes a more powerful tool when combined with other tools such as e-mail and a listserv. This combination of communication tools allows for more complete and in-depth discussions. For example, during a chat, questions and ideas are quickly raised that require more time and more writing to treat fully than is available during chat sessions. In the pilot project, the participants often exchanged e-mail addresses so

that they can follow up with more thoughtful and detailed discussions on topics raised during the chat. This extended and expanded learning opportunities and strengthened relationships among participants.

The pilot also showed that both teachers and students quickly learn to use the chat tools and greatly enjoy the dynamic discussions that occur. The pilot also showed that even with a slow Internet connection, chat could be done successfully, using the tools in LTNNet. Also, when computers and Internet access are already available, Internet chat is essentially free.

It is important to note that Internet chat is not a perfect tool and that it should not be used to replace face-to-face activities. Talking and meeting with people face-to-face has unimpeachable benefits that cannot be replicated in virtual environments. However, it is equally important to emphasize that Internet chat provides benefits that may be difficult or impossible to achieve in face-to-face engagements.

There is still much to learn about how to use Internet chat in different educational environments, and how best to integrate this tool with other computer and Internet technologies and classroom teaching. This pilot project has only exposed the tip of the iceberg. As more and more teachers and multipliers across Brazil start using Internet chat as a routine part of education we will learn more about the pedagogical power of this exciting communication tool.

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<sup>1</sup> Multipliers are education technology specialists who train teachers to integrate the use of computers and the Internet into daily teaching and learning, and coordinate and support ProInfo activities in Brazilian schools. Multipliers work in teacher training resource centers, called NTEs (*Núcleos de Tecnologia Educacional*) that are distributed across Brazil.

<sup>2</sup> LTNNet, a project funded by USAID and administered by AED, operates under the US/Brazil Partnership for Education. The LTNNet project developed and administers a bilingual web site, <http://www.ltnet.org/>, to help carryout its activities.

<sup>3</sup> This article uses some information that was originally presented in a research paper on the Pilot Project, "INTERNET CHAT: AN EDUCATIONAL ACTIVITY" written by Rosalva Ieda Vasconcelos Guimarães de Castro and Eric Rusten.

<sup>4</sup> This software was created by Ralf Gueldemeister and is available without charge as a download from the Internet. Because it is an open source CGI application, it is possible to translate the words used in the interface to Portuguese.