"Methods and Options for Videoconferencing
in Relation to the Tamil Language in 2010"
by Eric Miller

On 21 February 2009, Chief Minister Kalaignar Karunanidhi in Chennai made a video call to launch the 3G (Third Generation) network of BSNL, the Government-run telecommunications company. Today (May 2010), video calls on mobile telephones using BSNL's 3G network are being routinely made by members of the public in Tamil Nadu. Airtel's 3G network is also expected to be operational soon.

At this moment in time, as we are on the verge of the *Video Call Revolution*, it may be useful to look both backward and forward. This might help us to decide what to do with our new videoconference capabilities, as we enter the *Age of Videoconferencing* in earnest. Previously, I have written three articles about videoconferencing for INFITT -- in 2002, 2003, and 2004.[1] This article summarizes and adds to those.

Videoconferencing, video calls, video chat, or simply, *being able to see people as we speak with them through electronic devices*, has been on the horizon for many years. Two major ways of videoconferencing are: through one's computer, and through one's mobile telephone. In both cases, the hardware is increasingly coming with a video camera built-in. The videoconference camera is generally above the screen. In the case of mobile telephones, there are usually two cameras, one facing the user (for videoconferencing), and one facing away from the user (for optional use for recording still-images and video). Actually, the computer and the mobile telephone are converging, to produce *smart phones* -- and these are the mobile telephone models that tend to be videoconference-capable.

Skype is most commonly used on personal computers, but it can also be used through smart phones. Skype has enabled a great number of people to experience Internet videoconferencing, in many cases for the first time. Other free video chat programs include those in Gmail and iGoogle, Microsoft's Windows Live Messenger, Yahoo! Messenger, and Apple's iChat.

Among online social networks (also known as, social media), Orkut is one of the most advanced in offering the video chat option to users. How will people with similar interests find each other to videoconference with? They could join *communities*, or becomes *friends*, *fans*, or *followers* of others, as many people already do on social media.

There are also programs such as Webex, which, for a cost, enable videoconferencing over the Internet, with sharing of files -- for text, electronic drawing, video, etc. -- in various windows.[2] In both the 2004, and the 2005, Chennai-

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[1] 1) "Videoconferencing and the Teaching of Tamil Language and Verbal Arts", http://www.infitt.org/ti2002/papers/41EMILLE.PDF , presented at TI2002, San Francisco Area, California, September 2002. 2) "Chennai and Videoconferencing: Videoconferencing for Performing, Teaching, and Discussing Tamil Language and Performing Arts", http://infitt.org/ti2003/papers/50_emiller.pdf , presented at TI2003, Chennai, August 2003. 3) "The 16 Oct. 2004, and 15 Oct. 2005, Webcasted-videoconferences for the Demonstration and Discussion of Children's Tamil (and Other) Songs/Chants/Dances/Games, and Methods of Teaching and Learning Spoken Tamil Language", http://www.storytellingandvideoconferencing.com/27.html , in *Min Manjari*, INFITT's e-Journal, December 2004.

[2] http://www.webex.co.in .

Philadelphia videoconferences that I facilitated, we used a video mixer to combine the two images (one image from each site): this gave us the ongoing flexibility of being able to choose how much space each image would fill on the combined screen, and also enabled the superimposing of the two images. For these events we used a relatively low-quality method for showing Tamil and other text: we projected it onto the back wall of our room in Chennai (Figure 2). In other videoconferences, I have placed text next to the image of the speaker, like in a comic book (Figure 1). Incidentally, the development of ways of producing *instantaneous visual translation sub-titles*, or *captions*, is going to be an important part of videoconferencing's future. This will require *voice recognition technology* (from spoken to printed words), and *automatic translation technology* (from one written language to another).

Microsoft's *Natal* system will feature motion-sensing technology -- not just for game-playing, but for operating the computer in general. Thus, the *Gesture Revolution* is upon us.[1] Here a video camera is often a crucial input device. Based on what I have seen in the college students I teach in Chennai, many young people today will not rest until they can *play games via videoconference in social networks on mobile telephones*.

Regarding high-quality types of videoconferencing in Tamil Nadu, India, and beyond:

Early videoconferencing in India (in the 1990s) tended to occur via dedicated non-Internet ISDN lines (three lines together yield 384kbps). However, ISDN lines cost by the minute, and are quite expensive to use -- and are even more so when a bridge is needed, for connecting more than two partners in a videoconference.

The global development is now toward videoconferencing via very high-speed Internet. For example, Reliance -- whose videoconference rooms in their over 200 Reliance World stores across India have led the way in making high-quality videoconferencing visible and available -- previously offered only dedicated ISDN-line videoconferencing; now they also offer Internet videoconferencing.

Access Grid is an "ensemble of resources" that enables many sites -- using interactive multimedia and appearing on multiple screens -- to participate in a videoconference[2] (Figure 4). Polycom, Cisco, LifeSize, and Tandberg are among the videoconference companies that offer *telepresence* (presence, from a distance), which involves life-size high-definition images of people, simulated eye-contact, and minimum delay-time -- replicating the experience of physically-present meetings as much as possible.

In India, three Governmental entities that are involved with developing videoconferencing -- or the connectivity systems that enable videoconferencing -- are 1) ERNET (Education and Research Network)[3]; 2) NIC (National Informatics Centre)[4]; and 3) CDAC (Centre for Development of Advanced Computing).[5]

NRENs (National Research and Education Networks) are playing increasingly important roles in Internet development in many developing countries. An NREN is a

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[1] "Now, Electronics That Obey Hand Gestures", http://www.nytimes.com/2010/01/12/technology/personaltech/12gesture.html , 11 January 2010.

[2] http://www.accessgrid.org .

[3] http://www.eis.ernet.in .

[4] http://home.nic.in .

[5] http://www.cdac.in .

specialised internet service provider dedicated to supporting the needs of the research and education communities within a country. ERNET (Education and Research Network) is India's NREN.[1]

Internet2 is a USA-based networking consortium.[2] The technical standards and connectivity that Internet2 involves are very important factors in the global development of the Internet. Founded in 1996 by members of the education and research community, Internet2 provides

> both leading-edge network capabilities and unique partnership opportunities that together facilitate the development, deployment and use of revolutionary Internet technologies... Internet2 brings academia together with technology leaders from industry, government and the international community...and promotes collaboration and innovation...[3]

Internet2 has a section relating to Emerging NRENs.[4] One of the Emerging NREN groups is the South Asia Special-Interest-Group (SA-SIG).[5] SA-SIG's mission is to help to facilitate high performance networking in South Asia. SA-SIG's e-mail list is very much worth joining.

Two annual videoconference showcase events based in the Internet2 community are the Megaconference,[6] which began in 1999; and the Megaconference Jr,[7] which is especially for/by/with schoolchildren, and which began in 2004. Megaconferences are marathon events (up to 12 hours) that are webcast live to a global audience. They are composed of numerous brief videoconferences, each between up-to-six parties. I participated in the 2005 Megaconference, and in the 2006 Megaconference Jr (in both instances along with Tamil children, and exploring children's songs and language learning; from TENET's IIT-Madras facility). Reliance personnel have participated in a number of Megaconferences.

TEIN3 is another network that enables high-speed videoconferencing and assists in facilitating interesting collaborations.[8] TEIN3 is the third generation of the Trans-Eurasia Information Network. With direct connectivity to Europe's GÉANT network, TEIN3 offers researchers and educators in Asia-Pacific a gateway for global collaboration with their peers in Europe and other parts of the world. India connected to TEIN3 in March 2010 (through ERNET). Sri Lanka connected to TEIN3 in April 2010 (through LEARN).[9]

An organisation to keep in mind in relation to high-speed international videoconferencing for education and *development* is the Global Development Learning Network (GDLN).[10] The GDLN, which is coordinated by the World Bank, is "a partnership of over 120 institutions in over 80 countries that collaborate in the design of customized learning solutions for people working in development".[11] A

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[1] http://www.eis.ernet.in .

[2] http://www.internet2.edu .

[3] http://www.internet2.edu/about .

[4] http://www.internet2.edu/international/index.cfm .

[5] http://southasia.indiana.edu .

[6] http://www.megaconference.org .

[7] http://www.megaconferencejr.org .

[8] http://www.tein3.net .

[9] Sri Lanka's NREN is LEARN (Lanka Education and Research Network), http://www.ac.lk .

[10] http://www.gdln.org .

[11] http://www.gdln.org/about .

regional association of GDLN, is GDLN Asia Pacific (GDLNAP).[1] Presently there is one GDLN site in India, in New Delhi.[2] It might be good to seek to have a GDLN site in Tamil Nadu also. A GDLN site typically features a large room equipped with top-notch videoconferencing facilities.

Teaching Tamil language via videoconference -- on computers and mobile telephones -- could be a very important field. Tamil Nadu could be a world leader in developing language teaching in general by videoconference. These services should be available via Skype or similar programs, 24 hours a day.

At present, Tamil language-learning materials and instruction are available on webpages such as *Web Assisted Learning and Teaching of Tamil*.[3] Such asynchronous learning processes could also have an optional synchronous videoconference component. The videoconference language-practice lesson-plans could be coordinated with the lessons on the webpages. The on-line tutors -- or language-practice partners -- would need to be recruited, trained, and put in contact with clients. This would involve a lot of work. It could be done as a business, an NGO, and/or an educational project, possibly subsidized by a government. In any case, it should be done -- as a way of preserving, developing, and globalising the Tamil language. The early pervasiveness of the English language on the Internet is fading. Other languages are now also entering cyberspace, especially as the audio and video options are becoming more available and convenient.

My dissertation[4] recommends three techniques for teaching language via videoconference: *Question-and-Answer Routines*, *Repetition with Variation*, and the *Simultaneous Saying and Physical Enacting of Words*. My research shows that these are prominent elements of Tamil children's songs/chants/dances/games -- activities that very likely facilitate the acquisition of spoken language.

Question-and-Answer Routines place language-practice in the interactive context of human relationships, whether one participates in a routine as oneself, or as role-playing other characters.

Repetition with Variation gives the learner a sense of control and competence. If only one aspect of a sentence is modified, the learner can still hold onto the grammatical structure of a sentence. Variations can include changes of tense, and substitutions of words (substitution drills); and going from a positive to a negative statement, or going from a command to a question (transformation drills). Repetition with variation is a key aspect of the modern language-teaching approach, the Audio-lingual Method. Systematic and methodical learners tend to especially enjoy this approach.

The Simultaneous Saying and Physical Enacting of Words utilises the entire body -- not just the brain and mouth -- in the language-learning process. The modern language-teaching method, *Total Physical Response*, is based on this idea.

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[1] http://www.gdlnap.org .

[2] TERI Distance Learning Center, New Delhi. http://www.gdln.org/about/locations .

[3] http://ccat.sas.upenn.edu/plc/tamilweb , by Dr. Vasu Renganathan.

[4] "Ethnographic Videoconferencing, as Applied to Songs/Chants/Dances/Games of South Indian Children, and Language Learning", http://www.storytellingandvideoconferencing.com/280.html , PhD dissertation, Folklore Program, University of Pennsylvania, 2010.

These three practices are especially good for videoconference language teaching-and-learning, because in the course of videoconference communication it may at times be difficult to make out what a distant person is saying, and these practices make interpersonal verbal comprehension more likely.

We also found that playing with puppets can add fun to videoconference language-practice. This additional level of mediation and role-play, which enables people to interact with each other indirectly, seems to relax people and take some pressure off them (Figure 3).

Tamil Nadu should take a leadership role in developing ways for many aspects of its culture to be shared via videoconferencing. Training, interactive performance, and discussion about the various aspects of culture could all occur via videoconference. This could be done in part in coordination with the State crafts organisation, *Poompuhar*; and the annual folk performing arts festival, *Chennai Sangamam*.

Videoconferencing in the classroom is a huge field in the USA and Europe, and students and teachers there are very eager to videoconference with their counterparts in exotic places like India.[1] Videoconference interviews with tradition-bearers are increasingly being held in Folklore and Social Studies classrooms.[2]

Videoconference interviews for employment, and for admission to academic programs, are also becoming commonplace.

Chennai and other cities in Tamil Nadu need *teletoriums*: halls equipped with large screens and videoconferencing facilities. Setting up videoconference systems in halls for single events is too time-consuming and risky. A single teletorium could be used by numerous academic institutions and other groups.

A word should be said about a world-famous experiment in bringing videoconferencing (and general computer and Internet use) to the Tamil countryside, and to other rural areas in India. In the early 2000s, Dr. Ashok Jhunjhunwala -- leader of TENET (Telecommunication and Computer Networking Group, Depts of Electrical Engineering, and Computer Science and Engineering, IIT Madras) -- helped to develop SARI (Sustainable Access through Rural India),[3] which was serviced by n-Logue Communications Private Ltd and other companies. While it seems that this project has for the most part proved non-sustainable,[4] Dr. Ashok Jhunjhunwala continues to champion the idea of videoconferencing for people in the Indian countryside. It may well be that such people may achieve the ability to videoconference through mobile telephones before they achieve it through desktop computers. In any case, there remains a place and need for NGO and Government support for rural and economically-disadvantaged people to utilize videoconferencing for educational, employment, cultural, and other applications.

Apollo Hospitals is one among a number of hospitals in Tamil Nadu -- private and

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[1] *E-School News*: Technology News for Today's K-20 Educator, http://www.eschoolnews.com/2008/05/27/internet2-expands-schools-possibilities . The *Education Initiative of Internet2*, http://www.internet2.edu/k20 , http://www.internet2.edu . The *Consortium for School Networking*, http://www.cosn.org .

[2] "Conducting Interviews via Videoconference", by Eric Miller, http://www.afsnet.org/sections/education/Spring2008/Feature.html , in the *Folklore and Education e-Newsletter* of the American Folklore Society, Spring 2008.

[3] http://edev.media.mit.edu/SARI/sari-pilot-new-2.htm .

[4] "Sustainability Failures of Rural Telecenters: Challenges from the Sustainable Access in Rural India (SARI) Project", http://itidjournal.org/itid/article/viewFile/309/141 .

public -- that have strong tele-medicine components, using videoconferencing in the diagnosis process, for staff training, and for other applications.

It is sad to say, but difficulties for the environment (such as the ash cloud that recently floated above Europe), and inconveniences for travel, tend to cause booms for videoconferencing. Videoconferencing can be thought of as a *green activity*, in that it can reduce the amount of petrol needed for travel, and it can make it unnecessary for people to travel through delicate natural environments. However, videoconferencing should not be seen as a substitute for physically-present communication -- it is simply a different type of communication, with its own strong and weak points.

Years ago, people could often be heard in Tamil Nadu's browsing centres, singing Tamil cinema songs to distant others. Browsing centres have decreased, as Internet connectivity in the home, school, and office -- and on portable communication devices -- has increased. However, Tamil Nadu has been a world leader in bringing tribal, folk, and classical performing arts into the realm of cinema. Now these arts -- along with the teaching-and-learning of the Tamil language itself -- should be brought into the realm of videoconferencing, to further enable the sweet sound of Tamil to be heard and spoken around the globe.

A videoconference featuring electronic drawing and Tamil words (with transliteration and translation). (Figure 1.)
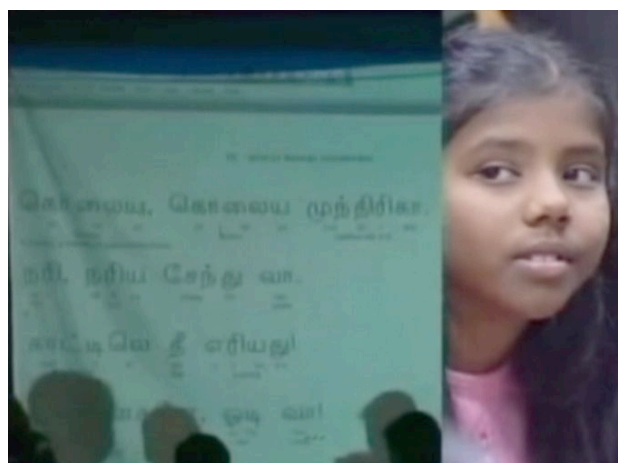
The words of a children's song are shown on the Chennai side of the Oct. 2004 Chennai-Philadelphia videoconference. (Figure 2.)

A conversation through puppets. From the Oct. 2004
Chennai-Philadelphia videoconference. (Figure 3.)

An Access Grid videoconference. (Figure 4.)

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