



**DISCUSSANT RESPONSE**

by

**Brian J. O'Brien**  
Managing Director  
Brian J. O'Brien & Associates  
Floreat Park, AUSTRALIA

to David Medved's

**COMMUNICATION ADVANCES PROMOTE CROSS CULTURIZATION?**

The Nineteenth International Conference on the Unity of the Sciences  
Seoul, Korea August 19-26, 1992

© 1992, International Conference on the Unity of the Sciences

Discussion of paper by Dr David B Medved

## COMMUNICATION ADVANCES PROMOTE CROSS-CULTURALIZATION?

Discussant: Dr Brian J O'Brien

### 1 Scope of Dr Medved's Paper

It seems an excellent example of cross-culturalization to have a paper by a resident of Jerusalem on the issue of Communications and the Global Village, be discussed by a resident of Perth, Western Australia. Perth is the most remote capital city in the world, contrasted with Jerusalem which is surely - often uncomfortably - one of the least remote. Communications can mean very different things to the two cities, and there is merit in using this contrast in discussing Dr Medved's paper, to highlight several key features of it.

Perth is 2,000km from the nearest capital city, Adelaide. Looking from our local beach near our home across the Indian Ocean it is over 7,000km of clear, empty ocean to South Africa. Perth is 3,000km from Bali but even so this is closer than Melbourne. From our holiday coastal home 450km south of Perth, there is nothing but open ocean further south for almost 4,000km until you bump into Antarctica.

The contrast with Jerusalem is made dramatically clear by Dr Medved discussing the events of the Gulf War. At 2.30am on January 17, 1991, he and his wife were wakened by sirens, and while the sirens were still sounding the alarm, their son phoned from Los Angeles to warn them that eight missiles had just hit Tel-Aviv. Such are modern communications technologies.

Missiles have a long way to come - from anywhere - before they reach Perth! But equally, so does anything else.

So modern communications technology is essential, not only for cross-culturalization in any intellectual sense but for a city's very survival economically. This is perhaps most obvious for Perth, but it is generally true of developed countries. In every sense, communications is as much a currency today as it was for Rothschild hearing news of Waterloo by carrier pigeon.

Dr Medved's paper covers a wide range of such different needs that modern communications can fill. It concentrates on showing how modern technological advances are influencing the wide issues of electronic communications and transmittal of information by electrical or electromagnetic forms.

Dr Medved starts from the classic, Shannon, definition of information content in an electromagnetic signal. However, the paper minimises use of technical jargon so as to be itself communicated to a wide audience. Several international examples are discussed, to analyse the impact of modern communications on cross-culturalization.

There is a very wide spectrum of problems and opportunities for communications technologies. The enormous task confronting India in even reaching a modest coverage of elementary telephone services, and the *dismal state of affairs in telecom .. prevalent in ..Malaysia, Thailand, the Philippines and Indonesia* is contrasted to the sophisticated telecom services in Singapore and Hong Kong. At the other end of the spectrum is the use of two-way video via satellite, with installation costs of \$500,000, to allow doctors in Boston to study patients in Belize.

Although not stated in the paper, what is clear from its content is that the rapidity and the extent of developments in modern communications technology are in fact increasing the separation in cultural opportunities inside nations and between developed and developing nations. These gaps are widening even while the most modern advances are making it possible for ever-more people to make the rudimentary quantum leaps into telecommunication, away from smoke signals and the like.

## 2 The Nature of Information and Communications

Electrical signals overcame the tyranny of distance, or at least provide the means to do so. The telegraph annihilated both the distance factor and the need for transportation, whether of a letter or a message stick.

We changed from very low communication rates of exchange of information, such as from flashing mirrors, smoke signals, signal fires and carrier pigeons to present-day systems that can transmit about 10 billion bits of information per second.

Satellite technology caused an explosion in the rate of communications.

The characteristics of homo sapiens that distinguish it from other species include language. And now communications technology have introduced an era more pervasive than the invention of writing.

Dr Medved raises the eternal question about improved methods of faster communications technology, as to whether the sender has anything useful to say.

One can summarise the technical versus the cultural issue:

- data are not information
- information is not knowledge
- knowledge is not understanding.

As an isolated island continent the cross-culturalization of Australia by means of electronic media is as fascinating as the development - because it is an island - of its unique fauna like the duck-billed platypus, kangaroo or koala. But the seas that safeguarded the purity and integrity of the native fauna and flora are no barriers to electronic fertilisation and modification of whatever indigenous culture there may be.

The other forms of cross-culturalization considered by the Committee at this Conference interact synergistically with the communications effects. Sydney and Melbourne are plagued with the problems of traffic jams, air pollution and noise just as effectively as Australia's ancestral cities in England, Europe or Asia. Cross-culturalization can be achieved in many ways.

Dr Medved considers that the present era presents a unique opportunity to provide peoples of the world with those "facts" which Abraham Lincoln deemed essential for the growth of a democratic infrastructure.

Communications technology has advanced in its capability, but the actual use is still limited by the real world.

Dr Medved addresses the two key issues:

- will needed information be distributed?
- will it be undistorted and meaningful?

The answers lie in the interplay of technologies, economics, politics and culture.

Simply outputting masses of information may not result in inputting meaningful knowledge. The paper tends to concentrate on the delivery of ever-increasing quantities of data, on the one hand, and on making ever-increasing numbers of one-on-one connections, eg telecom, on the other. But it also raises fundamental questions about the further limiting factor, the individual oneness of a human mind and heart.

### **3 The Communications Infrastructure**

Dr Medved identifies eight channels through which information flows internationally. These range from the usual means of mail, fax, phone and the like, through tourism and migration, to conferences, cultural exchanges, communication satellite and related flows of data, printed material, radio and television and films and promotional material.

One comes to expect that technological advances in the actual communication facilities will improve communications and its effect on a nation's society. However, Dr Medved points out the importance of economic interdependencies among producers, distributors and users of such facilities and the policies and rules that govern such relationships.

The technical advances in communication technologies are themselves causing changes in both the economic interdependencies and the communication regulations, in a "feedback" situation.

The rule makers do not always appreciate the latent power of new communication technologies, which are becoming both more powerful and more easily accessible. Increasing sophistication is being combined with a greater mass market, a potent duo. But regulations may be quickly made archaic, so fast is technology changing.

#### 4 Communications and Culture

The world's culture can be enhanced by expanding the infrastructure for information-sharing and exchange, or at least, such improved infrastructure can provide what Dr Medved correctly points out is the *opportunity* for enhancement.

However, market forces as well as traditional political forces and the emergence of new "gatekeepers" will dominate and limit the extent of such enhancement.

A case study is given of telecom in India. Seventy percent of the population of 850,000,000 live in 575,000 villages. At present nearly 90% of India's 5,000,000 telephones are in urban centres. The enormous challenge for change is apparent.

A successful strategy requires:

- i) easy access to the communications resources, and
- ii) creation of a pool of highly trained local "technicians" to both transfer the communications and see that they are used.

For India, a corporate structure is being recommended for the telecom service sector to replace the state-run domestic carrier. The slow but inexorable process of societal and cultural exchange with developed countries will have results that can be only dimly perceived.

The paper does not comment on the equivalent position in telecom in China. It would be most useful if the international participants at the ICUS Conference could flesh out further examples.

Modern communications also permit the creation of "virtual communities" supported by electronic networks comprising groups of geographically dispersed people united by a common interest and supported by computer communication. Such communities can be relatively anonymous.

Another increasing cultural use of communications is in remote learning such as practised in the United States. In the 1960's the US also made available to India a satellite, ATS, when it was nearing the end of its useful life. School teaching broadcasts were begun in trials of distance education, and many other experiments have been carried out, eg in Canada in reaching the Inuits. Various schemes are routinely operational.

Of course, it is sometimes difficult to appreciate that in remote or distance education the student may be lacking the most primitive need - electrical power. In Australia over 40 years ago, this problem was overcome in the *School of the Air* by using pedal-powered radios. In communications, it is not only the technology of the carrier that is vital, but also the fundamental state of development of the society at each node of the communications exchange. A water pump may be more immediately essential to survival than a radio.

And as we discuss elsewhere, the rapidity of change in communications, which is likely the highest rate of change of any of the trappings of modern humanity, is stretching out the gulf between the most advanced and the least advanced.

Dr Medved points out the paradox that arises in Third World countries, which may accept modern communications developments but not a western message that can penetrate their culture. Instead, Third World governments may require a partnership with the press and the media in organising public thinking, so that feeble attempts at democratisation may be stillborn.

The technology provides the carrier of messages, but it is still the person who shapes the message and modulates the carrier, who wields the power.

## 5 Technology Trends

Traditionally, one has tended to think of three disparate fields of data communications (computers), telecommunications and television broadcasting. Dr Medved points out that, increasingly, by use of the convergent technologies of digitising and photonics, these three are rapidly fusing.

There is increasing blurring of traditional distinctions between point to point interactive systems, such as telephones, and distributive systems, such as radio. However, different regulatory processes have not adjusted to recognise such changes. For example, entertainment television is heavily regulated in many countries, but video-conferencing is not.

A single Broadband Integrated Services Digital Network (B-ISDN) could provide a single universal medium for transmission of voice, data and video at speeds up to 150 million bits per second (Mbps). Market factors, including high levels of investment in present systems, will slow its adoption.

The next step of deployment of Intelligence Networks, where users exert control over the services received, is generally postponed until the mid-1990s.

As the data rate demands increase, the ability of communications satellites to service them become limited in band width. Fibre optics which require hard connection between transmitter and receiver are then required. However, the technique of digital signal compression is being increasingly applied, so that more information is being carried by traditional broadcast frequencies. Put simply, one modern transponder on a communications satellite can now carry the information that formerly required four transponders with the same power and frequency.

The capabilities of modern communications technology are changing at such a rate that whether or not they are used depends on whether their cost-benefit outweighs the impact on investment in established systems. The old paradox of designed (built-in) obsolescence is nowhere more vital than in communications systems. Market forces in communications technology have a surfeit of potential riches, but capital investments become proportionally larger. A communications satellite may cost some \$400 million, but its audience may be limited to householders willing to pay \$500 or \$1,000 for a dish receiver.

## 6 Transportation and Communication

Dr Medved examines the communication technology required to assist high-speed transportation, such as by air. He also anticipates future transmission of information to passengers both at the terminal and in flight, with upgraded versions of VHF and HF being used in-flight by geosynchronous satellites. Again, the technology exists, but is the market value of the messages that can be communicated to, or exchanged with, such passengers worth the cost of cross-culturalization when they are cocooned at 35,000 feet for only a few hours?

He also suggests the use of communications technology to reduce the wasted hours and fuel currently spent by Americans and others in traffic jams. He quotes the USA as wasting annually 1.6 billion hours and 3 billion gallons of oil in such traffic jams. Various solutions include not only better traffic control and improvement of mass transportation, but also the cultural change of keeping people at home but telccommuting.

## 7 Discussant comments

The actual impact of new technologies on the cultural realm of nations will depend as much on the social, economic and political circumstances in which they emerge as on the particular attributes of the technologies themselves. Thus governments can take steps to affect the outcome.

Dr Medved's paper gives a comprehensive coverage of the technological aspects and capabilities of modern communications. There are a few other topics that might be usefully considered at this Conference, because they will inevitably limit the actual potency and effectiveness of any improvement in communications technology.

First there is the simple but inescapable problem of time zones. Humanity is locked in its work and play to solar time, and the world is round. Our days begin and end by sun times, and no technological advance is going to change that.

Time zones compartmentalise east-west the human recipients of international communications.

It may be, for example, that some of the difficulties and subdued enthusiasm for the satellite hookup between Latin America and Spain discussed by Dr Medved were largely caused by the simple issue of the time zone difference, of 3 hours or so.

Those of us who come from large countries such as the US, Canada and Australia are accustomed to factor in to our daily phone calls the reality that our counterparts in the same country may have started work and finished work two or three hours before or after us. Those who deal in business internationally are also familiar with this elementary problem.

Theoretically the time zone effect which is purely an effect of longitude could be put to good use in improving north-south relations.

The most pronounced opportunities for exploiting contemporaneity of time zones lie in south-east Asia and Singapore is making rapid moves to develop them as a centre and an axis for business communications, stock market transactions and the like.

The reality of time zones inserts a hiatus into international real time dealings that can be overcome at a business level but can never be realistically overcome in communications to people at large. The recent Olympic Games in Spain while being televised live around the globe demonstrate this clearly. In Eastern Asia generally watching the Olympics real-time had to occur during hours normally devoted to sleep.

Clever manipulation of time zones is a political skill not unknown in the larger countries. Voters may still be going to the polls on the West Coast of the USA, Canada and Australia when early results are being broadcast from the East.



In terms of cross-culturalization from one peoples to another across a significant time zone interval, the reality of the world being round creates a diode in communications which can never be short-circuited. Two-way interactive mass communications in real time during the normal working day is simply impossible for east and west, but is surely a future opportunity for improved north-south dialogue.

Another human issue which presents limits to cross-culturalization, and about which some caution is necessary, concerns excessive cross-culturalization.

Cross-culturalization has gone too far when one's first sight of the Pyramids, those structures of 4,000 year tradition and mystery, is over the top of a sign set in the desert sands and advertising Coca Cola.

In the limit of complete cross-culturalization there is the possibility of loss of individuality and of the special sparks that make the human dimension a multi-dimension, unique among all species. A lack of communication can produce ignorance but an excess of communication might be in danger of producing an amorphous blob.

Could a genius like Mozart or Shakespeare have developed in a culture homogenised by very efficient, effective and saturation-level communication internationally?

A genius can probably maintain his individuality in spite of mass assaults on his senses but it is essential that he gets a variety amongst the scenes he observes. The infinite perception, humour and wit in both Shakespeare and Mozart came from a combination of internal workings and the magic/tragic world that surrounded them. Even a genius might have difficulty being original and creative if all his senses are immersed in a jelly.

The vast array of professional intellectuals in creative disciplines, whether they be architects or engineers, poets or doctors, musicians or philosophers, can have their own individual spark from heaven greatly attenuated if it first has to pass through the filters and inductances of several hundred other colleagues. Cultures too often copied outside their context may cease to be cultures, when they become drab uniformity.

There is a real danger to the intellectual purity of scientific endeavours through this very process of cross-culturalization. One need go no further than the global hysteria about such phenomena as the Greenhouse effect.

Twenty years or so ago, most scientific discoveries and papers were the product of one or two individuals. With the increasing use of technological developments such as large particle accelerators, new discoveries might be reported in scientific papers with as many as 20 authors drawn from half a dozen research institutes and universities. I well remember the list of authors of one paper in *Nuovo Cimento* being greeted by the sarcastic comment that they forgot to include the laboratory cleaner's name.

In the 1990s the technological advances of video conferences, international telephones and particularly international facsimiles combined with the ubiquitous word processor have led to scientific papers being generated by very large numbers of scientists operating at vast distances. An excellent example is the Intergovernmental Panel on Climate Change (IPCC) created by the World Meteorological Organisation (WMO) and the United Nations Environment Program (UNEP).

For some two years, several hundred scientists from many countries worked, usually at a distance, with some half dozen meetings, to produce reports. These were then processed by committees which were then deliberated on by political mentors of over a hundred countries. They became the working papers that evolved into a convention on Climate Change which received sage consideration and was duly signed by representatives of 154 countries at Rio in June 1992.

The only problem with this pseudo-scientific exercise is that although science started it off, it very rapidly got submerged by international politics and by developing nations competing for funds under the United Nations umbrella. Greenhouse is now not a scientific issue but a political weapon.

The improved communications technologies which led to this cross-culturalization, we suggest, can be very destructive of the special and highly individual scientific ethic which should drive and maintain the purity and intellectual rigour of science.

Speedy communication facilitates political intervention and corruption before the science has been tested.

Whether the equivalent corruption of music or literature by increased cross-culturalization is occurring is a subject for others to examine.

There can be no doubt about the vast improvements to the human condition that can be brought by communications technology and cross-culturalization.

Others at this Conference are spelling out in some detail the potential advantages of cross-culturalization and the way in turn that various processes such as migration, transportation and advances in communications can promote the process.

We have briefly examined the impediments and limits to cross-culturalization via the specific tool of communications and improved technology. The limit of time zones which inhibits instantaneous and interactive mass media cross-culturalization is judged to present a much needed and even healthy inhibitor of instant global homogeneity. However, in other areas such as instant mass science, there is a need to emphasise the uniqueness of the individual to avoid, or at least to minimise, the loss of the particular spark that can trigger creativity in the human mind.

Dr Medved's paper has given us a wide coverage of the opportunities for cross-culturalization using modern communications technologies. He and I have suggested various areas where such cross-culturalization either is, or should be, limited. The Committee discussions may develop these topics further.

One final thought is suggested. In the eternal debate between the haves and the have-nots, and in seeking what features characterise and differentiate a developed from a developing world, what instrument of communications technology is most important?

Is it the radio, where a demagogue can shout at millions? Is it the telephone, where one individual can talk to another free of the tyranny of distance? Or is it a personal computer, where an individual can access in 2 seconds via CD-ROM a library of culture to expand his mind?

Or is the optimum technology yet to be discovered?