

Videoconferencing at UNISA: Synchronous real-time discussions for student support

Hentie Wilson

University of South Africa

wilsoh@unisa.ac.za

e-merge 2004 conference presentation

July 6, 2004

ABSTRACT

Learner support requires people and technology – an expensive and difficult endeavour for any institution. This paper summarizes a number of action research projects that investigated the practices of discussions with students via videoconferencing (using telephone lines) at a mega-distance education university, the University of South Africa (UNISA).

An historical review shows the development and need of this unique personal communication method. The methodology of this action research project refers to interviews and written reflections as qualitative data that portrays the authentic voices of the lecturers and students.

From the UNISA case studies and the literature analysis, we analyze similarities and differences and suggest recommendations. The data suggests the effective use of modern videoconferencing strategies is dependent on 10 key factors. Using videoconferencing reduced costs, supports collaborative learning, increases learning support, increases access, and improves the personal relationships with the learner.

Personal attention to students is possible through videoconferencing in fast-changing African distance education where society change is driven by technology change, societal and financial pressures, and political changes - a personal touch in an ICT-driven African educational and training scenario.

Keywords

Success factors, visual real-time conferencing, videoconferencing, student support, collaborative learning.

INTRODUCTION

Educators at higher education institutes have to consider quality of learning and the creation of a supportive learning environment. In a rapidly changing society a great number of students, require personal support outside of the formal teaching structure. Face-to-face tuition is an option that provides a solution, whether it is virtual or contact. Educational forums, so well known, include chat groups, MOOs or MUDs (text-based simultaneous online discussions), project groups (text-based email discussions sharing documents), listservs (email discussions around an area of interest), or live audio-visual-data discussions (videoconferencing). But videoconferencing is the only solution where people can meet at the same time, see and hear one another, and share document information during a live discussion, independent of the distance separating them.

For educators and students videoconferencing is a medium where real-time face-to-face discussions provide a forum for support and learning. This workshop focuses on a number of aspects. Similar to any other medium, the advantages and limitations of the medium may influence: the experiences - either individual or collaborative, the success of integrating into the student support, viable exciting learning experiences, type of supportive documentation, the roles in the group, the team composition when making it happen, the motivation, and the management of the learning environment.

How did, and does, videoconferencing work (in simple terms)? How may this medium be used within learning environments to support learners and enhance learning? Which factors advance and which hinder the effectiveness of learning when this medium is used? What does the future hold? How might the use of videoconferencing alter in the future and what role might it play in a rapid changing technologically advanced society? How does the community building take place in videoconferencing environments?

Videoconferencing environment may offer a conceptual and physical platform for sustained interaction. However, it has to be timely, quickly set-up with stable good connectivity through support, used by trained people with sufficient skills and attitudes, integrated with other platforms, responsive to participants, and very easy to use.

[5000 words max]

METHODOLOGY

Research projects aim to direct new developments and support the special needs from clients. Research is collaborative and involves specialist teams facilitated by a project chair. The action research process includes planning, action, observation and reflection. A formalized action learning (AL) or action research (AR) focus as a single or thematic issue, is used to describe developments within a particular case. In this case, seven cases were investigated around videoconferencing at UNISA. Observation notes, email correspondence, reflection notes and discussion diary notes form the data for these investigations. Similar and contrasting issues were identified that influenced the 10 key factors.

The diagram shows the cycles of a typical action research process.

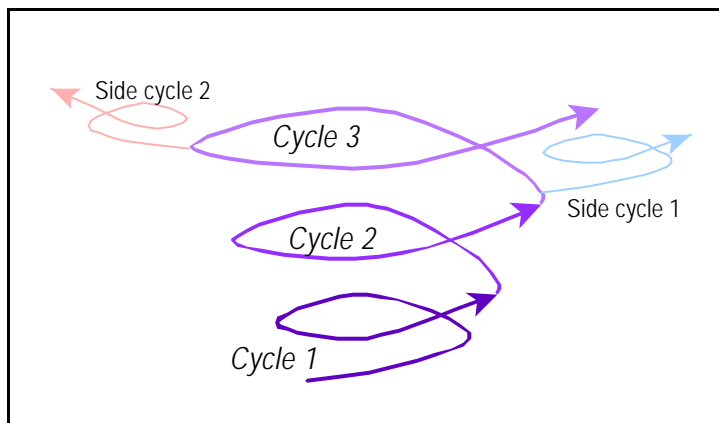


Figure 1: Action research as a dynamic research process of cycles-of-cycles (adapted from MacNiff, 1988: 45)

Further, action research is a dynamic process of cycles within cycles of experiences driven by critical questioning. A number of side cycles may allow investigation into other issues as part of the complex and creative real-life situation (MacNiff, 1993:45).

RESULTS FROM YESTERDAY – A HISTORY

International case studies

Visual communication has been with us some time - since the initial closed-circuit television of the 1920s, the interactive TV of the 1950s, the "picture phones" of the 1960s, the American schools and universities use of cost effective "cable TV" since the 1960 (in essence broadcast TV with two way audio), to the modern videoconferencing in the 1980s, and the futuristic science fiction notion of talking to video-images of people in *Star Trek* - videoconferencing is fast becoming part of our everyday lives as educators. Duran & Sauer predicts in 1997 that videoconferencing will become a mainstream technology at the end of the millennium (p. Xi) and, after the 11 September 2001 attack on America, the resulting terrorized world quickly started using technology to connect virtually to communicate in preference to travelling (Duran & Sauer, 1997; Schaphorst, R. 1996). Even in Africa the African Virtual University used one way video and sound broadcast with audio response, moving into dual interactive video.

Videoconferencing is undergoing a silent revolution. Examples of new types of users are the:

- Prison Service in Northern Ireland and Police districts in the UK,
- Distance Education universities such as Indira Gandhi National Open University in India, Northland Pioneer College, Arizona USA, University of Ulster in UK, University of Glamorgan in the Walsh Valleys in the UK, African Virtual University
- Aquatic Research Initiative in East Chicago provides virtual field trips to K-12 classes in American schools (from www.arij.org/Main/Main1.htm),
- Global Nomads Group provides “in-country learning” experiences to a global audience (from www.gng.org/frame.html) in areas such as Jordanian exchanges in the ancient city of Petra, Honduras “Proyecto Illuminar” expeditions, Copan ruins and Mayan temple visits, China cultural exchanges.
- COSI experiences interacting with medical personnel and doctors in operating rooms (from www.cosi.org/programs/ee.htm)
- NASA Johnson Space Centre Digital Learning Project to study the effect of weightlessness (see <http://learningoutpost.jsc.nasa.gov/expeditions.cfm>)
- Region IV Educationa Service Center for virtual field trips (see <http://www.esc4.net/videoconferencing/fieldtrips.aspx>).
- Movie business is into it. Director of The Lord of the Rings, Peter Jackson, did the shooting and editing via videoconferencing in a remarkably fast 274 days in over 150 locations. He directed in 3 locations simultaneously (see www.polycom.com/common/flash/lotr.html).
- Professional development through COSI and EuroNet (see www.curdev.hull.ac.uk/euronet).

History of Unisa videoconferencing 1990 – 2004

At Unisa videoconferencing was introduced in 1990 as a method to contact students in a distance learning environment. The student support system is boosted by discussion groups and video conferencing sessions. In all cases, lecturers support groups of students and individuals. It is common practice to support discussions with electronically prepared presentations that include graphics and text. Lecturers often use overhead projection and sometimes projectors with laptops during visits. The video conferencing environment makes the use of other media easier and integrates electronically produced sound, photographs, text, images of real objects, CD-based images, internet-based information, video and sound tapes.

A decade later visual communication was included in the student support policies in the institution (Unisa group discussion policy, 2000), although still not considered a mainstream support medium. During 2004, after a government restructuring and institutional merger exercise, the new UNISA plans to fully integrate visual conferencing into its student support.

In the last three years the average usage of video conferencing at Unisa was measured as 600 sessions per year, with an average of 70 departments using the system. Both Faculty and Administration find functional and diverse uses for video conferencing, such as post-graduate guidance, oral examinations (for supplementary examinations and special needs learners), interviews for positions, training of staff in remote centres, or discussions around collaborative agreements. Policy and guidelines at the new institution still have to catch up with practices to regulate sound practices and ensure compliance around legal issues.

Unisa Video Conferencing Session bookings 2003

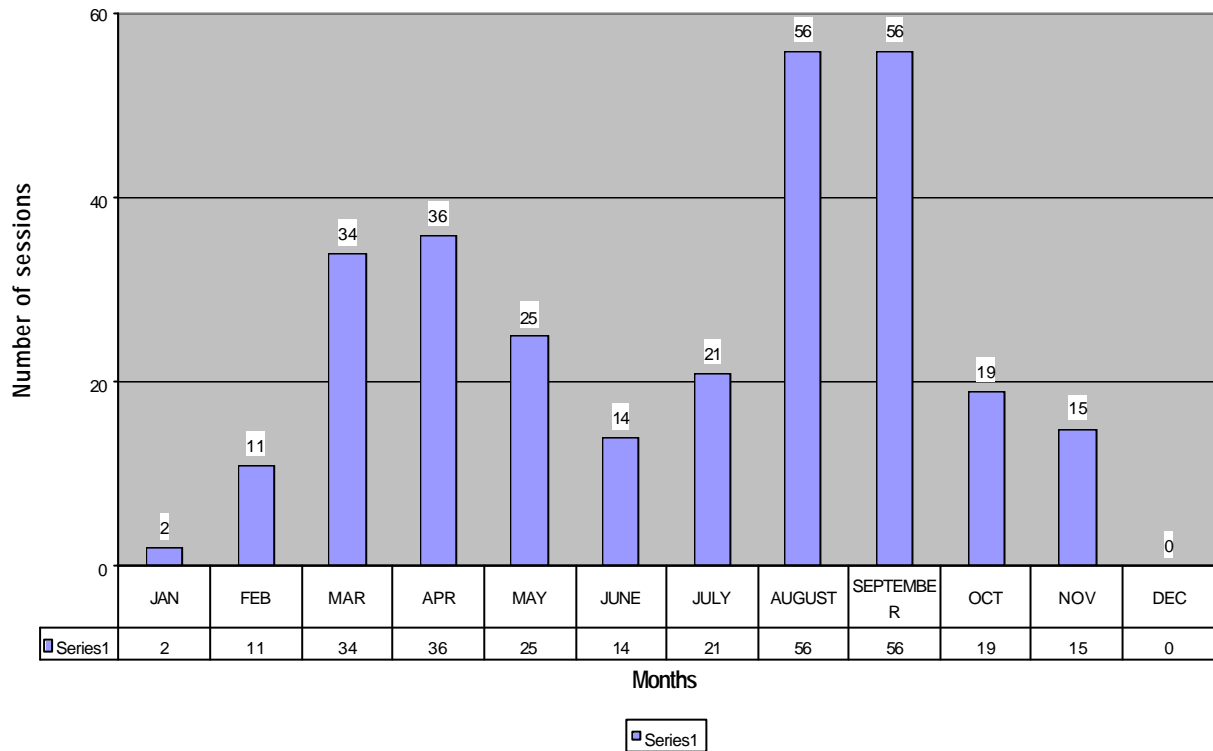


Figure 2: Unisa Video Conferencing usage in Sessions booked in 2003

Unisa staff conducted a number of action research projects over the last few years to find out how to best use videoconferencing in various subjects and how to plan active learning strategies (Wilson, 2000; Wilson *et al*, 2000; Wilson, 1998; Wilson, 1995). Within this large distance education institution the use of videoconferencing increased as part of trends to:

- support distance education students,
- address the financial implications of travel and absence from office,
- manage support within a semester-type system, and
- address expectations and react to the need for timely communication

The system

At UNISA the videoconference system is a fully interactive system that allows two-way visuals, audio and data using ISDN lines. The system includes cameras (a video camera and a document camera) to take pictures of participants and of documents; view monitors on which students see the lecturer and vice versa; additional preparation monitors for lecturers; omni-directional microphones; modems connected to hubs, then to ISDN telephone lines to connect sites by transferring the audio, visual and data elements. Although not used by all departments, the presentation site is also equipped with video machines (one machine to record sessions and one to play videos to students while in a call); a multimedia computer to display illustrations, present electronically prepared presentations, or play a sound clip and video.

A variety of platforms may be used to transmit the audio-visual-data signals and new ones are being developed, however, the concept of seeing and hearing someone in real time over a distance stays the same whether the system

is set up to use ISDN, LAN, WAN, radio waves, infrared connections, the Internet, and any other platform. Connections via ISDN are commonly used at Unisa.

Figure 3: A lecturer presenting a group discussion via ISDN.



10 KEY FACTORS FOR EFFECTIVE VISUAL CONFERENCING USE

The data provided evidence of 10 key factors for effective visual conferencing in distance education environments. These are session types, virtuality of the environment, presentation expertise of staff, reasons for using it, perceived need and effect, planned authentic interactive experiences, integrated use of technology in institutions, costing strategies and policies, ethos and support, stable connections based on international protocols.

Session types

Different types of interactions often takes place during a videoconference learning session (Wilson, Schenk & Grobler, 2000). These include interactions to:

- Establish learning needs,
- Guide learners to establish learning gains, simulate scenarios, and establish performance during practical work,
- Discuss issues to comprehend, integrate, apply, illustrations, or clarify,
- Evaluate learning and progress, and provide commentary,
- Examine and prepare for examinations.

All these interaction types included needs' assessments by both lecturer and student regarding the material and structure of each of the sessions. These interactions established a certain structure and content for informative

discussions, group discussions, practica or assessment sessions within the videoconference environment. Comments from lecturers include the following:

“The lecturing method was used. We discussed assignments, although learners mentioned few specific problems. They were happy about the feedback in the tutorial letter.”

It is vital that the session is carefully planned to define the roles of students as individuals, students as groups, the presenter, the tutor, venue facilitator, technical presenter, etc.

“...It is vital that trust is established between this tutor and the ... presenter. Their roles have to be clearly delineated and this can only be achieved with tact and sensitivity.” (Wilson, Spencer & Batley, 2001).

The length of the sessions has to be planned with care ensure peak concentration levels from all concerned. Too long sessions cause students to leave the sessions or the lecturer to suffer from burn-out, for example 3 hour sessions with English students from Israel.

Virtuality of the environment

Here we want to know how the medium alters the users' experiences. We investigate the integration of this type of contact into the student support and distance learning strategies. We also investigate the management of the learning environment.

“The interaction was difficult between the group of learners in the Pretoria venue and the learners in the remote venue because eye contact was difficult.”

Some students still prefer the contact sessions. A lecturer stated:

“More students still pitch for the face-to-face sessions.”

Some lecturers still prefer contact sessions as a lecturer said:

“Dit sal 'n hartseer dag wees as die videokonferensie die heerlike persoonlike groepbesprekings kontak vervang! [It will be a sad day when videoconferencing replaces the nice personal contact of group discussion classes!]”

Videoconferencing is preferred to telephone-conferencing, and as a lecturer said:

“Ek het ... my eerste suksesvolle videokonferensie ... gehad.ek het nie nodig gehad om op die ou einde 'n telefoonkonferensie ... te probeer hou ... nie. [I had my first successful videoconference and I did not need to try and have a telephone conference in the end]”

Videoconferencing is best suited for a limited number of students. Lecturers have difficulty in moving from 20-25 students to larger classes.

“Dit is in elk geval erg frustrerend en onbevredigend om videokonferensie met so baie [40] studente te probeer hou. ...[It is very frustrating and unsatisfying to have a videoconference with so many [40] students.]”

The directional vectors in the environment needs careful control to accommodate more than one class. Sometimes lecturers have difficulty seeing all the students in the venue and control the local students while having an interaction with the far site students.

The screens in the venues are far too small to see facial expressions or to read when they sit up to 5 meters away from the screen. Large screens make reading and seeing easy and it has become the norm in broadcast TV and entertainment, so people expect tend to it.

Venues that include more than one class need special attention to design. The presenter venue requires a different venue layout because of the additional equipment and the possibility for a student group in the venue.



Figure 4: The presenter venue layout.

If more than 8 people are accommodated in any venue where teaching takes place, the layout requires a special design to accommodate small group interaction.



Figure 5: The venue layout allowing small group discussions in the receiving site.

Skills and expertise of the staff

Lecturers have a variety of experiences, at various levels - academic support is very important during the first sessions to establish an appropriate level of interaction, quality presentations, and an ethos of concern. At first there are the technical issues and presentation skills (similar to online learning), but then the community building should happen. In our experience this community building happens quicker than in online learning, typically after about 20 minutes, while online takes days.

The dialogic community model of [online learners in] distance education is a computer-mediated educational experience in which students use the Socratic method to construct a knowledge base through rigorous encounters with both course content and each other, led by an instructor/content-expert (Milton, 2000: 1). This also holds for videoconferencing communities.

There are studies in online learning around the social construction of knowledge, but not “on peer influence in the construction of knowledge, and non-presented interactional politics (Kearsley, 1997; Salomon & Perkins, 1998; Sherry, Tavalin, & Billig, 2000). There is much work to be done to understand how power issues evolve in the online educational arena, where “classroom” structure, and modes of participation differ dramatically from what is experienced within the four walls of the traditional classroom environment.” (Milton, 2000: 1). Power issues, presentation issues and non-presented politics, and group influence on the construction of knowledge are important issues in videoconferenced environments that need research, especially in the African context.

Our research had written evidence of the first stages. Some feel in control. A lecturer said:

“One feels that one is in control and if there were uncertainties [...] one could control the process by, for example, using the mute button for liaising between the lecturers” (Wilson, 2000).

However, others feel uncertain (author observation).

Support is a very important part in the institution’s ability to provide the right environment and to foster high cognitive level discussions. Unisa decided to use a system where the lecturer is completely on his/her own, but lecturers need support during sessions and debriefing after sessions, so this strategy needs revision, as the comments show:

“The support staff in [...] are new to the system and they do not speak and react easily.”

There is sometimes a technical difficulty which was not explained or corrected, with a lecturer saying:

“I found it difficult to deal with the delay time on the system. The learners also had to get used to this. I had a problem to establish a pleasant and comfortable tone of voice!”

Reasons for using the medium

Similar to contact

Videoconference group discussions are similar to contact group discussion visits. A learner said,

“[The interaction with the students] ... was not much different from a normal group discussion [...] the only reason is that the lecturers were well prepared and felt in control of the process” (Wilson, 2000).

Less travelling and time-saving

Learners need to travel less, just to the nearest video-conferencing centre. Students outside South Africa can now also be in contact with their lecturer (also considered an advantage by Dallat *et al*, 1992.) During our Unisa research with students, they were generally appreciative of the contact session interactions that took place (Wilson, 2002). Tutors appreciated the training that took place via video conferencing (Ngengebule, 2003). Lecturers can even present conference papers to peers, for example sitting in Africa while presenting to an American audience.



Figure 6: A Unisa lecturer presents his paper at an international conference in America via a videophone in 2000 (the enlarged image can be seen on the monitor).

Specialists can address learners and one lecturer can participate in many group discussion sessions. This is affordable as there are no travelling costs involved. The presenter can be in contact with several groups of students or tutors at the same time. This strategy is a popular one, however, presenters need experience in managing several classes simultaneously.



Figure 7: View of the monitor with three far sites (classes) that we re simultaneously managed via bridged connections.

Unknown number of participants

Lecturers never know how many students can arrive at a session and this is frustrating if hours of planning goes into a session. Here are some comments on this uncertainty:

"There were two groups during the group discussion session between Pretoria and Cape Town. In the next session with Petersburg there were no students."

Multicultural environments with diversity

Diversity, as part of the curriculum, is imperative to multicultural environments. The Unisa lecturers did not comment on this. Our observation is that lecturers are used to the multicultural environment and that it is a part of every lecturer's epistemology. They impart not only knowledge of other cultures and classes but also teach students with which "lens" they should view the world. Sleeter & Grant (2003:5) built a powerful argument that multicultural education must be both multicultural and reconstruct society. "Others" can be different in not only race, class and gender but in abilities (either special education or gifted), culture, language dominance and sexual orientation. Every classroom should reflect and celebrate diversity of every type and the UNISA videoconferencing environment reflects this diversity – a diversity often hidden in text-based online learning. Lecturers facilitate the coalescing of diverse groups as students work toward social justice during activities.

Collaborative and cooperative learning

The environments are conducive for group work under supervision, for team roles to develop, and to develop shared responsibilities. These skills are important for the distance learner.

Perceived need and effect

The motivation for contacting students should have a didactic base and be intrinsic, based on the belief that quality education includes sufficient support to the distance student. The knowledge regarding the best learning strategies and media use were based on the experiences of the teaching team in each case. During the Enligh-Israeli case the conflict in needs created conflict and power plays.

"There was considerable pressure as a result of the danger of the ... [Israeli educational agency] losing their accreditation. This resulted in the sessions being conducted without an adequate preparation time and with a faulty motivation in that the impetus for the sessions came from an external source [driven by financial considerations] rather than from a perceived didactic need (Wilson, Spencer & Batley, 2001).

Planned authentic interactive experiences

In the Unisa experience, dialogue and interaction are affected - their 'apartness and psychological distance' still exist although the physical distance is overcome - it is still difficult to 'reach' the student (Wilson, Schenck, & Grobler, 2000). Participants still demonstrate:

- Phobias toward the hi-tech or strange environment,
- Feelings of inhibition from being 'in the spotlight' through camera power and forced dialogue,
- The habit of 'prompting the student ten times' as a technique to plan dialogues,
- A trusting and relaxing environment,
- Strategies to ask and answer focused questions and engage learners in discussion,
- 'Student talkers' to create interaction,
- The need for technical effectiveness, especially sound quality,
- The need for questions to throw back at students to answer to foster reflection,
- Reflection on positive experiences of interactions,
- The importance of planning and provision of supporting materials including summaries and visuals,
- The importance of knowing the characteristics of students,
- The need for venue set-up and knowledge of how it changes the interaction,
- Getting-to-know-time where participants grow in social coherence,
- The importance of specific seating arrangements which improve eye contact and interaction,
- The importance of confident facilitators to foster a positive and functional learning environment,

- A democratic learning environment, flexible and sensitive toward the learners' needs and the presenter's style,
- The integrated use of other media to increase interest.

Some of the aspects enhanced dialogue, while in some cases the dialogue and interaction was hindered. These aspects were all important for the lecturers to consider (Wilson, Schenck, & Grobler, 2000). Various international researchers (Spirou, 1998: 984 and Dallat *et al*, 1992) also focused on the important aspect of increasing interaction and teaching opportunities during videoconference sessions. Further research should investigate how these compare or differ with online community tasks and development stages (Clauson, 1997)



Figure 8: A Pretoria lecturer conducting a group discussion with students at the regional office in Cape Town.

Research (Wilson, 2000) indicated that instructional systems design (ISD) strategies applied in videoconference sessions should be dynamic and should play a substantial role in learner support. These strategies were overlooked and include:

- Lecturers should focus on the components of a video conferencing presentation. This includes aspects of the learning design, graphic design and layout, linguistic design, knowledge design, and presentation design.
- The instructional systems design (ISD) factors that benefit, limit, and alter the dialogue and interaction between the participants in video conferencing can be dealt within a planned manner before, during and after the presentation following a problem-solving strategy.
- Tendencies to resistance during this process are present. Lecturers shy away from engaging in teaching strategies that the highly technical video conferencing environment requires.
- Teams, which include subject specialists and instructional design experts facilitate the process towards effectively imbedding video conferencing sessions as a learner support strategy.
- Learning theories are an important *aspect*, which influence learning.
- Regular situation analyses assist in adapting theoretical aims to practice.
- Programme evaluations inform the instructional process. It is important to do feasibility, formative, summative and maintenance evaluations

Milton (2000:3) noted that “current research in computer-mediated communication offer mixed messages about the negotiation of power roles in online discourse. While the enactment of power is seen to have a significant impact on

dialogic communities, an overwhelming number of research studies fail to make explicit the difference between leisure-time, and juried environments.” With the changes in the Higher Education Funding Formula, distance education institutions will have to provide evidence that students were “active”. Learning development need to ensure that videoconference group discussions or work sessions are juried environments with sufficient written evidence of active learning.

Integrated use of technology in the institution

An important finding in the pilot project between Israel and Unisa was that videoconferencing contact must be supported by several means - with email, the study package, and visits – no one medium was the answer. All active learning events had to be carefully planned and integrated, as part of a course environment. It is especially true where there is a cultural gap between presenters and students. The feeling was that:

“... it is vital that the presenting lecturer does contact sessions prior to the commencement of the video conference sessions in order to prepare the students and the ... tutors.” (Wilson, Spencer & Batley, 2001).

Costing strategies and policies

The institution invested in the infrastructure, whereafter departments budget and rent venues, while paying line costs. Under the group discussion policy, the use of this medium is promoted when budgeting because of its affordability.

Ethos and support

Learner support is crucial in distance education and a commitment is required at all levels: systems administrators, IT support, management, lecturers, students (Sonnekus, Louw and Wilson, 2004).

Stable connections based on universal protocols

Sound quality is critical. The visual image is secondary, unless important data is being viewed or relationships being built. Lecturers comment on sound as follows:

“The sound was clear.”

Line connections are crucial for flowing communications.

“We also had problems connecting because of a line connection error.”

In conclusion

In conclusion, these results indicate that the use of visual communications at UNISA has to be directed through further research and staff development. At this stage, the following section proposes how visual conferencing should be used at the “new” UNISA to support African learners.

LOOKING FORWARD: VC AT A NEW UNISA

What does the future hold? What will the features of our communication be like? How might the use of videoconferencing alter in the future? What role might it play in a rapid changing technologically advanced educational environment or our society? Videoconferencing may offer a conceptual platform for sustained interaction. It has to be timely, quick, integrated with other platforms, and very easy to use to communicate. The future learning environment could look much different from today.

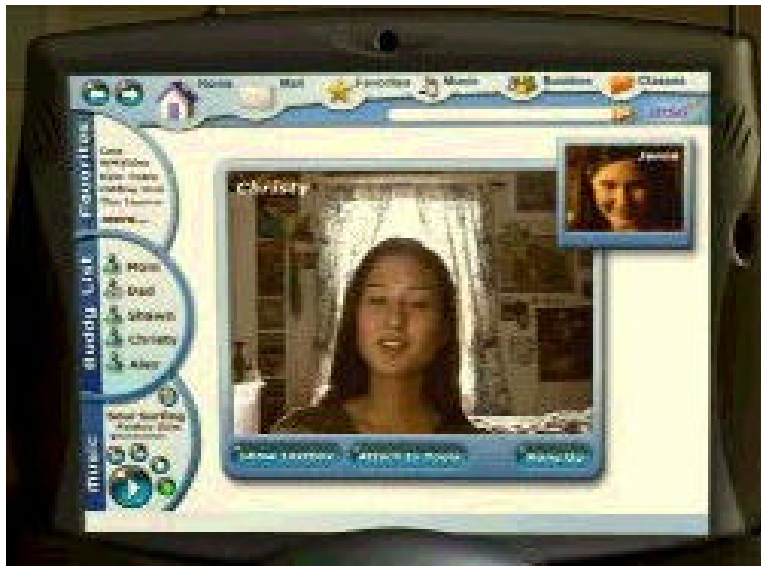


Figure 9: The future use of integrated computers and videoconferencing (as perceived by Microsoft in 2001)

The elements in this scenario are already possible! It will take a while to get the inter-connectivity and databases in place.

Seamless convergence

The future will see the seamless integration of audio, visual and data communication - including video e-mail, online videoconferencing, smart media, and streaming audio or video, searchable databases with audio and video, voice recognition on software, project sharing, electronic portfolios, internet-based radio, wireless area-based connectivity to servers ("bluetooth"), 3D-object scanning, virtual reality environments, virtual body occupation ("avatars"). Videoconferencing will take place from the desktop or in the car or the field using wireless and mobile technologies, not from specialised rooms exclusively.

Voice and video over IP

There is a fundamental change taking place in voice telecommunications: from the traditional public switched telephone network (PSTN) which is a circuit-switched network, to networks that are based on packet-switched data, using Internet Protocol (IP) technology. An Internet-based connection with VoIP is acceptable for short periods of time with limited quality. Network capacity limits the stability and quality of the connection too. The VoIP system requires specific computer needs which is available at Unisa but which learners have to purchase at their own cost. It is otherwise very convenient for lecturers and learners.

What does this mean to us educators? For example, lecturers and students can talk over the telephone in their office, the laboratory, field, or homes to discuss a misunderstood concept (a Telkom provided public switched telephone network) or they may use their computer-microphones and speakers to discuss an issue over the internet. Also, they may use the video-conferencing systems at Unisa which allows them to discuss an issue with the student while they see and hear one another. They will be using the telephone network (connected with intermittently switch data network or ISDN, which is a number of 'bundled' of telephone lines). Alternatively the lecturer and post-graduate student may use video-conferencing enabled computers to have a discussion (using the Internet with VoIP, such as Microsoft Netmeeting or See-U-See-Me). IP lowers the line costs of ISDN lines substantially, while mobile networks might be as costly as the current IP, but the network is shared so bandwidth might still be a problem.

How does it work? Well, in an IP network one can send 'packets of data' each finding its way independently and following the most efficient path to the destination. Each 'data packet' uses the network resources at its best at any given instant. So would a single source's data packets take many different 'roads' to a destination, traversing the

network and arriving at the destination at different times because of delays, out of sequence, or not at all as it got lost along the way. VoIP technology ensures that the packets are re-assembled correctly and converted back into the original voice signal, compensating for echoes because of delays, static, and for lost packets.

Why is this considered important? To educators the cost of using VoIP is substantially cheaper and we all know that this is a large factor. However, other factors come into play when we use it too: the quality of the interaction, the convenience of using it, and the reliability of the system. The ISDN systems use 3 or 4 ISDN lines which results in very stable contacts over long periods of time; a group discussion of two hours has a stable quality connection. The systems are available to Unisa lecturers on campus, but students have to travel to a ISDN-based system closest to them which might be up to 500 km away.

There are a number of factors on a national scale in South Africa that will dictate the shift to VoIP, including:

- The regulatory environment which currently in South Africa is illegal and limits use, except for use by the main telecommunications supplier Telkom, the second national operator and small enterprises in areas with low teledensity.
- A high degree of competition in domestic and foreign markets, might shift the market towards increased use and lower costs, especially where a second national operator is likely to react on the consumer's needs to their advantage.
- A new second national operator will likely move towards VoIP and increase its use.
- The existing income of the primary and only operator, Telkom, limit the shift to VoIP. Telkom gets revenue from national but especially international calls. International telephony calls prices are constantly being lowered. Sometimes it forces the local operator to lower rates. (The costs include direct collection charges and indirect costs such as loss of settlement payments.)
- Pressure from the users may increase the pressure to shift towards VoIP.
- VoIP is open to exploitation and hard to monitor, so market forces may drive the shift towards VoIP' use.

UNISA as a comprehensive institution

UNISA, now a newly formed institution, should consider the following issues:

- Lower the cost of travelling, increase support, and increase the personal nature of print and online learning.
- Increase the quality of teaching, informed through research and structured through policy and supporting systems .
- Increase personal relationships for technology-specific support with dedicated personnel for contact e-support and e-teaching. These personnel members must be learning specialists with marketing and technical staff.
- Support collaborative learning and cooperative education in the comprehensive task of the university and find new strategies (through case study research).
- Increase universal access and support nationally and into Africa through partner venue networks.

IN CONCLUSION

In Africa, communication is changing as some countries "leap-frog" into novel delivery media such as wireless delivery (cell phone or satellite) and large-format data lines. We, as educators, will have to think on our feet and be open to change. We should embrace opportunities to support our learners with open arms to enhance the quality of the learning experience.

In summary this paper directs strategies at UNISA. Firstly, action research is an appropriate methodology to use when researching fast changing environments where practice is formed and it includes rich data often overlooked in quantitative studies.

Secondly, this technology is here to stay according to the historical analysis and needs to be integrated into the university teaching and distance education technology support model. The technology is not always appropriate and the 10 key factors suggest ways to effectively use visual conferencing at UNISA.

Thirdly, it positions virtual discussions as an appropriate technology for African students as the proposal discusses aspects of cost, quality teaching, personal relationships, cooperative and collaborative learning, and universal access or support.

This article proposes to inform wider audiences of these individual cases of action learning and action research to effect change in the use of videoconferencing (McNiff, 1993:45).

ACKNOWLEDGMENTS

We thank all the lecturers and students at UNISA that participated freely and with their consent in this research.

REFERENCES

- Dallat, J., Fraser, G, Livingston, R., and Robinson, A. 1992. Videoconferencing and the Adult Learner. From <http://www.infm.ulst.ac.uk/papers/vidconf/dallat1.html> [dated1992]
- Duran, J & Sauer, C. 1997. *Mainstream Videoconferencing: A developer's guide to distance multimedia*. England: Addison-Wesley.
- Schaphorst, R. 1996. *Videoconferencing and videotelephony: technology and standards*. MA: Artech House.
- McNiff J. 1993. *Teaching as Learning: An action research approach*. London: Routledge.
- Microsoft. 2000. Video clip of the future with integrated technologies.
- Milton, K. 2000. *Connected Learning Spaces: The role of power dynamics in the social construction of knowledge*. USA: Arizona State University
- Sleeter, C E. and Grant, C A. 2003. *Making Choices for Multicultural Education: Five Approaches to Race, Class, and Gender*. N.Y.: John Wiley & Sons.
- Sonnekus, I, Louw, W & Wilson, H. 2004. Emergent Learner Support At Unisa: An Informal Report. In, *Journal of Open Praxis*, ICDE: Hong Kong.
- Spirou, C.S. 1998. On the teacher-student relationship in interactive video instruction. In Proceedings of the 23rd International Conference on Improving University Teaching, Dublin City University and University of Maryland University College, Dublin, Ireland, p. 982-989.
- Unisa. 2003. Group discussion policy 2003. Unisa: Pretoria.
- Wilson, H. 1995. Prune the growth of technology in Higher Education? Paper presented at the Conference of the Educational Media Institute of the South African Association for Research and Development in Higher Education (SAARDHE), Cape Town. Pretoria: University of South Africa.
- Wilson, H. 1998. Video conferencing in Distance Education: Scenarios, strategies, and strategic management. Paper presented at the Conference "Media for the new millennium" of the Educational Media Institute of Southern African Association for Research and Development in Higher Education (SAARDHE), 2-4 September 1998. University of Pretoria, Pretoria: Pretoria.
- Wilson, H. 2000. Instructional Design for Video Conferencing in Distance Education: Necessity or Not? Paper presented at the 18th International Conference on Technology and Education, 18 April 2000. Potchefstroom, South Africa: ICTE Proceedings.
- Wilson, H, Schenck, R, and Grobler, H. 2000. Video conferencing in Unisa Social Work Practicals: the quality of dialogue. *Progressio*, 22 (1). Available at [www](http://www.unisa.ac.za).