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Cultural Organization

UNESCO at the World Summit on Information Society

**The Round Table on
“The Role of UNESCO in the Construction
of Knowledge Societies through
UNITWIN/UNESCO Chairs Programme”**

PROCEEDINGS

Tunis, 16-18 November 2005

THE ROUND TABLE ON

**“The Role of UNESCO in the Construction of Knowledge Societies
through the UNITWIN/UNESCO Chairs Programme”**

World Summit on the Information Society

Tunis, 16–18 November 2005

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FOREWORD

The round table on “The Role of UNESCO in the Construction of Knowledge Societies through the UNITWIN/UNESCO Chairs Programme”, which was convened in Tunis on 18 November 2005, was one of three activities organized by UNESCO in the framework of the “World Summit on the Information Society.” (Tunis, 16-18 November 2005). The Summit proved an important venue for discussing a variety of issues related to the construction of information and knowledge societies, including the key role of higher education in general and the UNITWIN/UNESCO Chairs Programme in particular.

In today’s global environment, knowledge is increasingly recognized as the main driving force of socio-economic development. Education, particularly higher education, plays a major role in the generation, dissemination and application of knowledge and in technical and professional capacity-building. Indeed, the development gap between developed and developing countries may be largely attributed to current knowledge and information deficits.

The round table discussions focussed on the role of higher education generally and UNITWIN/UNESCO Chairs in particular in eliminating the obstacles facing developing nations in bridging the digital, information and knowledge divide. The obstacles range from shortcomings in higher education and research infrastructure to the lack of linguistic diversity in cyber space, the adverse effects of the commercialization of knowledge, and unequal access to education, information and knowledge.

The papers presented at the round table, and the debates to which they gave rise, provide valuable insights into the main international and regional challenges facing us in our quest to construct global and equitable knowledge and information society, as well as useful recommendations on ways of addressing them.

The responsibility of UNESCO for helping its Member States to overcome the obstacles to the construction of information and knowledge societies was a central theme in all the presentations and debates. Its role, which is not restricted to the development of higher education and research, encompasses the promotion of free exchange of ideas and knowledge, the provision of education for all, the preservation of linguistic diversity in cyber space, and the strengthening of national capacity in knowledge production, dissemination and application. Emphasis was placed in particular on the role of the UNITWIN/UNESCO Chairs Programme as a modality for knowledge acquisition and exchange, and it was recommended to align the Programme more closely on the needs of developing countries, in keeping with the Declaration and Action Plan of the World Summit. The recommendations of the roundtable will be taken into account in UNESCO’s future plans and programmes in education, science, culture and communication.

FOREWORD

The round table proceedings have been considered of sufficient interest to justify their diffusion to a broader range of stakeholders. I hope that this publication, which may be seen as a complement to UNESCO's World Report on Knowledge Societies produced in the context of the World Summit on the Information Society, will prove a valuable addition to the literature dealing with the complex interrelated challenges attendant upon the construction of information and knowledge societies.

Peter Smith
Assistant Director-General for Education

INTRODUCTION

CONSTRUCTION OF KNOWLEDGE SOCIETIES: ROLE OF UNESCO

This introduction does not represent the final report of the round table on “The Role of UNESCO in the Construction of Knowledge Societies through the UNITWIN/UNESCO Chairs Programme”. It is rather an attempt to highlight the main issues raised during the round table proceedings, particularly in the introductory addresses and in the papers and documents prepared for the round table by UNESCO Chairholders and Network Secretaries from all regions of the world. A full final report on the proceedings and recommendations of the round table will be found in Part V of this publication.

The opening speeches highlighted the main challenges facing Member States in the construction of knowledge societies, and the moral and ethical responsibility of UNESCO in overcoming the obstacles and gaps encountered.

Mr Koïchiro Matsuura, Director-General of UNESCO, indicated that “For UNESCO, the challenge of building knowledge societies is about how the gaps may be bridged in ways that overcome exclusion and inequity and, at the same time, respect the distinctive character of different societies”. He further added that “the growing centrality of knowledge as a key factor in socio-economic development is recognized by UNESCO as having important implications for education, especially higher education, research and the ICT”.

Mr Peter Smith, Assistant Director-General for Education, stressed the moral and professional responsibility of UNESCO in helping to bridge the knowledge gap, which he identified as the main cause of the development gap between developed and developing countries. He further maintained that “although knowledge has become universal thanks to ICTs that break all barriers, the universality of knowledge has been impeded by various internal and external barriers, which constitute the main challenges for the construction of knowledge societies”. Shortcomings in higher education and research and the underutilization of ICTs were among the main barriers impeding the universality of knowledge and the construction of an equitable global knowledge society. He added that “although at the Education Sector of UNESCO we believe that higher education and research are important incubators of knowledge and we strive hard to improve quality and equity, we also give great importance to ICT, which has become one of the most important cross-cutting themes in all UNESCO programmes. It is through ICT that we can achieve broader and equitable access to education and knowledge. Our aim is to achieve knowledge and education for all”.

Mr Georges Haddad, Director, Division of Higher Education, said that UNESCO, in pursuit of its mission in the service of education, science, and culture, was working tirelessly to enable the most vulnerable communities to participate in and contribute to the adventure of the

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human mind and to benefit from the progress of knowledge while safeguarding all elements of traditional knowledge and of the cultural heritage. He described the UNITWIN/UNESCO Chairs Programme as a striking symbol of UNESCO's commitment to the production, transfer and equitable sharing of knowledge and technology in a spirit of cooperation and international solidarity.

Mr Abdul Wahed Khan, Assistant Director-General for Communication, highlighted the important role played by UNESCO in the transition from information to knowledge societies while preserving cultural diversity. This role was guided by four principles: a) freedom of expression, b) quality of education, c) universal access to education, and d) respect for cultural diversity. He called for the decolonization of knowledge, increased linguistic diversity in cyber space, and a pluralistic conception of knowledge societies. The role played by UNESCO in national capacity-building in the fields of information and communication was instrumental for the construction of knowledge societies.

HIGHER EDUCATION: THE MAIN INCUBATOR OF KNOWLEDGE

The main working document for the round table, prepared by Mr Abdalla Bibtana, was entitled "The Role of Higher Education in the Construction of Knowledge Societies: Challenges for UNESCO". The paper, after defining the concept of the knowledge society as being one characterized by its ability to generate, disseminate and apply knowledge, emphasized that knowledge is the main driving force for development in the emerging knowledge-based economy. The capacity for harnessing knowledge potential, rather than for material production, is becoming the main factor differentiating the developing from the developed countries. In this way, UNDP had attributed the low ranking of developing countries on the human development index (HDI) to the knowledge deficit. The World Bank had likewise recognized the key role of higher education by saying that developing and transition countries were at risk of being further marginalized in a highly competitive world economy because their systems of tertiary education were not adequately prepared to capitalize on the creation and use of knowledge. This is true in the sense that higher education is regarded as the main incubator of knowledge generation. While teaching incubates knowledge in the minds of people, research is the main incubator of knowledge generation. In addition to higher education and research, the paper indicated that ICT is another important pillar for the construction of knowledge societies because of its role in knowledge dissemination, diffusion and exchange. UNESCO Chairs and Networks were described by the paper as an innovative modality that facilitates the exchange and transfer of knowledge, information and technology and were therefore instrumental in the construction of knowledge societies.

The private sector is also one of the important pillars in the development of ICT capacities, particularly in developing countries. However, the paper estimated that their role is still marginal and needs further reinforcement.

Against this background, the paper identified and analyzed six main barriers to the construction of knowledge societies and considered them as the main challenges facing both developing countries and UNESCO in their quest to construct global and equitable knowledge societies. These barriers range from the knowledge and digital gaps, low quality of higher education and research, limited utilization of ICTs, brain drain, language barriers to the absence of enabling policy frameworks conducive to the construction of knowledge societies.

Within its role in the implementation of the Declaration and Action Plans adopted by the two World Summits on the Information Society and as a response to the previously stated and analyzed challenges, UNESCO has geared its programmes and activities to eliminate existing gaps and barriers for the construction of knowledge societies. This is being achieved through education, science, culture and communication.

The final part of the paper provides a number of concrete, action-oriented recommendations. They include: the need for global campaigns and partnerships, including the private sector, to face the prevailing challenges; the need to reinforce the UNITWIN/UNESCO Chairs Programme and reorient its activities towards the achievement of knowledge societies; and the need to adopt new approaches for broadening access to education, information and knowledge.

THE ROLE OF UNESCO CHAIRS: REGIONAL PERSPECTIVES

Six papers were prepared for the round table on the role of UNESCO Chairs in the Construction of Knowledge Societies in various regions of the world, i.e. Africa, Arab States, Asia and the Pacific, Eastern and Western Europe and Latin America and the Caribbean. They were prepared by UNESCO Chairholders in the field of ICT or open and distance education.

Ruth Teer-Tomaselli (South Africa), presenting the African perspective, highlighted the support given by the South African Government to the national policy for the promotion of information and communication technology. Although this was true for various sectors such as secondary education, such support was still marginal for higher education. In spite of this, the Chair had taken a number of initiatives, at national and regional levels, to discuss issues relevant to media, information and communication technologies. This was to be considered as one of the

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important roles played by the UNESCO Chair in the construction of knowledge societies through achieving broader access to information and communication.

Jamal Eddine Naji (Morocco), presenting the Arab region perspective linked the underdevelopment of higher education and research in the Arab region to lack of funding. He further maintained that UNESCO Chairs, to be more effective, would require legitimacy, visibility and credibility. He also underlined the importance of networking chairs through an electronic forum.

Ms Anna Haebich (Australia) indicated the vast disparities between countries in the Asia Pacific region in terms of the level of ICT infrastructure, access and uses both in academic applications or other areas of human activities. These disparities were also found in demography, culture, languages and economics. She further maintained that universities faced major challenges in e-learning and e-research, particularly in relation to sustaining cultural and linguistic diversity, traditional knowledge and cultural heritage. In contributing to the construction of information and knowledge societies, the Chair had implemented various activities such as the creation of content for websites, research data bases, collaborative exhibitions and performances that involved a rich diversity of people through the new media.

Mr Yuly I. Kashinsky (Belarus), providing the perspective of the Eastern European region, considered that the knowledge gap was created by the unequal capabilities of different nations and regions to generate, share and exchange knowledge and that the UNESCO/ICT Chairs were making their contribution to bridging the knowledge gap. However, he signaled a number of issues relevant to the proper functioning of the Chairs, important among them being a lack of the necessary financial resources to implement activities relevant to the construction of information and knowledge societies. The need for closer cooperation between UNESCO/ICT Chairs and State bodies concerning the introduction of information technologies in education was also stressed.

Mr Rainer Kuhlen (Germany) indicated the prevalence of some alarming tendencies/deficits in higher education with respect to information and communication competence. Important among these are the googlerization of higher education and the commercialization of knowledge and information. While the first makes students rely totally on the Internet and search engines, the latter has had a negative effect on access to information and the availability of knowledge in a broader sense. In his opinion, intellectual property and copyright are no longer seen as a means of protection for artists and creators, but as means of exploitation by the owners of the means of dissemination. The need for training in information ethics has become one of the important aspects of the UNESCO Chair in Germany. However, the main challenge

for this Chair and others is to strengthen information and communication competence. This is important for the construction of knowledge society.

Mrs Lourdes Feria Basurto (Mexico), presenting the Latin American perspective said that in spite of the fact that higher education in Latin America had suffered from some shortcoming over the past decade, the UNESCO Chair in Mexico had contributed to the development of the ICT infrastructure through the development of data storage, retrieval and dissemination systems. She pointed to the current efforts to network institutions of higher education in various areas of common interest.

The foregoing reviews of the regional presentations clearly show that, despite diverse challenges linked to differences in socio-cultural and education contexts, the UNESCO Chairs are and should be utilized as an effective modality for knowledge dissemination, diffusion and exchange. They ought to assume a greater role and responsibilities in terms of national capacity-building in the fields of knowledge, information and communication.

THE ROLE OF UNESCO NETWORKS: AN INTERNATIONAL PERSPECTIVE

The international perspective, represented by the ORBICOM Network of UNESCO Chairs in information and communication, was presented by its **President, Mr Alain Modoux**, and its **Secretary-General, Mr Claude-Yves Charron**.

The ORBICOM Network, linking 26 UNESCO Chairs in communication and 250 associate members in 73 countries, is perhaps the largest international network developed within the UNITWIN/UNESCO Chairs Programme. It represents a response to the new challenges of globalization and convergence in the field of communication. It can be seen as a bridge to fill the gaps between the info-rich and info-poor societies. Furthermore, it is dedicated to modern communication and capacity-building through the transfer of knowledge and technology. The role of ORBICOM in knowledge generation is evident in the numerous publications and scientific papers produced over the years. Important among these is the methodological model entitled "monitoring the digital divide", in addition to others such as "the paradox of knowledge" and "from digital divide to digital opportunities, measuring info states for development", which were produced for the Tunis phase of WSIS. The role of the network in knowledge dissemination and exchange is being fulfilled through electronic forums for information flow and exchange and through conferences and capacity building seminars, meetings and workshops. All these activities are geared to the implementation of UNESCO programmes in communication, harnessing ICTs in higher education and contribute to the bridging of the knowledge gap.

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In spite of the efficiency of the network and its enormous contributions to the development of communication and information and international cooperation in higher education and ICTs, lack of financial resources constitute the major challenge for the network. Many important activities, particularly those relevant to developing countries, could not be implemented because of lack of funding. A number of proposals to address the challenges of funding have been suggested by the network.

The networking of Chairs in UNESCO's different fields of competence in various regions of the world, as performed by the ORBICOM network, is perhaps the most efficient modality for knowledge exchange, dissemination and diffusion across the globe.

CONCLUSION

This publication is an attempt by UNESCO to increase stakeholder awareness of the issues and challenges facing the world in the construction of global and equitable knowledge societies. The round table has undoubtedly constituted a valuable forum for highlighting the issues involved at the regional and international levels, for the exchange of experiences and ideas and for developing consensus among participants on ways and means of confronting the challenges, impediments and barriers to the construction of knowledge societies.

It is hoped that this publication will be a useful addition to the existing literature on issues relevant to the construction of knowledge societies. It is also hoped that it will provide useful ideas and concepts for the future reorientation of the UNITWIN/UNESCO Chairs Programme, together with some guiding principles for the promotion of knowledge societies worldwide.

Editors:

Georges Haddad
Director
Division of Higher Education

Hassmik Tortian
Programme Specialist
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Speeches by:

- **Mr Koïchiro Matsuura, Director-General**
- **Mr Peter Smith, Assistant Director-General
for Education**
- **Mr Georges Haddad, Director, Division of
Higher Education**

Speech by

Mr Koïchiro Matsuura, Director-General

Ladies and Gentlemen,

It gives me great pleasure to open this Round Table on the “Role of UNESCO in the Construction of Knowledge Societies through the UNITWIN/UNESCO Chairs Programme”. I thank all of you for being with us here this morning.

I wish also to express my sincere gratitude to the Government of Tunisia for hosting the World Summit, within whose framework this Round Table is being held.

We are meeting here today to address together one of the central challenges facing the nations of the world, namely, the building of knowledge societies. The context within which this is taking place is shaped by rapidly accelerating globalization and the emergence of knowledge-based economies. These are not uniform processes, however, especially when we compare the situations of advanced industrial societies and developing countries. The latter can no longer expect to base their long-term development on traditional competitive advantages of cheap labour and abundant raw materials. Increasingly, what counts is the acquisition and application of knowledge. Unfortunately, developing countries are facing digital and knowledge gaps that threaten to leave them far behind.

For UNESCO, the challenge of building knowledge societies is about how these gaps may be bridged in ways that overcome exclusion and inequity and, at the same time, respect the distinctive character of different societies. Furthermore, the growing centrality of knowledge as the key factor in socio-economic development is recognized by UNESCO as having important implications for education, especially higher education, research and ICT.

This is why we have organized this Round Table, with its specific focus on the UNITWIN/UNESCO Chairs Programme that has been running since 1992. This Programme is one of the main modalities through which the Organization is seeking to achieve education, information and knowledge for all. Naturally, the UNESCO Chairs and Networks devoted to ICT, distance education and e-learning have particular importance within our overall approach towards the building of knowledge societies.

The UNITWIN/UNESCO Chairs Programme embodies the spirit of intellectual solidarity and, at the same time, provides practical mechanisms for connecting institutions of higher education and research in networks of innovation, knowledge sharing and capacity development. By linking researchers, academics and institutions, especially in mutually beneficial networks of North/South and South/South interaction, the Programme furnishes a model for bridging the digital and knowledge gaps. In addition, it provides a basis of rich experience that is invaluable for reflecting on lessons learnt and for sharing good practices.

The complexity of the tasks facing us in the construction of knowledge societies goes far beyond the capacities of individual countries, particularly developing countries and countries in transition. This situation requires multi-stakeholder partnerships that involve Governments, universities, research institutions, NGOs, the private sector, and regional and international organizations. As recommended by the 2005 UNESCO World Report: Building Knowledge Societies, we need to develop what it calls "collaboratories" through which knowledge, especially scientific and technological knowledge, may be shared. I believe that UNITWIN arrangements and UNESCO Chairs show some of the ways in which this can be done. While considering this Programme in the Round Table, wider issues concerning the role of higher education in building knowledge societies will also be addressed.

I hope that this event provides a good opportunity for shared reflection and that the ideas and experiences discussed today can find their way into practical forms of action. I also hope that the UNITWIN/UNESCO Chairs Programme itself will receive useful feedback as well as fresh ideas to explore in the future.

Let me close by once again thanking you for participating in this Round Table. The task of building equitable, pluralistic and inclusive knowledge societies is an ethical as well as a practical challenge.

In this perspective, I wish you every success in your deliberations.

Thank you.

Speech by

Mr Peter Smith, Assistant Director-General for Education

Ladies and Gentlemen,

Allow me first of all to welcome you and express our thanks to all of you for accepting to be with us today and participate in this round table on "The role of UNESCO in the Construction of Knowledge Society through UNITWIN/UNESCO Chairs Programme".

There is no doubt that convening this round table within the framework of the World Summit on Information Society carries a great significance, particularly for UNESCO which endeavors to achieve a transition from information to knowledge society and overcoming the knowledge and digital divides as prerequisites for the construction of Global and equitable knowledge society.

UNESCO believes in promoting the concept of knowledge societies rather than that of global information society since enhancing information alone is not sufficient to grasp the opportunities for development that is offered by knowledge.

We know, Ladies and Gentlemen, that this noble task is formidable and so are the challenges to achieve it. We do have a moral and professional responsibility to bridge the knowledge gap and overcome the knowledge deficit which, according to UNDP, is one of the main causes for the lower ranking of many developing countries on the human development index (HDI).

Ladies and Gentlemen,

In a knowledge society, there is not only an efficient system of knowledge generation, transfer and dissemination but also a great likelihood that such knowledge will be used effectively for development, empowerment and reducing inequality and poverty.

The ability of a nation in achieving sustainable development is contingent on its ability to develop its national capacities in knowledge production, diffusion and utilization. This is true in the emerging global knowledge-based economy in which the most critical source of wealth creation is knowledge, not only physical inputs, natural and human resources.

Although knowledge has become universal, thanks to ICT which breaks all barriers, the Universality of knowledge has been impeded by various internal and external barriers, which constitute the main challenges for the construction of knowledge societies. Underdeveloped higher education and research and under utilization of ICT are among the most crucial barriers impeding the Universality of knowledge.

As you know, Ladies and Gentlemen, the World is not only divided into the haves and have-nots in terms of wealth but also in terms of knowledge which is not fairly divided and accessible. Some of the barriers I mentioned above are the main causes for this division. It is, therefore, incumbent on all of us to eliminate and overcome all the barriers and impediments for the construction of knowledge society. UNESCO throughout all its Programmes, particularly Education, has placed all these aspects high on its priorities.

Ladies and Gentlemen,

You are gathered here to discuss “The Role of UNESCO in the Construction of Knowledge societies through UNITWIN/UNESCO Chairs Programme” which has been launched by UNESCO as an innovative modality for the development of higher education and research, knowledge transfer and exchange. The role played by this Programme in strengthening international cooperation and partnerships is very important and instrumental. Most important is the distinctive role played by Chairs and Networks in the fields of ICTs, distance education, and e-learning in strengthening national capacities in higher education and ICTs which we consider as important pillars for the construction of knowledge society.

Although in the Education Sector we believe that higher education and research are important incubators of knowledge and we strive hard to improve quality and equity, we also give great importance to ICTs which has become one of the most important cross-cutting themes in all UNESCO programmes. It is through ICTs that we can achieve broader and equitable access to education and knowledge. Our aim is to achieve education and knowledge for all. However, in order for us to achieve this noble task we need to develop and strengthen partnerships with Governments, institutions, NGOs, IGOs and the private sector. In order for our quest for global and equitable knowledge society to be successful we must join hands to achieve this goal.

I am glad to see that among the many important themes you will address in this round table, you will devote some time to discuss the possible contributions that UNESCO Chairs and Network could provide in the implementation of the declaration and Plan of Action to be adopted by the World Summit on Information Society. Your suggestions and recommendations will be very important for us in re-orienting the future programmes and activities of the Chairs and Networks in a way compatible with the orientations of the Summit and our quest to construct the global and equitable knowledge societies.

While we are looking forward to the outcomes, proposals, and recommendations to be adopted by this round table, I wish you all the best in your deliberations.

Thank you for your attention.

Speech by

Mr Georges Haddad, Director, Division of Higher Education

The history of humanity, particularly in the realms of learning and knowledge, is not a linear or continuous process. On the contrary, our history proceeds by way of discontinuities that mathematicians term “singularities”. Each singularity represents a major break with the past, giving new impetus to what in everyday language is called “progress”.

No sphere of activity escapes this rule particularly that of information and communication on which knowledge societies are built.

From the emergence of language through the earliest forms of writing up to present-day communication media, the evolution of humanity has been marked by these singularities, which have successively enabled the human mind to move beyond these key thresholds in the direction of what we call modernity.

We do not have time to mention all the technological advances forming a series of beacons along the path pioneered by intelligence and creativity.

I shall confine myself to mentioning one or two such as: printing, telegraphy, radio and television, not forgetting the machine invented by that tormented mathematical genius Alan Turing, which enabled John Von Neumann – another tormented genius – to conceive the computer.

Today new forms of technological progress enable us, via satellites, optical fibres and laser beams, to expand our communication and information capacities continuously. It should be noted in passing that these major advances very often have their origin in university laboratories and research centres, where the creativity of genius and talent can express itself freely.

These examples of progress and others to come have enabled and will enable human beings to advance in their infinite quest for knowledge.

Each advance opens up new avenues, which confront our intelligence with great challenges that have to be met if we are not to put an end to our collective history.

At the same time, and this has to be recognized, all these developments have too often given rise to divisions within society. Ever wider and deeper gaps are opening up between those enjoying the use and command of these technologies and those who are partially or wholly excluded in this domain.

UNESCO, in pursuit of its mission in the service of Education, Science and Culture, is working tirelessly to enable the most vulnerable communities to participate in and contribute to the adventure of the

human mind and to benefit from the progress of knowledge while safeguarding in all circumstances traditional knowledge and cultural inheritances.

The UNESCO Chairs and UNITWIN programme, on which we are focusing at this round table, constitute a striking symbol of the Organization's action for the production, transfer and equitable sharing of knowledge and technology in a spirit of cooperation and international solidarity, the foundation of a modern humanism in the service of globalization with a human face.

Role of Higher Education in the Construction of knowledge societies

- **The Role of Higher Education in the Construction of Knowledge Societies: “Challenges for UNESCO”**

Abdalla Bibtana

The Role of Higher Education in the Construction of Knowledge Societies: “Challenges for UNESCO”

By *Abdalla Bibtana*

INTRODUCTION

Knowledge has been recognized as a main driving force for socio-economic development. Education in general and higher education in particular play an important role in the generation, dissemination and application of knowledge for building technical, and professional capacity, and for raising the income of nations. Therefore, they also play an instrumental role in the construction of knowledge societies. This has been confirmed by UNESCO, the World Bank, UNDP and numerous international and regional organizations.

UNESCO is one of the organizations giving high priority to the construction of information and knowledge societies, and to bridging the knowledge and digital gap that exists between developed and developing countries. According to Mr Koïchiro Matsuura, the Director-General of UNESCO, ‘if the world community’s special concern is to overcome the digital divide in order to build knowledge societies, then this is precisely what UNESCO is all about’. He added that ‘one of our core missions is to promote the free exchange of ideas and knowledge; to maintain, increase and disseminate knowledge through education, the sciences, culture and communication’¹.

One of the most important objectives of UNITWIN/UNESCO Chairs Programme, launched by UNESCO in 1991, is to assist in the creation of Centres of Excellence and to serve as an effective modality for the generation, exchange and transfer of knowledge. These aspects are instrumental for the construction of knowledge societies. ICT Chairs and Networks have certain responsibilities in this domain, particularly through their functions of teaching, training and research, and their contributions to strengthening national capacities in the production, dissemination and utilization of knowledge. The knowledge gap is widening between developing and developed countries. This issue constitutes one of the main challenges facing higher education, particularly in developing countries. The World Bank, in recognizing the role of higher education, has explicitly indicated that developing and transition countries are at

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risk of being further marginalized in a highly competitive world economy, because their tertiary education systems are not adequately prepared to capitalize on the creation and use of knowledge (World Bank, 2002).

Since the World Conference on Higher Education in 1998, the role of higher education as a key factor and a major driving force for sustainable development in knowledge-intensive and information societies has continued to grow' (Meeting of Higher Education ..., 2004, p. 6). However, while this remains true for developed countries, for developing countries systems continue to face major challenges in their ability to contribute to development, particularly as they are lagging behind in their abilities in knowledge generation, dissemination and utilization. This is the main cause for the existing information and knowledge gap.

Construction of knowledge societies and the bridging of knowledge and development gaps require urgent global and comprehensive campaigns, involving all stakeholders. The speed with which developed countries are investing in knowledge, in view of its importance as a factor for development, as compared with the slowness and inability of developing countries in adopting this strategy, constitutes the main reason for the existing and growing gaps between these two groups of countries.

1. THE CONCEPT OF THE KNOWLEDGE SOCIETY

A knowledge-based society is the one where knowledge production, diffusion and application become the organizing principle in all aspects of human activities. Knowledge economy does not mean knowledge society since the latter is broader than the commercialization of knowledge. It is, more fundamentally, about what knowledge can contribute to social and economic changes and transformations that lead to the construction of knowledge-based societies. It is a society where knowledge is made accessible to a broad segment of the society, which in turn should be able to assimilate and use it. Education is important for preparing knowledgeable citizens and providing them with the necessary skills and know-how to use knowledge in daily life. Creating the knowledge society means empowering citizens.

The 'Knownet initiative' describes the factors that distinguish a knowledge society from what it labels as 'perfect knowledge society'. In the latter, all people have:

- Open and timely access to information and knowledge
- The capacity to absorb and interpret information
- Avenues and opportunities to use knowledge for informed decision making and for transformation to high quality of life²

UNESCO has identified the following four principles as essential for the development of equitable knowledge societies:

- Cultural diversity
- Equal access to education
- Universal access to information
- Freedom of expression³

All these principles and factors converge on the fact that a knowledge society is characterized by its ability to broaden access to knowledge, information and education, while respecting the cultural context and diversity, and its ability to use all these, within certain guarantees of freedom of expression and interpretation, for the development and welfare of society.

In a knowledge society, there is not only an efficient transfer of knowledge but also a greater likelihood that such knowledge will be used effectively for empowerment and reducing inequality and poverty (Nath, 2000).

2. THE EMERGENCE OF KNOWLEDGE AS A UNIVERSAL CONCEPT

The information revolution and the predominance of information and communication technologies in almost all human activities has become an important fuel for knowledge sharing, dissemination and exchange on a global scale. Knowledge has become widely accessible and, therefore, universal. Information and communication technologies (ICTs) break all natural, social, cultural and hierarchical barriers to knowledge-sharing in an unprecedented manner.

Calls for achieving information for all and knowledge for all have been sounded by many, particularly in developing countries which argue that not only wealth but also information and knowledge are not evenly distributed.

The universality of knowledge has been hampered by internal and external factors that constitute the main barriers for knowledge acquisition, exchange and utilization, particularly for developing countries.

While external factors can be attributed to sensitivity, secrecy, censorship, and intellectual property and copyright rules, the internal excluding factors are to be found within the society itself. These factors are referred to in this document as main barriers to construction of knowledge societies. A separate part of this document is devoted to in-depth analysis of these barriers and impediments.

3. DEVELOPMENT FROM A KNOWLEDGE PERSPECTIVE

In the emerging global environment, knowledge has become the main driving force in development. The ability of nations to achieve leaps forward in terms of social and economic development depends on their abilities to develop their national capacities in knowledge production, diffusion and utilization. Disparities between developed and developing countries can be easily attributed, among other factors, to the knowledge and information gap which is widening day by day.

Education and economic growth are complementary, and investment in the former is likely to result in the latter. This causal link might be truer still of the emerging knowledge-based economy, in which the most critical source of wealth creation is knowledge, not physical inputs or natural resources.

Harnessing the potential of knowledge rather than material production is becoming the differentiating factor that separates the developing from the developed countries (Nath, 2000).

It is in this context that developing countries can no longer expect to base their development on their competitive labour and material advantages. The competitive advantage that now counts is the application of knowledge.

Throughout history there have been transitions from labour-intensive to technology-intensive economies and most recently the knowledge-intensive economy has become dominant in the newly emerged global environment. The case of India which has achieved great strides in knowledge utilization and development of ICT capabilities can be cited here as an example.

This situation has led to major changes in the link between development and the imperatives and factors that determine its trends and efficiency.

UNDP in its *Arab Human Development Report 2002* attributes the low ranking of most of the Arab States on the human development indicator (HDI) scale to a number of deficits, the most important among them being the knowledge deficit. The same deficit exists in the Africa region.

There is no doubt that sustainable development cannot be totally achieved without the dominance of a knowledge-based economy. The knowledge-based economy has been characterized by the World Bank as an economy that 'relies primarily on the use of ideas rather than the physical abilities and on the application of technology rather than on the transformation of raw materials or exploitation of cheap labour, economy that makes effective use of knowledge for its economic and social development including tapping global knowledge' (*Constructing Knowledge Societies...*, 2002).

However, it should be understood that knowledge is not only the main fuel of economic development, although important; the social, cultural, political and ethical dimensions of knowledge are also important within the concept of comprehensive sustainable development. That is why there have been calls for new definitions and theories to explain the knowledge society from an interdisciplinary perspective.

4. PILLARS FOR CONSTRUCTING KNOWLEDGE SOCIETIES

Certainly, there are a number of pillars for the construction of knowledge societies, such as higher education, research, ICTs, the media, printed matter, etc. However, higher education and the harnessing of ICTs in education and all human activities constitute the most crucial pillars in this domain.

The meaning of knowledge has been defined and interpreted in different ways; however, from the discussion of the knowledge gap we can deduce that education, research and development, and ICT infrastructures are seen as the crucial variables in the generation, diffusion and application of knowledge.

4.1 Higher education as an incubator of knowledge

Education in general and higher education in particular played a significant role in the transition from industrial to information and service societies; they bear a greater responsibility in the needed transition from information to knowledge societies. In spite of disparities among countries in the world in terms of their abilities to achieve success in the construction of information societies, the need to

speed up the transition to knowledge societies has become an inescapable task. What is needed, particularly in developing countries, is the adoption of a double-track strategy for information and knowledge production, diffusion and utilization. This constitutes one of the main challenges for higher education in the twenty-first century.

Today higher education institutions are facing tremendous challenges because of the new requirements imposed by the emerging knowledge-based economy that lead to changes in education and training needs, such as the growing importance of continuing education and lifelong learning. A highly skilled, professional labour force has become one of the most important competitive advantages for any country in the globalized environment.

Higher education, through its teaching, research and service functions, is definitely the main incubator of knowledge. While teaching incubates knowledge in the minds of people, research is the main incubator for knowledge generation and production, and service is the function through which higher education assists society at large in the application and utilization of knowledge.

The questions which can be raised concerning the response of higher education to the changing imperatives of the global environment, on one hand, and the construction of knowledge society, on the other, include: What kind of education? For whom? These questions are closely linked to the issues of quality and equity.

While the quality of higher education is instrumental in the development of human capital, with competitive advantage in the global economy, equity and broader access constitute another important factor in the construction of equitable knowledge societies. The issue of quality will be discussed below.

One of the main principles in the construction of knowledge societies is equal access to education, information and knowledge. Furthermore, one of the main responsibilities of higher education is to prepare knowledgeable and informed citizens. It is therefore, incumbent on this system to achieve broader access and equal opportunities for all citizens within a framework of lifelong education and training.

Achieving universal access to higher education is not only a challenge for developing but also for developed countries, although with less intensity. By 2003, current estimates indicated that 'the historic threshold of 100 million students worldwide has been crossed and the prospect of reaching the figure of 125 million students will be attained before 2020. The five largest national systems of higher education (China, United States, India, Russian Federation and Japan) amount together to 53.1 million students which is more than half the total number of students in the world' (Meeting of Higher Education... , 2004, p. 9). While in North America the number of higher education students per 100,000 exceeded 6,000 and the average in developed countries stands at about 3,000, few developing countries have reached this range while the majority have much less than this. In sub-Saharan Africa there are only 100 students per 100,000 inhabitants. The higher education enrolment rates were 81 per cent for the United States in 1995, while at that time the average for developing countries was 9 per cent, with wide differences among them. Gender and rural/urban disparities also exist in the majority of developing countries and this situation is not conducive to the construction of knowledge societies (Meeting of the Higher Education... , 2004).

It has become evident that the traditional approaches to achieving broader and universal access to higher and lifelong education have fallen short of achieving the objective, and that new and innovative approaches have to be adopted.

The issue of access is not only limited to the relevant higher education age-group, but extends beyond this to the provision of continuous and lifelong education and training, important for upgrading the skills of the labour force and for keeping abreast of newly produced knowledge and innovations.

According to the World Declaration on Higher Education for the Twenty-first Century: Vision and Action, adopted by the World Conference on Higher Education (October, 1998), the central task of higher education is to 'provide opportunities for higher learning and for learning throughout life, giving to learners an optimal range of choice and a flexibility of entry and exit points within the system, as well as an opportunity for individual development and social mobility in order to educate for citizenship and for active participation in society' (Art. 1 (b)).

While many universities in developing countries have developed lifelong learning, the situation in most developing countries in this domain is not at all satisfactory and most institutions are at present crowded and unable to cope with increasing social demand coupled with shrinking financial resources.

Most institutions in developed countries have invested in ICTs in providing flexible alternatives such as open, distance and virtual universities, utilize e-learning techniques, etc to broaden access and provide lifelong opportunities. Some efforts have been made in a number of developing countries, but they remain marginal and not satisfactory.

If higher education is the main incubator of knowledge, then the successful construction of knowledge societies is contingent on the provision of quality higher education to greater segments of the society. However, it is not only access which counts but also the quality and relevance of the system. The dynamic nature of knowledge necessitates the continuous updating of curriculum content and lifelong exposure of citizens to education, knowledge and information.

In this context, and considering that universities are the dominant institutions of higher education vis-à-vis knowledge, science and technology, and innovations, the taskforce on the United Nations Millennium project, in its report on Innovation: applying knowledge in development, has affirmed that 'reshaping universities to contribute to development will require adjustments in curricula, changes in the schemes of services, modification in pedagogy, shifts in the location of universities, and the creation of a wider institutional ecology that includes other parts of the development process. These changes are likely to have an impact on the entire national innovation system, including R&D institutes and government organizations' (*UN Millennium Project...*, 2005).

4.2 ICTs as the main modality for knowledge diffusion, sharing and exchange

Recently there have been calls and campaigns promoting concepts such as education for all, information for all and knowledge for all. There have been also national, regional and international efforts to convert these concepts from mere rhetoric to action in spite of technical, financial and political constraints.

In many countries, achieving these almost Utopian objectives is mainly hampered by adopting traditional strategies and approaches.

The unprecedented advances in ICTs have been invested in achieving these objectives in developed countries; however, in developing countries the efforts remain marginal. This has had negative impact on the construction of knowledge societies on the one hand, and widening the information and knowledge gap on the other.

ICTs have become the main modality for broader access to education, information and knowledge; however, its harnessing in education and all human activities is a pre-requisite for achieving such an objective.

The gap between developed and developing countries in the use of ICTs is evident, particularly when it is related to the use of Internet as the main modality for access to information and knowledge. A recent World Bank publication indicated that developing countries, which account for 80.4 per cent of the world's population, have only 5.9 per cent of the World's Internet hosts. For developed countries, with 19 per cent of the world's population, the percentage of Internet hosts amounts to 94.1 per cent with the United States and Canada accounting for 65.3 per cent of the total Internet hosts (*Constructing Knowledge Societies...*, 2004). This disparity explains the knowledge and information gap on the one hand and the level of development on the other. Countries that have achieved greater rates and levels of development have invested heavily in the development and use of their ICTs infrastructures. Many developing countries are lagging behind, with the exception of few such as: Brazil, India, and South Africa, due to the inability to mobilize resources to invest in ICT tools and infrastructures.

In spite of the decline in the cost of acquiring ICTs capabilities, developing countries either consider the cost still high or ICTs remains a low priority on their agendas. However, no matter how high the cost of acquiring ICT capabilities, the cost of not having them may prove to be more costly. The delay in harnessing ICTs in developing countries, while developed countries accelerate their investments in this domain, will eventually lead to greater disparities in development levels and greater widening in the knowledge and information gaps.

4.3 The distinctive role of UNESCO ICT Chairs and Networks

The sharing, exchange and transfer of knowledge is one of the objectives pursued by UNESCO through its UNITWIN/UNESCO Chairs Programme, launched in 1991 as an innovative modality for the transfer of knowledge and international cooperation in higher education. The Programme places particular emphasis on developing strategies and mechanisms for the rapid and efficient transfer of knowledge and its application to the specific needs and conditions of developing countries and their higher education systems. One of its basic goals is to alleviate the brain drain from the developing countries.

It is in this context and responding to high priorities and needs of countries to develop their ICT capacities, UNESCO has created over fifty UNESCO Chairs and networks relevant to information, communication and technology under this Programme. Inter-university networks such as the International Network of UNESCO Chairs in Communication (ORBICOM) have also been established within the framework of the Programme.

The programmes and activities approved by UNESCO for establishing these Chairs entail involvement in teaching and training high-level professionals in ICT, conducting research activities to enhance knowledge about ICTs, assisting in harnessing ICTs to education and other human activities, particularly the development of distance and virtual learning institutions, and providing assistance to society in general in the use and application of ICTs in various social, economical and cultural domains. Within the framework of their service function, these Chairs are intended to assist countries in developing national policies and strategies to achieve broader access to knowledge, education and information through ICTs.

The more than fifty UNESCO Chairs and inter-university networks in the fields of information, communication, distance and e-learning are all geared to developing national capacities in these areas that are relevant to constructing knowledge societies. Although many of these projects had been approved for Europe and North America, a number of them are found in Africa, Asia, Latin America and the Arab Regions. UNESCO Chairs in communication and information are distributed as follows: Africa, 2; Arab States, 5; Asia and the Pacific, 7, East and Central Europe, 11; Latin America and the Caribbean, 9; and Western Europe and North America, 8.

From this, it is clear that efforts to develop ICT Chairs in almost all regions with the exception of Europe and North America remain marginal compared to their importance in constructing knowledge societies. The following are examples of established Chairs in different regions:

- The UNESCO Chair in Communication and Information Technologies Education, Eötvös Loránd University, Hungary.
- The UNESCO Chair in Information Science and Information Technology Applications, University of the Philippines System, Philippines.
- The UNESCO Chair in Communication Technology and Journalism for Women, Dubai Women's College, United Arab Emirates.
- The UNESCO Chair in Communication for Development, Facultad de Ciencias Sociales y de Comunicación, Universidad Católica del Uruguay, Uruguay.
- The UNESCO Chair in Communication, Université Nationale de la Côte d'Ivoire, Côte d'Ivoire.

Some powerful interregional and international networks have been established in the fields of communication, information and distance education, including:

- ORBICOM linking a number of UNESCO Chairs in the field of communication from all regions of the world.
- The UNITWIN Network in Distance and Open Learning, hosted by the Shanghai TV University, and linking Universities from China and the Democratic People's Republic of Korea.
- The Asia-Pacific Distance and Multimedia Education Network (APDEM), hosted by Waseda University in Japan, and linking a number of Asian universities in various countries i.e. Australia, China, Indonesia, Japan, Philippines, the Republic of Korea, Thailand, and Viet Nam.

There is no doubt that the UNESCO Chairs and Networks in communication, information and distance higher education constitute an important and innovative modality for capacity-building, knowledge transfer and exchange, and international cooperation in these fields which are relevant to bridging gaps and constructing knowledge societies. However, the efforts by Member States and institutions in this domain remain marginal and insignificant. The involvement of the private sector in sponsoring

chairs and networks in these fields is almost non-existent. A more orchestrated campaign, coordinated by UNESCO, to mobilize private-sector support for UNESCO Chairs and Networks is badly needed to expand this Programme and increase its geographical coverage, particularly for the benefit of developing countries.

4.4 The responsibility of the private sector

During the past few decades, universities have lost their monopoly over the generation and production of knowledge. Since knowledge has become a commercialized commodity, the private sector has become heavily involved in research and private research centres outside academic circles have flourished, taking on a major share in knowledge production and generation.

This situation has forced institutions of higher education to seek alliances and partnerships with industry and the private sector. With the decline of public funding for higher education and research, the share of the private sector has drastically increased. In developed countries, research contracts from the private sector constitute the bulk of research funding for institutions of higher education.

However, in many developing countries, where the private sector is underdeveloped, the financing through research contracts received by institutions of higher education remains negligible, a situation which explains the underdevelopment of research programmes and infrastructures.

The shrinking of public funding to higher education, both in developed and developing countries, has triggered calls for all stakeholders, including the private sector, to assume certain responsibilities in the provision of higher education services. As a result, during the past few decades, private higher education has flourished and this trend will increase with the application of the General Agreement on Trade in Services (GATS) which will liberate trade in services and higher education.

Although the issue of the financial crisis facing higher education worldwide is not the main interest of this document, higher education partnership with the private sector vis-à-vis the construction of knowledge societies is one of the main issues being raised. The private sector's involvement in the development of for-profit providers and research centres, although important, falls short of the aspiration of public institutions that seek direct funding from the private sector. Private investment in education worldwide increased from 13 per cent in 1996 to 18 per cent in the year 2000. In spite of the increase, this investment remains far below expectations⁴.

It is now evident that public institutions, which depend on state funding, are not able to improve the quality of education and research, adopt innovative methods of teaching such as e-learning or harness ICTs in education, all of which are important for knowledge generation and dissemination.

Bridging the knowledge and the digital gap requires major investments in ICTs, beyond the capacity of developing countries. A number of international organizations such as UNESCO, the World Bank, as well as the European Union and the UNDP have been providing support to developing countries to strengthen their capacities in ICTs. In addition to this, developed countries such as Japan, the Republic of Korea and the Nordic countries have provided bilateral support in this domain. However, all these initiatives remained below expectations and calls for ICT-producing firms to provide assistance in this

domain have been made by developing countries. In response to these calls, a number of private companies launched projects during the past few years. A good example is the initiative launched by Bill Gates of Microsoft to popularize access to computers and Internet in Egypt. Microsoft provided financial and material support for the project. Other companies such as IBM have launched some initiatives and provided support to a number of developing countries.

In addition to corporate contributions to the development of ICTs infrastructures, Microsoft, Novell, Motorola, Oracle, Cisco and others, along with global information technology (IT) training organizations, fill an important parallel 'space' in higher education, offering certificates, both on-line and face-to-face, and operating outside the traditional higher education system of credentials and accreditation. In the year 2000, global IT companies alone delivered courses to 1.6 million students worldwide who earned 2.4 million certificates in information technologies. Cisco alone offers certificate training in nineteen languages (Perkinson, 2003).

In its quest to strengthen university/industry relations, UNESCO has encouraged the establishment of joint UNESCO Chairs and Networks, such as the UNITWIN/UNISPAR Programme in Asian Environment with participation of universities in Japan, Australia, Thailand and Indonesia. Another example is the UNESCO Chair in University-Industry partnership at the China National Institute of Educational Research.

All these initiatives are very important and need to be strengthened and reinforced. However, considering the magnitude of investments needed to bridge the knowledge and information gaps, these initiatives fall short of meeting expectations, particularly in developing countries.

5. BARRIERS TO EVOLUTION OF KNOWLEDGE SOCIETIES

In spite of the fact that knowledge has taken on a universal character and has been confirmed as the main fuel for development, certain barriers have impeded the construction of the inclusive and equitable knowledge societies, particularly in developing countries. The Declaration of Principles of the World Summit on the Information Society (WSIS) states that 'The sharing and strengthening of global knowledge for development can be enhanced by removing barriers to equitable access to information for economic, social, political, health, cultural, educational and scientific activities, and by facilitating access to public domain information, including by universal design and the use of assistive technologies' (World Summit... , 2003 *a*, para. 25).

However, in spite of the fact that access to information and acquiring the necessary capabilities in harnessing ICTs in all human activities are prerequisites for the construction of knowledge societies, other factors are also important and their deficit constitute barriers and impediments in this domain.

5.1 The information and knowledge gap

Neither information nor knowledge are equally distributed, a situation which created a gap between the haves and have-nots, between developing and developed countries. The latter produce and use almost 80 per cent of the knowledge wealth of the world, while almost 850 million people in developing countries are excluded from a wide range of information and knowledge. Although information

and knowledge have become widely universal and accessible, thanks to advances in ICTs, certain hindrances and barriers prevent developing countries from reaping their benefits. Limitations in access to the Internet, underdevelopment of information and communication infrastructures, and the absence of national policies and strategies constitute the main hindering factors in this domain.

The knowledge and information gap is evident, particularly when it is related to the use of Internet as a main modality for access to information and knowledge. As mentioned earlier, developing countries, with 80.4 per cent of the world population have only 5.9 per cent of the Internet hosts. This constitutes a major limitation to access to cyberspace, where knowledge and information are being diffused. However, this limitation is caused by various factors such as language diversity, low investment in ICTs infrastructures, etc (*Constructing Knowledge Societies...*, 2002).

According to the Declaration of Principles of the World Summit on the Information Society (Geneva, 2003), realizing that 'bridging the digital divide and ensuring harmonious, fair and equitable development for all – will require strong commitment by all stakeholders, will call for digital solidarity, both at national and international levels' (World Summit..., 2003 a, para.17).

5.2 Low quality of higher education

In the construction of knowledge societies, it is important not only to achieve broader access to higher education but equally to maintain high quality education and research. Knowledge is continuously renewed and renovated, and therefore the curricula and content of education must be continuously renewed and adapted to assimilate new knowledge. Outdated curricula do not help in preparing the highly technical and skilled cadres who possess updated knowledge and the competitive advantage needed for global labour markets and the prevailing knowledge economies.

Knowledge is a highly dynamic concept that is continuously changing due to the infusion of new knowledge in almost every field due to research and innovations. Even in developed countries, curriculum designers have difficulty in coping with such dynamism, and this constituted one of the main reasons to encourage e-learning where new knowledge is continuously infused into the Internet. In many developing countries, higher education curriculum content sometimes remains unchanged for ten or fifteen years, and the teaching is based on outdated curriculum.

Quality and relevance have often led to a mismatch between the outputs of higher education and socio-economic needs, particularly knowledge-intensive and globalized labour markets. This led to the appearance of two important phenomena: the increase in the number of unemployed graduates on the one hand, and low rates of competitive advantages of nations in the global environment on the other.

The final report of the Meeting of Higher Education Partners (WCHE + 5) clearly indicated that "At no time in human history was the welfare of nations so closely linked to the quality and outreach of their higher education systems and institutions' (Meeting of Higher Education..., 2004, Foreword). The increased globalization of economies, trade and services has turned higher education into a first necessity for all countries which wish to successfully face its challenges".

Quality must be coupled with relevance since there is no sense of having high quality education that is not relevant to the needs and problems of society or does not respond to developmental needs, particularly the changing requirements of the labour market. On the other hand, higher education institutions cannot contribute to knowledge generation and exchange unless they maintain high quality research programmes that take into consideration recent advances in research and provide the necessary financial, human and material resources needed to maintain high quality programmes.

There is not only a need to base curriculum content on newly produced and updated knowledge but also to adopt new and innovative methods and techniques of teaching and learning, and to upgrade the quality of the teaching staff. The utilization of ICT in these processes has been recognized as the most effective modality for improving quality education.

5.3 Underdevelopment of research infrastructures

There is no doubt that research is the main source of information and knowledge. Research institutes and centres, inside or outside the academic institutions, are therefore considered to be the main incubators for knowledge generation and production. 'Higher education institutions, particularly in the developed countries, face strong competition from research institutions outside the academic community which, in many fields, possess better equipment and more resources, higher education institutions and researchers themselves have to show their capacity to compete with other research organizations and adapt to new approaches to funding and to devise new organizational forms of cooperation in research. (*Policy Paper for Change...*, 1995, p. 80).

In many developing countries, most of the research undertaken on the national level is done by universities and academic institutions, with minor competition from outside institutes. In spite of this, their contribution to knowledge generation and production remains marginal due to a number of hindering factors. Important among these is low government research funding, an underdeveloped private sector, the brain drain and the lack of a critical mass of researchers and scientists. The underdevelopment of research infrastructures is caused by one or combination of all these factors.

Research infrastructures are not only important for knowledge generation and production; they serve as strategic foundation for the application of knowledge and technology to development. This has been highlighted by the UN Millennium Project Task Force report (2005) which clearly stated 'developing countries need to upgrade strategically important infrastructure in order to tap into the opportunities that may rise from rapid technological change and the increasingly integrated global economy'.

It is worth mentioning here that one of the main reasons for the brain drain is the underdevelopment of research infrastructures in developing countries, which causes what is called internal brain drain (inability of researchers and academicians in undertaking research), a situation that eventually leads to the external brain drain phenomenon.

5.4 Limited utilization of ICTs for knowledge diffusion, dissemination and exchange

The WCHE +5 report indicated that 'The impact of ICT on higher education has proved more rapid, more complex and more pervasive than envisaged at the WCHE five years ago. ICTs, accompanied by advances in the cognitive sciences and educational methods, are changing fast the institutional structures, modes of delivery, and more particularly, teaching/learning methods and practices. The research function of higher education sees itself considerably strengthened as well'.

According to the Director-General of UNESCO, if equitable, inclusive knowledge societies are ever to take proper root, we must harness the huge potential of ICTs to fight exclusion and to bring new digital opportunities for all.

The knowledge revolution brings with it new opportunities but has also infused new challenges. Developing countries are however at very different starting positions in using the existent ICTs infrastructure in the task of building innovative and distinctive knowledge societies. Often the forces in the wider sphere of influence and the existent policy frameworks are not in consonance with the overall development objectives to catalyse the transformation process.

In developed countries such as the United States, Canada and other OECD countries, national programmes for harnessing technology in almost all human activities, particularly higher education, have been adopted and generous financial support has been provided by Governments and the private sector.

A knowledgeable citizen must have access to information and education. The traditional modes of delivery have proven inadequate to achieve this objective. Major advances in ICTs have provided ample opportunities to diffuse knowledge and information, and provide expanded access to education being a highly efficient system of delivery.

Technology-based higher and distance education has gained wide recognition worldwide as effective modality for broadening access, and providing lifelong education and training, particularly for the labour force which needs continuous upgrading due to the changing nature of jobs and the need for new skills required by shifts in the imperatives of globalized knowledge economies.

Harnessing ICTs in higher education has become an urgent priority in developed and developing countries. For the former, the importance is given to provision of lifelong education and training, and complementing the traditional teaching methods through e-learning, which exposes the learner to updated knowledge displayed on the World Wide Web. For the latter, distance and virtual learning have proven to be efficient and less costly options to deal with increasing social demand through the broadening of access to higher education. The Indira Gandhi National Open University of India can be cited as an example in this domain.

5.5 Brain drain

During the last half of the twentieth century, many developing countries lost their critical mass of scientists and researchers due to the brain drain. These countries' abilities to engage in scientific research and provide high quality higher education have been drastically reduced. However, changing the process of relocation of industries and enterprises from North to South, and the emergence of trans-border higher education may lead to reversal of the brain drain phenomenon (Karlsson, 2003).

The number of scientists per million inhabitants in developing countries is 200 on average, while in developed countries, it is 2,800 on average. Of course, the picture varies greatly across developing countries, a number of whom have significant research capacity. India, for example, has the third most populous scientific community in the world.

There is no doubt that the brain drain phenomenon, in addition to the financial loss it represents, has contributed to the shrinking of the critical mass of scientists and researchers capable of contributing to development of higher education in general and research in particular. This phenomenon has negatively affected the ability of many developing countries to maintain high quality higher education and knowledge generation and utilization.

During the past half century Africa and Asia were hit hard by the brain drain phenomenon. For example, it was estimated that about 540,000 Indian scientists and high-level technicians were working abroad at the turn of the century compared to about 410,000 in 1990. In 1995 (Bubtana, 1997), the World Bank estimated that some 23,000 qualified academic staff emigrating annually from Africa.

Although brain drain trends have witnessed a decline during the past few decades, its previous negative impacts persist, which prompted a number of governments and international organizations to design programmes to re-attract immigrated talents such as China, the Republic of Korea and the UNDP's Transfer of Knowledge through Expatriate Nationals (TOKTEN) programme. One of the most important objectives of the UNITWIN/UNESCO Chairs Programme is to stem the brain drain phenomenon.

5.6 Lack of linguistic diversity in cyber space

Each day over 2 million pages are added to the Internet, but there is very small content representation in the vernacular languages of the Southern countries.

Lack of access to the global knowledge pool and to international academic environments are increasingly becoming an issue. In many countries, poor command of foreign languages among staff and students complicates access to textbooks and the Internet, especially at the graduate level.

Almost 80 per cent of information provided via the Internet is in English and this has prompted many countries to introduce English teaching at the early stages of primary education. UNESCO says that today a mere eleven languages account for 90 per cent of Internet use leaving many of the world's thousands of languages, and therefore cultures, entirely unrepresented. Academics, scientists and researchers in developing countries have difficulty in benefiting from scientific journals, periodicals and publications because most of them are in foreign languages. This is coupled with difficulty in having access to these materials because of financial constraints and limitations.

It is in this context that UNESCO strategies focus on the promotion of multilingualism and equal access to cyberspace. It focuses on the human dimension of the digital divide, cultural and linguistic diversity of contents, access and empowerment of society.

The Declaration of the Principles of the World Summit on the Information Society gave high importance to cultural and linguistic diversity in information and knowledge diffusion and dissemination. The Summit declared that 'It is essential to promote the production of and accessibility to all content – educational, scientific, cultural or recreational – in diverse languages and formats (World Summit..., 2003, *a*, para. 53).

5.7 Lack of enabling policy frameworks

In many developing countries, the development of national capabilities in knowledge acquisition and utilization remains low on government agendas. This is clearly reflected in the observed absence of clear national policies regarding the importance of knowledge and its implication for sustainable development and the overall transformation of societies. Perhaps the major problem is the low investment in the development of ICT infrastructures, the most important aspect in the acquisition and sharing of knowledge. Higher education systems, the most important social subsystem in knowledge generation and diffusion, face major financial crises hindering their abilities to contribute to the construction of knowledge societies.

The World Bank (*Construction of Knowledge Societies...*, 2002) has clearly indicated that the State has a responsibility to put in place an enabling framework that encourages tertiary education institutions to be more innovative and more responsive to the needs of a globally competitive knowledge economy and to the changing labour market requirements for advanced human capital.

Due to the persistent lack of awareness on the part of many governments about the crucial role of knowledge in socio-economic development, in many countries government policies and strategies still put emphasis on traditional factors of development such as capital, natural resources and cheap labour.

In developed countries, national policies and strategies have been adopted to facilitate the transition to knowledge societies. For example, according to Bizhan Nasseh (2000) Canada is creating the Canadian Institute for a Knowledge Society and in the United States the National Information Infrastructure (NII), proposed by the Clinton administration, created a major opportunity for wider access to Internet by all individuals, schools, libraries, the workplace and the community at large. Europe has been undertaking major efforts in this domain putting the use of ICTs in all human activities high on the agenda, and enabling policy frameworks have been adopted and put in action. A number of developing countries such as Brazil, China, India, and South Africa have taken major strides in this direction. This enabled them to develop the competitive advantages needed to attract business and industries within the process of relocation triggered by accelerated trends towards a global economy.

It must be said, however, that even with the adoption of the most perfect strategies and policy frameworks, they cannot be successful unless financial and human resources needed for their implementation are provided and made available. In most developing countries, the provision of needed financial resources and increased investment on ICTs seem to be difficult due to overall financial constraints

and inflation of foreign debts. International partnerships and cooperation may be required to face this major challenge.

6. UNESCO'S RESPONSE TO PREVAILING CHALLENGES

In many countries, particularly developing countries and countries in transition, facing the multiple challenges imposed by the transition into knowledge societies seems to be difficult for a variety of social, economical and political factors. As a result international cooperation and partnerships become instrumental in helping such countries to meet these challenges.

So far a number of regional and international organizations are providing support and implementing programmes to help developing countries in strengthening their national capacities in knowledge production, dissemination and utilization. UNESCO, the World Bank, UNDP, the European Union and others have provided technical and financial support in this domain. This has been complemented by bilateral support provided by a number of countries such as Japan, the United States and the Nordic countries. Some private sectors have also contributed to these initiatives such as Microsoft, IBM, etc.

However, UNESCO, with its competence in education, science, culture and communication, has been instrumental through its work on various fronts relevant to the construction of knowledge societies. One of the main strategic thrusts of the Organization's strategy is 'Promoting empowerment and participation in the emerging knowledge society through equitable access, capacity-building and sharing of knowledge' (Medium-Term Strategy..., 2002, p. 4).

The Organization considers it is within its ethical and professional mandates to assist Member States, particularly developing and transition countries, to overcome the barriers impeding them from constructing equitable knowledge societies. This is coupled with a firm conviction on the part of the Organization that achieving leaps forward in development, and bridging knowledge and development gaps depends completely on the acquisition and utilization of knowledge.

A quick review of the *Medium-Term Strategy 2002-2007* and the approved Programmes and Budgets for the past few biennia, reveal that UNESCO is adopting multiple-track strategies and actions to face the challenges of constructing information and knowledge societies. The main thrusts concentrate on education, including higher education and scientific research, information and communication.

In playing its role as a think tank and platform for exchange of experiences, debate and reflections, the Organization has developed the UNESCO Forum on Higher Education, Research and Knowledge. The World Conference on Higher Education, convened in 1998, and the subsequent Meeting of Higher Education Partners five years later issued declarations, action plans and recommendations to assist Member States in designing national policies and plans for their higher education systems relevant to their needs in terms of constructing knowledge societies. Broadening access, improving quality, adopting new alternatives, strengthening research capacities and harnessing ICTs are some of the main issues that the UNESCO forum and conferences usually discuss and make recommendations on with a view to future action. UNESCO's *Policy Paper for Change and Development in Higher Education*

(1995) constitutes yet another important contribution of the Organization's upstream actions in higher education.

The UNITWIN/UNESCO Chairs Programme represents another action-oriented programme of the Organization and an innovative modality for developing higher education systems, strengthening international cooperation and facilitating the transfer and exchange of knowledge and technology among nations. Today this Programme consists of 525 UNESCO Chairs and 63 Inter-university Networks in various disciplines in over 600 universities in 119 Member States⁵.

Although all established Chairs and Networks, in their teaching, training, research and service functions, assist in the generation, diffusion and application of knowledge, the ICT Chairs and Networks play a crucial role in this domain, given that information and communication technologies provide the backbone for the construction of knowledge societies.

The distinctive role of UNESCO Chairs and Networks, as pillars of knowledge societies, was discussed in part 4 of this document.

The establishment of UNESCO Institute for Information Technologies in Education (IITE) in Moscow constitutes another important response of UNESCO to the challenges of harnessing ICTs in the education systems of Member States. Among the most important objectives of the Institute are to: a) support national capacity-building in the application of ICTs in education, b) carry out research in different fields of ICT applications with the purpose of improving the quality and access and adoption of technology-based educational alternatives and structures, and c) develop training materials and modules on various applications of ICTs in education. In spite of the fact that this Institute is recent, its achievements in capacity-building and the production of materials relevant to the application of ICTs in education have been highly appreciated, particularly in developing countries. The round table convened by the Institute, within the framework of the WSIS in Geneva in 2003 on Education and Knowledge Societies, highlighted the crucial importance of ICTs in improving access and quality of education on the one hand and the construction of knowledge societies on the other.

In the area of communication and information, UNESCO's *Medium-Term Strategy 2002-2007* (2002) has indicated three strategic objectives: a) promoting the free flow of ideas and universal access to information, b) promoting the expression of pluralism and cultural diversity in the media and world information networks, and c) access for all to information and communication technologies, especially in the public domain.

In addition to the standard-setting activities such as the recommendation on the promotion and use of multilingualism and universal access to cyberspace, the Organization launched a number of action-oriented programmes in information and communication which are geared to the transition from information to knowledge societies. The vision of UNESCO about knowledge societies is that of societies which have the capabilities to identify, produce, disseminate and use information to build and apply knowledge for human development.

To broaden access to information and knowledge, the Information for All Programme (IFAP) and the International Programme for the Development of Communication (IPCD) have been adopted as a modality for strengthening partnerships and international cooperation on the one hand and for implementing activities at grass roots targeting women, youth, the excluded, particularly in developing countries. It is within the frameworks of these programmes that UNESCO has successfully created information and communication technology training for women and young people while developing and distributing free software and providing support for community and multimedia centres in remote and isolated areas of developing countries.

Within its forthcoming Programme and Budget (2006-2007), the great emphasis that UNESCO puts on information and knowledge societies can be easily traced within its two Programmes: Empowering people through access to information and knowledge with special emphasis on freedom of expression, and Promoting communication development and ICTs for education, science and culture. All these efforts are geared to bridging the knowledge, digital and development divides that are widening day by day.

It is worth concluding this part by quoting from the speech of the Director-General of UNESCO to the special session on the global digital divide initiative held within the framework of the World Economic Forum, Davos, 2001: 'if the knowledge societies are ever to take proper root and global acceptance, we must look beyond the technical and gadget appeals of ICTs and home in on the human dimensions of the digital divide: cultural and linguistic diversity of contents, empowerment of civil society, privacy and ethical issues, and access, especially by safeguarding the public domain'⁶.

7. CONCLUSION

From the foregoing review of the role of higher education in the construction of knowledge societies and the challenges facing the system in playing its instrumental role in this domain, one can draw a number of indisputable conclusions and recommendations. These can be summarized as follows:

- 7.1** Construction of knowledge societies and the bridging of the knowledge and development gaps require urgent, global and comprehensive campaigns, involving all stakeholders.
- 7.2** Knowledge has become widely accessible and universal. ICTs break all natural, social, cultural and hierarchical barriers. However, the universality of knowledge has been challenged by internal and external factors that constitute the main barriers for the construction of knowledge societies.
- 7.3** In the emerging global environment and knowledge-based economies, knowledge has become the main driving force for development. In this context, developing countries can no longer expect to base their development on their competitive labour costs and material advantages. The competitive advantage that counts now is the application of knowledge. The lower ranking of many countries on the UNDP human development index (HDI) has been attributed to knowledge deficit.
- 7.4** A knowledge-based society is the one where knowledge production, diffusion and application become the organizing principle in all aspects of human activities.

- 7.5** Harnessing the potential of knowledge rather than of material production is becoming the differentiating factor that separates the developing from the developed countries.
- 7.6** Higher education and ICTs are the most important and crucial pillars for the construction of knowledge societies.
- 7.7** The gap between developing and developed countries in the use of ICTs is evident, particularly when it is related to the use of Internet as the main modality for access to information and knowledge. The developing countries, with over 80 per cent of the world population, have only 5.9 per cent of the Internet hosts while developed countries, with 19 per cent of the population, have 94.1 per cent of the Internet hosts. A number of internal and external factors contribute to this situation.
- 7.8** Knowledge is what higher education is all about. Through its teaching, research and the service functions, higher education institutions are the main incubators of knowledge. While teaching incubates knowledge in the minds of people, research is the main incubator of knowledge generation. Service is the function through which higher education assists society at large in the application and utilization of knowledge.
- 7.9** While the quality of higher education is instrumental in the development of human capital, with competitive advantage in knowledge-based economies, equity and broader access constitute another important factor in the construction of equitable knowledge societies.
- 7.10** The UNITWIN/UNESCO Chairs and Networks play a distinctive role in the construction of knowledge societies through developing strategies and mechanisms for the rapid and efficient transfer of knowledge and its application to specific needs and conditions of developing countries and of their higher education systems.
- 7.11** The sharing and strengthening of global knowledge for development can be enhanced by removing barriers to information and strengthening national capacities in knowledge generation, diffusion and application.
- 7.12** Barriers to the construction of knowledge societies are internal and external, complex and various. They range from the knowledge and digital gaps to low quality of higher education, underdeveloped research infrastructures, limited capacity in the use of ICT, the brain drain, language barriers and the non-existence of enabling policy frameworks conducive to the use of ICTs and the construction of knowledge societies. The external barriers are represented by secrecy, sensitivity, and intellectual property and copyright rules.
- 7.13** In spite of the private sector's efforts in broadening access to information through the use of ICTs, compared to the magnitude of investments which need to be made to bridge the knowledge and information gaps, these efforts remain marginal and insignificant. The role of the private sector in the construction of knowledge societies needs to be further strengthened.
- 7.14** The role of regional and international organizations in helping countries face the enormous challenges is crucial.
- 7.15** Although a number of international organizations such as the UNDP, the World Bank, the United Nations Conference on Trade and Development (UNCTAD) and others have been playing active role in the construction of knowledge societies, UNESCO, with its competence in education, science, culture and communication, has been very instrumental through its work on various fronts relevant to the construction of knowledge societies. The Organization considers it within its ethical and professional mandates to assist its Member States, particularly developing and

transition countries to overcome the barriers impeding them from constructing equitable knowledge societies.

- 7.16** The challenges facing countries in this domain constitute the main thrusts of the Organization in its medium-term strategy and regular programme activities.
- 7.17** The activities of the Organization that are geared to construction of knowledge societies are numerous, cut across all sectors and range from supporting the development of higher education systems, promoting capacity-building in research and ICTs, supporting UNESCO Chairs and Networks to broaden access to knowledge and information, to promoting multilingualism and universal access to cyberspace. All these are based on UNESCO's vision of knowledge societies as societies that have the capabilities to identify, disseminate and use information to build and apply knowledge for human development.
- 7.18** All efforts, in spite of their importance, fall short of achieving the strategic targets of bridging the existing knowledge and digital gaps, and the construction of equitable knowledge societies on global scale. These efforts need to be strengthened further and involve all stakeholders within a framework of an international campaign to achieve this utopian objective.

8. RECOMMENDATIONS

Based on the previous analysis and conclusions, the following recommendations can be suggested:

- 8.1** Due to the complexity of the construction of equitable knowledge societies, and of bridging the knowledge and development gaps, a global campaign involving governments, institutions, the private sector, and regional and international organizations, must be launched with a firm commitment from all parties to participate in this campaign.
- 8.2** Construction of knowledge societies and broadening access to education and ICTs as the main pillars in this domain are beyond the capacity of developing countries. It is therefore imperative to develop and strengthen international partnerships to achieve this objective.
- 8.3** Since the traditional approaches to broadening access to higher education and providing life-long education and training have fallen short of achieving the objectives, new approaches to ICTs, such as distance higher education, e-learning and virtual institutions, must be adopted as strategic options for achieving equity and quality higher education.
- 8.4** In light of the confirmed recognition of the fact that knowledge is the main driving force for sustainable development, it is recommended that national development policies and strategies must be reoriented towards the harnessing of knowledge in all development activities and programmes.
- 8.5** The present contributions by the private sector in developing higher education, scientific research and broadening access to ICTs remain insignificant compared to the huge investments required. The private sector is called upon to massively increase investment in these domains.
- 8.6** Within a confirmed conviction that quality higher education and research are the main pillars for constructing knowledge societies and therefore driving forces for development, renovating these systems must be made a top priority of national governments, on the one hand, and increased investments in these domains must be achieved, on the other. The Declaration and Framework for Priority Action of the World Conference on Higher Education (WCHE) and the

- recommendations of subsequent relevant meetings must serve as guiding principles for higher education development and reform.
- 8.7** More serious and concerted campaigns to remove barriers to access to ICTs and to integrate developing countries into the global cyberspace must be launched and coordinated by international organizations. The present efforts by UNESCO in this domain must be reinforced and extended.
- 8.8** UNITWIN/UNESCO Chairs Programme has proven to be an efficient and flexible modality for knowledge-sharing, exchange and international cooperation. This Programme must be extended and reinforced. The number of ICT Chairs must be increased and a programme to convert them into regional and international networks launched.
- 8.9** Programmes and activities of UNESCO Chairs and Networks must be oriented towards the achievement of Declarations and of Action Plans adopted by the World Summit on the Information Societies (Geneva 2003 and Tunis 2005).
- 8.10** UNESCO should consider the possibility of organizing a donors meeting in support of the UNITWIN/UNESCO Chairs Programme, based on a well-articulated funding strategy, to mobilize financial support from the private sector and donor community.

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Role of UNESCO Chairs in the Construction of Knowledge Societies: Regional perspectives

- **III.1 Regional study on the role and contribution of the UNESCO/ICT Chairs in the construction of knowledge societies in the African Region**
by Ruth Elizabeth Teer-Tomaselli
- **III.2 Regional study on the role and contribution of UNESCO/ICT Chairs in the construction of knowledge societies in the Arab Region**
by Jamal Eddine Naji
- **III.3 Regional study on knowledge societies and cultural diversity in the Asia Pacific region with reference to the role of higher education and the UNITWIN/UNESCO Chairs programme**
by Anna Haebich
- **III.4 The role of UNESCO in the construction of knowledge Societies through the UNITWIN/UNESCO Chairs programme, based on the example of UNESCO/ICT Chairs in Central and Eastern Europe**
by Yuli Kashinsky
- **III.5 Regional study on the role and contribution of UNESCO/ICT Chairs in the construction of knowledge societies in West Europe and North America**
by Rainer Kuhlen
- **III.6 Regional study on the role and contribution of UNESCO/ICT Chairs in the construction of knowledge society in the Latin American and the Caribbean Region: to bridge gaps and broaden knowledge**
by Lourdes Feria Basurto

The role of the South African UNESCO Chair in Higher Education, Information and Knowledge generation and dissemination

By Ruth Teer-Tomaselli

INTRODUCTION

The UNESCO Chairs in Communication offer a unique opportunity for scholars throughout the world to come together – even in a virtual mode – to share the fruits of their endeavour. The role of the UNESCO Chairs, in common with all intellectual endeavour, is the production, diffusion and application of knowledge over a wide area relating to communication, media, human interaction, culture and specific to the late capitalist period, Information and Communication Technologies (ICTs).

The purpose of the present paper is to outline the approach and scope of the UNESCO Chair in South Africa. There are a number of peculiarities about the country, not least the need for a radical transformation of society in the wake of the devastating inheritance of Apartheid. The tertiary sector of Public Higher Education – Universities and Technical Institutes – have not been immune to this change.

The paper follows the format provided by the terms of reference supplied by the UNESCO Secretariat, by offering in turn: an overview of higher education in South Africa; analysis of the distinctive role of the UNESCO Chair in the country with regard to knowledge generation, dissemination, application and utilisation; thoughts on bridging the knowledge gap; and approaches to harnessing ICTs in higher education. It concludes by considering possible strategies to reinforce the role of the Chairs, and some of the challenges facing UNESCO in this area.

1. OVERVIEW OF HIGHER EDUCATION IN SOUTH AFRICA – TRENDS, ISSUES AND CHALLENGES

The higher education sector in South Africa has been shaped by apartheid in a profound way. Universities and Technical colleges were divided along racial lines, with the result that there were a large number of tertiary institutions, not all of which functioned well, either in terms of academic excellence or financial efficiency. While some institutions were world-class, others lacked capacity, and were very inferior. One of the first challenges facing the new government that came to power in 1994 was how to restructure the sector in order to make it more efficient, more equitable, and better able to provide for the manpower needs of a growing economy. Individual institutions needed to transform themselves into non-racial institutions that provided equal opportunities and redressed past disadvantages. The tertiary landscape as a whole needed complete restructuring in order to fulfil role of providing the intel-

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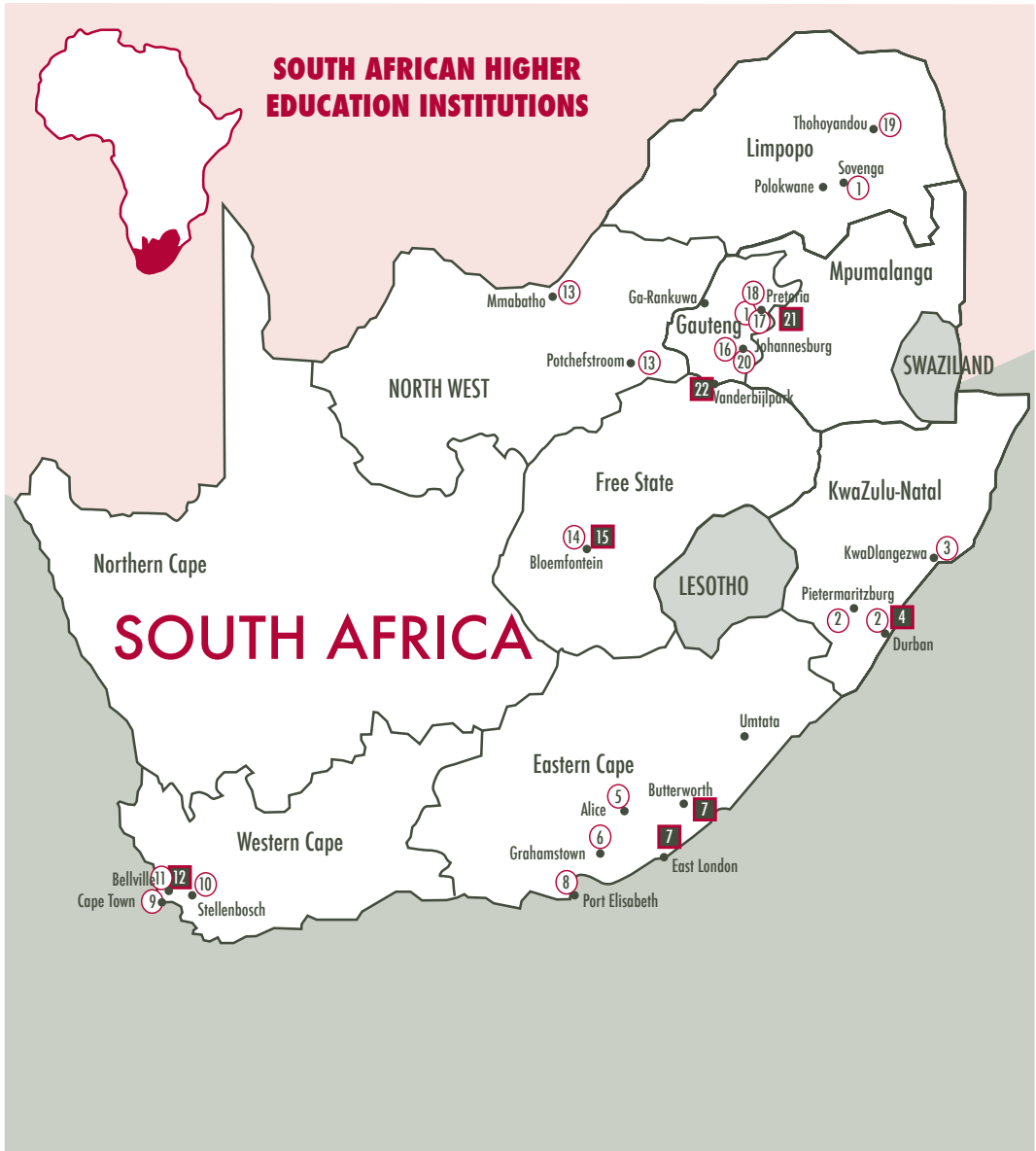


Figure One: Universities and Technical Institutes in South Africa.
(For key to numbers, please see end of paper).

lectual foundation for new processes and policies, seeking solutions to developing-world challenges and produce the high-level skills needed in a competitive technological world.

The imperative to transform the higher education sector, as outlined in the *Education White Paper 3: A framework for the transformation of higher education* (DOE: 1997), was informed by the need to realise a number of fundamental objectives that were necessary to achieve the vision of transformed, non-racial, non-sexist and democratic higher education system. The government set four main goals for higher education post-apartheid:

- Growing access to higher education and producing graduates who could meet South Africa's human resource needs. Universities and Technical Institutes would have to contribute to the development of a critical mass of intellectuals and researchers, and provide for the training of multi-skilled professionals, in particular, in science and technology. The need for black intellectuals and professionals specifically was stressed. This forms part of the Government's Human Resource Development Strategy, seen as the surest guarantee to create sustainable employment and economic growth. It is also essential for the success of the New Economic Partnership for African Development NEPAD.
- Promoting equity of access and outcomes and redressing past disadvantages by ensuring that staff and student profiles reflect the demographic profile of society, thus meeting the challenges of social justice and redressing the social inequity inherited from apartheid.
- Promoting institutional diversity to meet skills and knowledge needs. This would require a thoroughgoing reorganisation of the existing institutions to rationalize duplication, identify and fill in absences in particular geographical regions, and merge institutions where necessary.
- Building high-level research capacity, including sustaining current research strength, as well as promoting research aligned to national development needs. This would address the challenges associated with the phenomenon of globalization, in order to further the role of knowledge and information processing in driving social and economic development.

All of the above had to be achieved in a way that ensured that limited resources were used efficiently and effectively.

The *National Plan for Higher Education* released in March 2001 (DoE 2001), provides the implementation framework for the White Paper's vision of a single national coordinated education system that would be affordable, sustainable and responsive to the needs of human resource and research. Two processes were put in place to implement these goals.

1. By the end of July 2001 all institutions were required to submit the proposed programmes for qualifications for 2002-2006. These profiles were analysed by the Ministry of Education. Some were approved; others were modified by the Ministry.

2. A National Working Group (NWG) was appointed in March 2001 to advise on the restructuring of the national landscape. In response to the work of the NGW, the Ministry accepted certain recommendations and rejected others. The outcome was to reduce the number of universities and technical institutes through a series of mergers and rationalizations. Previously, there were 36 institutions altogether.

Twenty-two were selected for mergers, four for major incorporations (or loss of facilities), and one was dismantled and its multi-sites slotted into other institutions, and there are ten new university names. Currently there are seventeen universities and thirteen technical institutes. A map of the current universities and technical institutes is included as the cover of this paper, with a key on the final page.

Improving success and completion rates

South Africa's uneven school system, another legacy of apartheid, means that many bright but disadvantaged students – mostly from poor African families – are ill-prepared for university. This leads to high drop-out and repeat rates, resulting in personal disappointment and placing a financial burden on the system. The country also has a pressing high-level skills shortage and needs more graduates, especially in science, engineering and technology (SET) and in masters and doctoral courses. Public higher education has responded to these demands in the past ten years. Student success rates improved between 1998 and 2002, with the ratio of degree credits to enrolments increasing from 66% to 69%.

- The average success rates of African students rose from 57% in 1999 to 64% in 2002, closing in on the 75% rate for coloureds and Indians and 80% for whites.
- The share of SET students grew from 19% in 1993 to 30% in 2002.
- Graduate numbers grew by 10% in the five years to 2002, from 89,000 to 98,000.
- The number of qualified postgraduates grew by 40% in that period. Masters and doctoral enrolments rose by 52% from 31,000 to 47,000 students. (CHET 2001; DoE 2005).

Enrolment in institutes of higher education

In the discussion that follows, only the public-sector institutions of higher learning, i.e. the universities and technical institutes, are referred to. There are a number of private institutions, none of which are accredited to confer degrees. Some overseas universities, e.g. Bond or Monash Universities are based in Australia, and confer Australian degrees. The numbers in these institutions are so small as to be nationally insignificant. Other higher education institutions more correctly can be classified as institutions of further education and training (FETs). These do not confer degrees, but only short-term, professionally oriented diplomas. National data on these institutions are not immediately available.

The most recent figures available for the education sector relate to the academic year 2003 (DoE, 2005). All figures quoted below are taken from that source. There are a total of 717,793 students enrolled in all public institutes of higher education, as shown in Figure Two. Roughly two-thirds (487,741) were enrolled in universities, while approximately one-third (230,052) were in technical institutes. Black students (including 'coloureds', Indians and Africans) made up 72% of the total number, with a higher proportion studying at technical institutes than universities. Female students outstripped men students in all categories, except for full-time contact enrolment at technical institutes.

		Universities	Technical Institutes	Total Higher Education
Head-count of student enrolment	Contact	282,166	166,678	448,844
	Distance	205,575	63,374	268,949
	Total	487,741	230,052	717,793
Proportion of Black students	Contact	64%	86%	72%
	Distance	72%	86%	53%
Proportion of female students	Contact	54%	51%	53%
	Distance	59%	45%	56%
Proportion according to major fields (both distance & contact)	SET*	24%	35%	27%
	Business	24%	46%	31%
	Humanities	52%	19%	4%

Figure Two: Enrolment in public institutes of higher education circa 2003.

Source: Department of Education, 2005:80. (summarized)

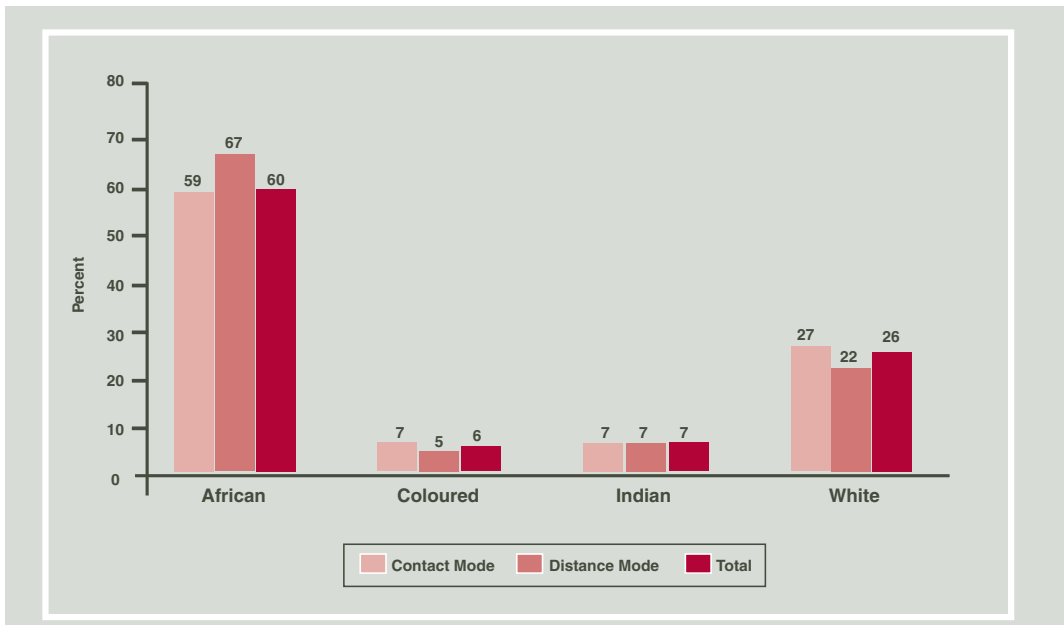


Figure Three: Percentage distribution of headcount enrolments in public higher education institutions, by contact/distance mode and gender – academic year 2003

In terms of racial participation, 60% of all students in the public higher education system in 2003 were African, 26% were White, 7% were Indian and 6% were 'coloured'. The proportion of African students, however, varied by sector and instruction mode. For example, African students account for 49% of contract programmes at universities and 76% of contact programmes at technical institutes. Overall, 59% of contact programme and 67% of distance programme students were African.

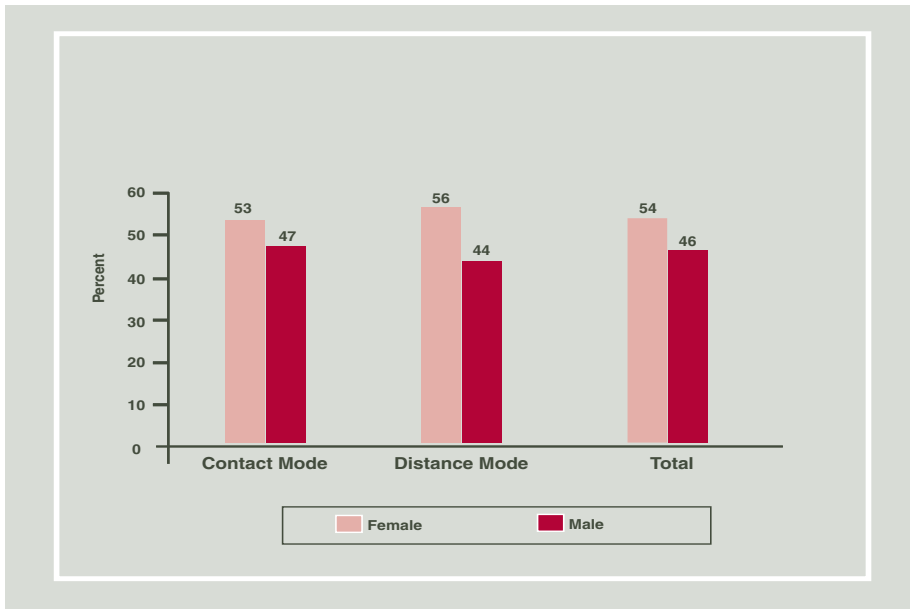


Figure Four: Percentage distribution of headcount enrolments in public higher education institutions, by contact/distance mode and gender – academic year 2003.

In terms of gender distribution, female students were in the majority in both contact programmes (53%) at universities and technical institutes. Overall, 54% of the students in the system were female.

The role of the South African UNESCO Chair in Higher Education, Information and Knowledge generation and dissemination

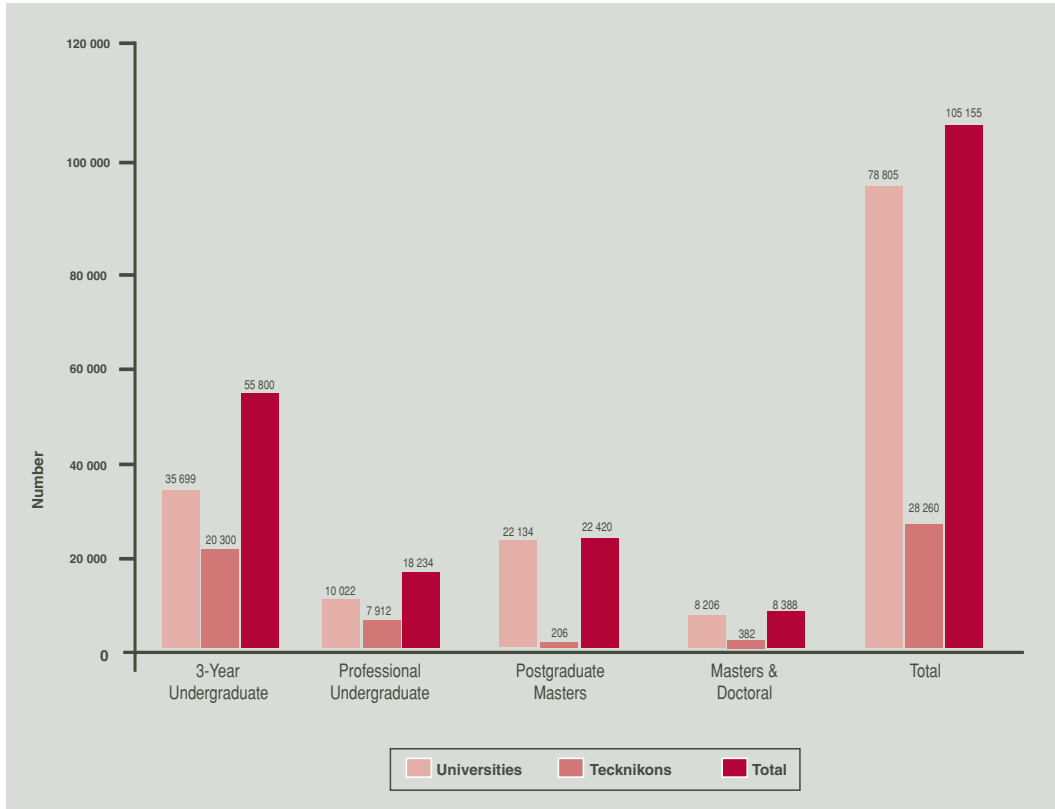


Figure Five: Headcount totals of graduates/diplomats in public higher education institutions by qualification type, in academic year 2003.

Figure Five gives details of the totals of graduates and diplomats produced by public universities and technical institutes in 2003. In that year, universities produced 76,895, or 73% of all graduates and diplomats, while technical institutes produced 28,260. The technical institutes' share of graduates and diplomats (27%) was considerably lower than their share of the headcount enrolment total (32%), indicating a further greater level of non-completion or wastage. Of the 105,155 students who completed qualifications in 2003, 71% obtained undergraduate degrees or diplomas. There were only 8,588 masters and doctoral graduates in that year.

National Policy regarding ICTs in higher education

National policy with respect to information and communication technology (ICT) has received support from government in terms of acknowledgement of the critical role to be played by digital communications. Particular importance has been attached to rollout of voice and information infrastructure. In 2001 the Presidential National Commission on Information Society and Development (PNC on ISAD), consisting of representatives from the public and private sectors, was established. The Commission's

brief is to advise the Government on optimal use of ICT to address South Africa's development challenges and to enhance South Africa's global competitiveness.

At around the same time, a further advisory council was established – the Presidential International Advisory Council on Information Society and Development (PIAC on ISAD). The role of this further Advisory Council is to advise Government on addressing the digital divide. In September 2002, the PIAC on ISAD identified three focus areas for developing ICT: education, health, and small, medium and micro enterprises (SMMEs).

Sadly, in the area of higher education institutions, little progress has been made since late 2003. This is apparent through a perusal of the published documents from government concerning ICT in this sector. The best statement of official position is found in the Department of Education's *White Paper on ICT and Education* (August 2003) (DoE 2003a), which included the general statement that:

Every South African learner in the general and further education and training bands will be ICT-capable (that is, use ICT confidently and creatively to help develop the skills and knowledge they need to achieve personal goals and to be full participants in the global community) by 2013.

Further support for ICT development is found in the stated key research areas of the National Research Foundation (NRF).¹ Within the central government policy around the role of ICTs, the following paragraph is included:

[Non-formal] Further Education and Training (FET) policy with respect to ICT is premised on the acknowledgement that ICT facilitates growth of student information skills and, subsequently, the integration of these skills within the national labour force. The primary aim of FET ICT policy is to support the growth of institutional capacity for student numbers and to enhance South Africa's international competitiveness and collaborative ability in the academic arena.

Thus, it can be seen that, discursively at least, much thought has been devoted to ICT policy with respect to schools and non-formal training, with little discernible policy appearing to exist at a national higher education institutions level. National policy with respect to ICT and higher education institutions is supported in principle by government white papers and other policy processes. However, there is little to show in terms of specific policy and resourcing serving universities and technical institutes. The importance of Internet connectivity at higher education institution level was recognised some time back with the creation of the Tertiary Education Network (TENET – www.tenet.ac.za), whose task is to manage and regulate permanent high-speed access to the Internet for tertiary institutions. All but two or three of the country's universities and technikons use TENET access to the Internet.

Education policy from the Department of Education (DoE) makes much capital around ICT in schools, but barely rates higher education institutions a policy mention. The National Research Foundation (NRF – www.nrf.ac.za) has far more targeted statements apropos higher education institutions and ICT (see "Unlocking the Future"), though this does not constitute formal government policy position. Within our own university, and Culture, Communications and Media Studies, the department in which the UNESCO Chair is situated, it is true that we seek to apply ICTs to extend the effectiveness and

reach of academics in terms of both teaching and research. Much of this is achieved collaboratively with other institutions, notably the University of Oslo, and the University of Washington in Seattle (see below).

2. THE DISTINCTIVE ROLE OF UNESCO CHAIRS

2.1 In knowledge generation

At the present time, the South African Chair is involved in several strands of research, all of which coalesce around the themes of the political economy of broadcasting and telecommunications, and the role of the media in development.

A large-scale project, undertaken in collaboration with research partners from the University of Oslo, Norway, is entitled '*Convergence and divergence in the media and communication landscape: A comparative study between South Africa and the Nordic region*'. The project leader on the South African side is Professor Ruth Teer-Tomaselli, UNESCO Chairholder, and on the Norwegian side, Professor Helge Rønning. The research is sponsored by a joint initiative between the National Research Foundation (NRF), South Africa, and the Norwegian Research Council (NRC), with a budget of about US\$100,000 over two years. Academic colleagues in both centres are contributing to the outcome of the effort, and several Ph.D.s and Masters' students, both in Norway and South Africa, have collaborated on the research, and have been mentored through the process.

The prime question posed by the project is "What are the contours of convergence and divergence that mark out the cultural and communication terrains within two comparable regions, i.e. Southern Africa and the Nordic regions". The fields in question are information and communication technologies, content and cultural production. The comparative study sets out to advance an understanding of the processes apparent in a developing media and cultural economy on the one hand, and a developed northern economy on the other, both of which include elements of First Nation Communities. The methodology used by each sub-project is necessarily specific to the particular project, and is of a multi-disciplinary nature. In general, however, the theory and methods applied are grown from the strand of cultural and media studies that admits political economy, and extends and refines those methods already developed by the contributing researchers. These include political economy, receptions analysis and ethnographic research.

Several other related areas of research undertaken by the Chairholder over the past five years are relevant to the enterprise.

State-owned enterprises, broadcasting and telecommunications: This work focuses on the changes, at both a structural and a service-provision level, of the national broadcaster, the SABC, the national telecoms provider, Telkom, Sentech, the national communications regulator, ICASA and related enterprises. The research investigates aspects of the history, content, policy options and strategies undertaken in South African broadcasting and telecommunications over the past fifteen years. The objective of the project is to isolate the structural and institutional constraints hindering the development of public broadcasters in the Southern African Development Conference (SADC) region, and,

through a comparative study of international best practice, to identify and collate a series of policy recommendations with the purpose of strengthening the democratic potential of these broadcasters, thus empowering their audiences. The study documents and analyses the restructuring and transformation of South African broadcasting and telecommunications sector. Outcomes from this strand of work include seven peer-reviewed journal articles and book chapters; and eight conference presentations by the Chairholder, graduate students and associates of the project. Student dissertations supervised in this area include a completed PhD, and a further three in preparation; ten completed Masters (two with distinction); and three Masters in preparation.

Community Radio: With the help of a University of Natal Research Fund (URF) in 2001, I began a project entitled "Representations of 'Community': *A Comparative Study of Five Community Radio Stations in the Durban Area with particular reference to their interaction with their target communities*". Outcomes from this line of research include two peer-reviewed book chapters, one accredited journal article, one peer-reviewed online hypertext publication, and three conference presentations. Seven student dissertations have been completed under this line of work.

IAMCR: As Vice-President of the International Association of Media and Communication Research (IAMCR) (2001-2003), I presented a number of papers to two sections of the Association, *Political Economy* and *Participatory Development*. This has kept me in touch with some of the finest academic research currently being carried out in these two areas, and has allowed me, on an on-going basis, to refresh the readings and insights in my teaching.

Bellagio Network for Development Communication: In May 2002 I was an invited participant at a workshop on curriculum development for media in participatory development, hosted by the Rockefeller Foundation at Bellagio, Italy. A second meeting was held in May 2004, with twenty participants from across the world, who met to decide on the contents of a compendium of the fifty best articles of all time in the area of development communication. I was asked to present on, and represent, works from Anglophone southern Africa. At this meeting 15 of the world's top exponents in the area shared ideas on how to advance the teaching and research into the area of endeavour. From the meeting, I was able to contribute substantially to the current curriculum in the module Media, Development and Democracy.

Further scholarly articles or book chapters in the areas of community radio, media and memory, transnational television in Africa, and political advertising either have been published or are in print over the past two years.

Main Issues and Challenges in This Domain.

As may be expected, the main obstacles to further research are those of balancing a heavy teaching load with the necessary time for concentrated efforts at publication. At present the Chairholder is on a sabbatical from teaching, and this period has proved extremely fruitful in collating accumulated research data, and the preparation of papers and chapters for publication. Without a reduction in teaching and administrative loads, it is difficult to see how the fruition of research will be able to take place. The writing up of the joint SA-Norwegian research, for example, poses a huge challenge in terms of time available.

2.2 In knowledge dissemination

Curriculum development – methods and techniques.

In terms of my employment at the University of KwaZulu-Natal, my foremost duties reside in lecturing, the supervision of graduate research, and my own research and publication interests. I believe that these three components must be intertwined in order to produce a coherent continuum of research – new knowledge – teaching.

There are three major categories into which teaching methods in the communication studies fall: the traditional lecture with discussion opportunities; guided discovery learning situations (tutorials, group work, and exercises); and autonomous discovery (assignments, research activities). In teaching and supervising graduate students, I use only the latter two, since I believe that the ideal instructional approach would be through a participatory approach. However, with the large undergraduate classes we need to contend with, much of the work is done in lecture situations, enlivened with the use of visual aids and video material where possible. These are complemented by tutorials, during which the class is broken down into smaller groups under the guidance of a graduate tutor. Devising intriguing and relevant tutorial activities requires imagination as well as skill. Finally, the autonomous discovery is produced in terms of the assignments and research tasks students are required to do in groups and individually.

Since the year 2000, I have supervised a significant number of graduate students. Of those under my personal supervision, three doctoral students and twenty-five Masters' students have graduated, eight with distinction. At present I am responsible for the supervision of four doctoral candidates and five Masters' students. The large number of students under my tutelage, and the relatively high level of successful graduations, has required an innovative approach to supervision.

Peer-support has been found to be a most valuable asset to students working at the graduate level. Within CCMS we have found that encouraging these students to work in groups around a delineated topic with dedicated funding greatly increases students' ability to complete the degrees successfully. Furthermore, this approach builds a data base and archive of dissertations, research papers and journal articles, which in turn become the basis of further research for students in subsequent years, thus building a 'critical mass' of work rather than a disparate number of unrelated small efforts.

My personal research and international networking has been an invaluable aid to revitalising the teaching agenda on an on-going basis. I have undertaken three umbrella projects over the past five years. In each case, I have been able to present a successful proposal to a research funding body, which has in turn provided a number of bursaries for students, as well as a small fund of money with which to finance the research. I have been able to enmesh these projects in wider international networks working in the same areas, thus facilitating even more resources, both intellectual and financial, for the students involved in the projects, as well as other students enrolled with CCMS.

Over the past few years, I have concentrated my teaching in four areas: television programming and genres; audiences and segmentation; political economy of the media; media development and democracy. In this report, I will discuss the latter two.

The Political Economy of Communication (undergraduate). The courses cover theoretical issues relating to political economy and the evolution of South African media. Students learn to link empirical research of the media to theoretical questions of ownership, control, diversity, commodification and spatialization. Convergence across the media is a central thematic to the course. The module offers students a broad, general understanding of the politics of Southern African mass media (press, electronic, cinema) structures, processes, and policies; rather than amassing facts and historical details for their own sake. Foremost among the foci for comparative historical analysis is the media-state nexus in respect of the South African media – print, broadcast and ICT. Questions are asked about colonial impact, transnationalization, privatization, and globalization. Analysis also concerns political significance of media ownership, control, and patterns of policy-making and strategic planning. Transnational developments within the SADC (Southern African Development Community) area are examined.

Media in the Global World is a political economy course restricted to Masters students, and covers the ways in which the global media work at the interface of political and economic processes as institutions in different countries. Particular attention is given to how these interact with and impact African media and societies. Students are exposed to issues of ownership, control, and professional practice, as well as questions of ideology, cultural assumptions and local-global relations. The module offers students a broad, general understanding of the politics of Southern African mass media (press, electronic, cinema) structures, processes, and policies rather than amassing piles of facts and historical detail for their own sake. The methodology of the module has been to cover the essential reading thoroughly, and then apply this to current research undertaken by the students.

Media, Development and Democracy grew out of my interest in and access to material gleaned from interactions with scholars in the International Association for Media and Communication Research (IAMCR). The section to which I belong, Participatory Research, attracts papers from both the developing and the developed nations on questions related to the role of media and communication in development. The section takes a strongly participatory approach, which is reflected in the module ethos. Other influences on the module have been the work done by scholars broadly aligned with UNESCO - notably the UNESCO Department of Communication. AMARC, the International Association for Community Radios, has provided keen insights into the normative role of grassroots communication, and the practical difficulties of implementing these goals. Over the years, a number of students have used as the platform from which to launch their particular research projects.

These modules have always offered a strong research component, with the assessment divided equally between group research projects and a written examination. In the past, research areas both within South Africa as well as other African countries (Zimbabwe, Zambia, Eritrea to name a few) have been undertaken. In recent years particular attention has focussed on telecommunication services in Africa, as these affect the roll-out of universal service, economic and technological convergence. The results of this research have examined issues of ownership and control: corporate structures, mergers, acquisitions, cross-ownership and the like. The research investigates the ways in which each of these corporations fit into the larger international political economy of the media in terms of their commodification, spatialization and structuration of media and information. Many of the papers produced by graduate students have subsequently been presented at conferences within South Africa and beyond its borders, leading to an extension of knowledge creation within the African sub-continent.

This methodology achieves several aims:

1. The main theoretical literature, and tools of analysis, are covered in a thorough manner.
2. The theory of the subject is related directly to its application in applied research around subject matter that is relevant and interesting to the students, and which allows them to be **creators**, rather than consumers, of knowledge.
3. Senior research students are provided with opportunities to hone their proposal writing skills and research abilities in a supportive, collegial infrastructure.
4. Their peers and others provide students with an opportunity to showcase their research in a national, public forum, and to expose themselves to critique within the academic communication community from across the country.

Application outside the university-professional

As a recognised resource in the area of broadcasting and telecommunication research, particularly with regard to policy and implementation, I have been called on to host and or facilitate a number of interactions within the industry. Recently, I have been asked to facilitate a workshop for managers of community radio stations in South Africa. I have also interacted with the national regulator, the Independent Communications Authority of South Africa (ICASA) and the signal distributor, SENTECH. I have sat as a Director on a community radio station, a commercial radio station (East Coast Radio) and served two four-year terms on the Board of the national public broadcaster, the South African Broadcasting Corporation (SABC).

The SABC Board is the highest decision-making body of the broadcaster, directly responsible only to the Minister of Communication and Parliament. My particular area of contribution was at the sub-committees dealing with News, Programming and Technology. Needless to state, the first two form the core business of the Public Broadcaster. It is also in respect of these two areas that political manoeuvring tends to be at its most intense. In terms of the *News Committee*, I fought long and hard for a more professional approach to news values, fair and equitable coverage of issues, and a wiser approach to international as well as national news. I attended a number of the public hearings around the issue of the editorial code, and contributed to the conceptualization and drafting of the codes. I contributed two papers to the Board on the question of Section 204, which outlines the journalist's rights and obligations to give, or withhold, court evidence based on confidential journalistic sources. In the *Programming Committee*, I contributed to the thinking around and drafting of policies with regard to the acquisition of foreign programming and the commissioning of local programming. Issues of language, representation, role-modelling and entertainment value were all discussed at these meetings, and decisions around the shape and content of programming content on SABC across all channels were made on the same occasions. Over the four years, I took part in, and addressed from a theoretical as well as practical point of view, a number of day-long seminars devoted to 'language and broadcasting'; 'religion and broadcasting'; and 'education and broadcasting'. I have read conference papers and published scholarly articles on all these areas. I championed educational programming (including *Takalani Sesame* and *Yizo-Yizo*) and monitored the production processes of important local dramas such as *Generations* and *Isidingo*. In terms of the Strategic Planning and Technology Committee, I fought hard for the voting of funds for the digitalization of radio broadcasting studios, and later for the extension of a state-of-the art digitalized distribution

network. I saw the migration of the broadcaster from an analogue to digital platform as being of prime importance. My research efforts have continued in this vein, as I have explored the various options to increase the rate of digitalization.

2.3 BRIDGING THE KNOWLEDGE GAP

Conferences and Workshops

The Political Economy of the South African Media is a biannual international Research Seminar, which has been hosted by the Cultural, Communication and Media Studies programme at the University of KwaZulu-Natal on three occasions: 2000, 2002 and 2004. The UNESCO Chair has been central to the organization of the series. The research impetus for much of the partnership-cooperation has been premised on the seminar series. Participants are drawn from Africa, Scandinavia, the United Kingdom, the United States and Europe. The purpose of the seminar series is to provide a world-class forum for African scholars to interact with top-class European and American scholars, thus exposing both sides to learning and research that is often compartmentalised and not shared. Other partners include the World Association of Christian Communication (WACC), a London-based global organization that has facilitated discussion on major issues affecting media and democracy across the world. (WACC is also represented at the WSIS as the facilitating organisation for the CRIS campaign). Other partners include the National Research Foundation of South Africa (NRF), the University of Oslo, Kopinor (the intellectual property rights organization based in Norway), the Media Institute of Southern Africa (MISA), and the Caribbean Institute for Media and Communication (CARIMAC), as well as private-sector sponsors such as the telecoms provider, Telkom, and the Independent newspaper group.

The most recent seminar-conference in 2004 focussed on intellectual property and indigenous knowledge rights. The overarching concern of the seminar was the manner in which 'ideas' and 'knowledge', both old and new, are rapidly being 'enclosed', 'privatized' and translated into intellectual 'property' that is available for a fee. In a knowledge-based economy, structured around continuous innovation, the creation of new knowledge and value-added knowledge, intellectual property has become an essential tool of wealth creation. The complexities of IPR were explored from the perspectives of political economy, culture, convergence and the public domain. The IPR symposium also facilitated the liaison between the appropriate organizations in the establishment of a publicly-accessible databank on IPR and communication, as well as support initiatives linked to the democratization of knowledge in order to contribute towards the strengthening of ideas in the public domain.

The symposia have been dedicated to advancing a dialogue towards a wider regional and global analysis and understanding of the economic, social and political factors affecting media in Southern Africa and other countries of the global south. The on-going discussions have been documented in many forms. A special edition of *Media Development* (2/2001) presented some of the papers from the 2000 seminar, a book was produced from the 2000 conference papers (Tomaselli and Dunn, 2001), and many journal articles began their life under the banner of the Political Economy seminars.

The role of the South African UNESCO Chair in Higher Education, Information and Knowledge generation and dissemination

Journal activity

The UNESCO Chair is involved in the activities of a number of journals, both in South Africa and internationally. These include the following journals and positions:

- *Critical Arts: A Journal for Cultural Studies*, University of Natal, Durban. Associate Editor, from 1982 to the present;
- *Feminist Media Studies*, Editorial Board, 1999-present;
- *European Journal of Cultural Studies*, Editorial Board, 1998-present;
- *The Journal of International Communication*, Editorial Board, 1997-present; and
- *Ecquid Novi: A Journal for Journalism in Southern Africa*, University of North-West and University of Stellenbosch, 1997-present

Text book

Developing the material taught at undergraduate level, the Chair has been contracted by a large-scale national publisher, Van Schaik Publishers, to produce a new textbook covering undergraduate study in media sociology. The book is being written to suit the syllabi of all the main universities in the country, and will be available mid-2006.

2.4 HARNESSING ICT

Role of ICTs in higher education

Adequate information technology systems play two separate, but interrelated roles in institutions of higher education in Africa. The first is as a management tool: to keep track of the administration of the university in a way that is fast, responsive and flexible. An effective management information system with performance indicators is a powerful aid to effective management of human resources, financial accounting, student services and records, examinations etc.

The second is as a cognitive tool. The investigation by the National Commission on Higher Education in South Africa, 1996, found that disadvantaged institutions were hopelessly under-resourced with respect to libraries and information technology, e.g. there was only one desktop computer per ten staff members in some universities; computers were non-existent for students; and there was a severe shortage of skilled information technology personnel. A recent World Bank study (2000) confirmed these deficiencies in developing countries.

Teaching with ICTs

Educational philosophy at a global level is migrating toward a constructivist paradigm which asserts that knowledge is a process of social construction, supported by learning environments emphasizing collaborative, reflective, complex and conversational tools. The use of tools is not to be confused with assumptions that tools somehow perform the role of teachers. The learners/students become their own teachers through the use of tools and technologies. The social constructivist lexicon includes authentic tasks as examples of active construction of knowledge that do not require advanced knowledge of domains for the basis of the constructed knowledge to be built.

The approach is premised on collaborative environments where learners/students work in learning and knowledge-building communities, using mutual skills and social support. Knowledge creation is a

social, dialogical process, and when presented with a problem, we seek opinions and input from others. Technologies support this process by connecting people (students/learners) across spatial and temporal dislocations. Development of the preceding leads to a virtual learning space, providing opportunity for varied and complex interactions. Traditional didactic philosophy dictates a one-way emission of information, with finite restrictions on the degree and nature of student-lecturer interactions. One-to-one, one-to-many and many-many interactions are limited. Used appropriately Internet technology can facilitate interpersonal, intercultural and international collaborations, as expanded upon below.

Intranets at undergraduate and graduate levels

Intranets, i.e. local area networks configured for use by a closed community, in this case, university students and academic staff, provide flexible and always-available tools that give teaching staff an ability to interact meaningfully with expanded student numbers, especially at undergraduate levels. Ease of distribution and revision/update of material is enhanced. Used imaginatively, this can enhance the distribution of restudy and revision materials.

At a graduate level, the facilitation of team and independent research is promoted where institutional intranet resources exist. Self-support becomes a viable option where academic staff are stretched by teaching and research commitments. A further benefit at both undergraduate and graduate levels is the opportunity to use ICT to provide an integrative platform for apparently disparate courses. One example is the creation of authentically situated environments for advertising, digital design and journalism through the use of ICT.

Interconnections between knowledge construction (or teaching and learning) and facilitation of such construction (research and curriculum design) develop as a direct result of national and international partnerships. Extension of the reach and extent of knowledge occurs through a far wider exchange of concept and experience. On a number of occasions, CCMS has collaborated internationally (and indeed, shared) courses at a graduate level. Two of these are **Mediascapes** and **Digital Design for New Media**. **Mediascapes**, an exploration of the use of Web-based tools and New Media in communication and information dissemination society, is available at the University of KwaZulu-Natal and the University of Washington at Bothwell. The course, lead by Ron Krabill at Bothwell, requires active collaboration by students at both institutions and depends on exchange of ideas, knowledge and cultural cues. Additional benefit is accrued via academic exchange at the lecturer and tutor levels. **Digital Design for New Media**, presented at University KwaZulu-Natal by Paul Rodda, in collaboration with Gunnar Liestøl of Oslo University, seeks to provide an integrative platforms, bringing together communication, application of technology, social and economic considerations, and a view of the Internet as beneficent anarchy. Embracing ICT involves far more than simplistic and crude application of tools. Used as it is here, it involves students and academics from other international institutions (University of Washington and Oslo). This course is presented in a fully digital environment, where active and situated authentic tasks are used as fundamental motivators for student appreciation of New Media. CCMS is seeking to expand the role and inclusiveness of communication technologies in an effort to enrich interactions amongst apparently disparate courses. Examples of possible courses to be put 'on-line' include journalism, advertising & marketing, designing for New Media and others.

Research

International access and contribution to pools of expertise ensures that scholars and students from are not simply receivers of knowledge from the rest of the world. We are able to engage with our peers on a global level and to share ideas, knowledge and successes via active contributions to knowledge creation. Through the use of ICTs in learning and research, we are able to interact with the world, while at the same time we are also able to be active contributors to knowledge creation.

3. POSSIBLE STRATEGIES TO REINFORCE THE ROLE OF THE CHAIRS

There are six UNESCO Chairs in South Africa from various disciplines and at different universities. During the past eighteen months, two meetings of the Chairs have been held with a view to creating a co-operative framework, and empowering the work of the Chairs in this country. During both these sessions, several points of difficulty, adversely affecting most of the people involved, were aired. The most important appeared to be the lack of a coherent line of communication between the various levels within the UNESCO family and, secondly, a lack of understanding on the part of the host universities of the needs and resources required by the Chairs in order to function at an optimal level.

In the South African situation, the National Commission (Natcom) is based under the auspices of the national Department of Education (DoE), with the Minister of Education presiding over UNESCO matters in this the country. There is also a National Board, as well as a Secretary General. The placement of the National Commission under the Department of Education has resulted in a number of challenges, and an uneasy working relationship. While the National Commission appreciates the budgetary allocation by the DoE, covering the immediate costs of its operation, the arrangement has resulted in a great many commitment complexities related to the participation by other departments, such as Arts and Culture, Trade and Industries or Communications. This makes the smooth functioning of the Commission very difficult. It is necessary to clarify the roles between the Department of Education, the National Commission, other government departments within the country, and not least the South African Embassy in Paris, since there is no clear line of authority in this set-up. Matters are made worse by the complex and often contradictory lines of accountability and communication within the UNESCO family. The various departments within UNESCO Paris, ORBICOM in both Geneva and Montreal, make it difficult to negotiate to whom we are responsible.

The second difficulty expressed by all Chairs present, regardless of discipline or institutional affiliation, was the difficulties in accessing resources needed to be truly productive and effective. All the incumbents spoke of their very heavy teaching commitments at undergraduate level, leaving little time for the main thrust of their interests, i.e. research.

It would appear from the reports of the UNESCO Chairs at these two national meetings, that universities in South Africa do not have a vision of the role and position of UNESCO Chairs, and expect that their chief function is to bring money in to the University. As UNESCO does not endow the Chairs financially, it is unrealistic.

4. CHALLENGES FOR UNESCO

At the national meetings referred to above, several suggestions were made regarding the possible role of the National Commission in capacitating the Chairs. These included

- ensuring that the local UNESCO Chairs are better known, both within the university/technical institute arena, and outside;
- to introduce the UNESCO Chairs to the national leadership within their field.

Referring to the difficulties in the chain of command outlined above, UNESCO could help in a number of ways. The first would be to take an active interest in the National Commission, and to suggest ways in which the functioning of this body could be streamlined strengthened. This might require commissioning an investigation into the capacity and accountability of the national structures, and make recommendations on these.

Secondly, it would be very helpful if each Chair, regardless of discipline, were to be assigned a point of contact within UNESCO Paris. This person could act as a liaison, not with the purpose of policing the Chair, but rather as a contact person with the often difficult and complex structures within the global UNESCO organization.

To the above can be added the commissioning of a feasibility study and resources to create a truly interactive Internet/website for the use of UNESCO Chairs at both the local and international levels.

Finally, the issue of resources has to be addressed. In many countries, it is the norm that individual Chairs find sponsors from within the private sector. This is not always possible in a developing country, and furthermore, the endowment of a Chair frequently comes with very strong strings attached, something that militates against the independent and impartial capacity of the researcher. It would be helpful if UNESCO could approach the universities and technical institutions with which, after all, they have already written memoranda of understanding, and impress on these universities the value and prestige of the Chairs.

UNESCO's great strength is its ability to network and to facilitate the networking of others. If we as UNESCO Chairs, together with the global and national Secretariats, are to take seriously the mandate to build 'knowledge societies', then there is no better place to begin than by creating an authentic, purposeful and interactive website and listserv through which we would be able to network, share resources, post messages and create a twenty-first century public sphere in the spirit of creating and disseminating a truly democratic Knowledge Society.

Role of UNESCO ICT Chairs in the Construction of Information Societies Challenges and Prospects in the Arab Region

By *Jamal Eddine NAJI*

INTRODUCTION

Over the last ten years, the international community has frequently affirmed its strong and concerted commitment to the development of a global knowledge and information society, made increasingly possible as a result of information and communication technologies (ICTs), their innumerable innovations, their progressive worldwide dissemination and the persistent, albeit relative, diversity of the cultures

and civilizations conveyed in the contents that circulate on the Worldwide Web. The Geneva phase of the World Summit on the Information Society (WSIS) marked the latest solemn reaffirmation of that commitment, but also a pause for painful diagnosis of the shortcomings and major challenges likely to impede progress towards the goal of shared knowledge and information, particularly for certain societies, geographical and cultural regions, and population groups.

While they share with the rest of the world some of the major problems with which the international community is confronted, namely those that headed the WSIS agenda in both Geneva and Tunis (such as « Internet governance », the « digital divide » and « freedom of the digital media »), Arab societies both collectively and nationally are characterized by a very specific set of challenges, shortcomings and prospects.

While these specificities of the Arab World are assimilable to the accepted IS paradigms of analysis (“info-rich” and “info-poor”, “equitable access to ICTs”, “inequalities between the urban and rural world”...), they prove highly problematic for the objective of a knowledge and information society insofar as they relate to the domain that has a key strategic role to play in that regard – education and learning in general. This is doubtless why Arab governments seem to have engendered more reflections, studies and solemn declarations on this relationship between education and ICTs than on other areas equally crucial for the development of such a knowledge society throughout the Arab World.

The Cairo Declaration of the Regional Conference on Education for All (June 2004) stresses “the importance of the constant development of educational curricula” for the Arab vision for the future and recommends that “these programmes should be conceived as gateways to the development of different patterns of thought by learners and to the acquisition of the skills required consciously to address the challenges of the knowledge society so as to produce citizens capable of solving their own problems

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and effectively participating in the progress of their society and their nation". The Declaration goes on to state: « Conscious of the importance of technology in supporting the educational process in the classroom, managing schools and training teachers in order to achieve the required qualitative leap in education and enable Arab students to acquire the skills and know-how for effective integration in the twenty-first century, (...) the Arab countries stress the need to give greater importance to the technologies component in learning and teaching tasks ».

The Conference consequently recommended:

- the creation of centres of excellence, one of whose functions should be to develop, « an Arab videoconference training network and another devoted to e-learning so as to meet the essential training needs of teachers and educational decision-makers together with needs in the area of university teaching and the organization of conferences and the exchange of Arab expertise beneficial to young teachers and to future generations who will be involved in the Arab educational world". These centres of excellence should include provision for instruction in the use of the computer.
- the establishment of an Arab commission responsible for maximizing the effectiveness and use of existing networks with the aim of realizing the objectives of literacy education and training for adults and young girls ».

Worth noting finally, in this important stage in the Arab world's quest for a pertinent vision for the achievement of education for all, notably through the use of ICTs, is what the Conference's final report underscores as being one of the main outcomes of its deliberations:

"The Cairo Declaration explicitly stated the clear vision of education in the Arab states reflecting the EFA goals. The vision highlighted the role of teacher training, curriculum development, evaluation, early childhood development, **ICT in education**, inclusive education and community participation in reaching the quality objectives".

This vision is the culmination of numerous solemn political commitments to this effect stemming from the region, notably from the December 2003 ministerial conference (Egypt), the two ministerial conferences held in Lebanon in 2004 and the Tunis Arab Summit (May 2004). However, as regards "the need for putting realistic policies to meet the requirements of the 21st century"⁷, namely the effective implementation of this Cairo vision, it is appropriate to take stock of all the potential leverage points identified as being relevant to translating this vision into practice.

Among the potential tools available - in the UNESCO context at least - are the UNESCO Chairs and, in particular, those closely linked in terms of their mandate or activities with ICTs strategically targeted by the Cairo Declaration. The Cairo text takes up a theme in the Dakar Declaration (2000), which stressed that "Information and communication technologies (ICTs) must be harnessed to support EFA goals at an affordable cost" and that "These technologies have great potential for knowledge dissemination, effective learning and the development of more efficient education services (...) and should be engaged to create and strengthen partnerships with education systems ".

It is on the basis of such an approach, to which the UNESCO Executive Board has given added emphasis by declaring that « the contribution of ICTs to the development of education, science and culture and the construction of a knowledge society constitutes one of two cross-cutting themes for UNESCO's current Medium-Term Strategy for 2002-2007", that this paper will attempt to identify the possible role of UNESCO Chairs by considering, within the limits of the features specific to the region, the situation of Arab higher education and that of the UNESCO ICT Chairs in the region.

1. CONTEXTUAL FACTORS IN ARAB HIGHER EDUCATION

In the first place, no review of these UNESCO Chairs can overlook certain specificities and strong prevailing trends in the Arab World. Two at least of these limiting factors may be singled out: the relative – but substantial – dearth of viable and up-to-date statistics on education generally in the Arab world and on the activities and real impact of UNESCO Chairs in this region, and the almost total absence of a tradition of networking and regular and meaningful exchanges between the Arab Chairs in general and those employing ICTs or making them a focus of research or activities. These limitations inevitably complicate the task of diagnosing the real and existing potential of the Chairs with a view to supporting the construction of Arab knowledge societies. However, the key constraints, challenges and future tasks that define the role UNESCO Chairs are called upon to play in the construction of Arab knowledge societies stem from more deep-rooted national realities, linked to the culture of education, research and decision-making as it relates to policy formation, reform and planning in this sector so crucial for human development.

Despite the relative wealth of data and their relevance as indicators, the statistics and reported impacts of Arab higher education need to be seen in perspective in order to highlight major trends reflecting practices, educational traditions and even cultural perceptions specific to this area of civilization as regards the task of dispensing knowledge and turning it to account for the well-being of society as a whole. Among the profusion of figures and diagnoses, assembled in particular by UNESCO, concerning this sector in Arab societies, we shall confine ourselves to a single structural fact: in the year 2000, marked by the important Dakar Declaration on EFA, one fifth of Arab children (more than 7 million) did not attend school and 40% of adults could not read or write. This represents a context of massive educational deficiency, highly unfavourable to the mission of helping a society to move from ignorance to knowledge. Yet the Arab statistics, while approximate, testify to the extreme diversity of the deficits as between countries: in the case of higher education, the gross enrolment rate, which stands at 22% for the countries of the region as a whole (although calculated in the absence of available statistics for 7 out of 20 countries), varies from 58.1% for Libya to 1.2% for Djibouti, from 44.7% for Lebanon to 3.2% for Mauritania, and from 31% for Jordan to 7.5% for Oman⁸. This table does not include any indicators of educational quality, which has been a regular subject of complaint by successive meetings of Arab educational ministers and officials for at least three years. The quality of education remains a problem in the region, according to the 2005 EFA monitoring report and needs to be improved through "personnel training and research"⁹.

Can it therefore be said that the Arab University, as host and partner of UNESCO Chairs, is in a position to promote the role these Chairs are called upon to play in the name of the knowledge society?

1.1 Concerning the Arab University

In the absence of a critical history examining Arab university education from its origins, the development of this sector may be broadly characterized in terms of a pre-colonial period, the colonial period and the post-independence period. *"In Arab and African States, universities and higher education institutions were established since the 10th century but the modern and secular ones were established on the European patterns during the colonial era. These institutions were established and developed according to Anglophone or Francophone traditions which influenced their missions, practices and relationships with both government and society. During the second decade of the independence period, with the rise of nationalistic sentiments, the shift from the multi-party democratic system to military rule happening in many Arab and African countries, nationalist leaders started to question the strong links their universities and Higher Education Institutions maintained with their European partners. A need for Arabization and Africanization of curricula, research and other academic activities and traditions was felt necessary to consolidate the basis of their state apparatus and national unity and identification. During this period, Arab and African universities and higher education institutions began to be subjected to demands of their governments to comply with their policies and political orientations".* This summary, drawn from the pilot text submitted by UNESCO to the "Conference on Academic Freedoms – Problems and challenges in Arab and African countries", organized in Alexandria in September 2005, prompts us to make the following observations and comments on the current situation:

- The Arab higher education system has, for twenty years on average, been in a state of constant reform. Reforms and mini-reforms have followed each other in close succession, with the result that no country of the region has enjoyed the benefits of a system marked by stability of choice, tradition and practice over a number of years, offering institutional permanence and the possibility of testing canons and codes of conduct and relations with society, particularly in the sphere of the research that concerns us here, namely in relation to recourse to ICTs¹⁰.
- This system appears in a large majority of Arab countries as a hybrid world, full of parallelisms, not to say conflicts and antagonisms, straddling the traditional and the modern: a so-called traditional education that, by its methods, pedagogy and contents, does not differ greatly from how it was centuries ago, in the Arab or Al-Andalus medieval universities – with, in parallel, an approach to learning insecurely grounded in modern teaching tools and methods, themselves subject periodically to counter-reforms dictated by political considerations (Arabization without preparation of educational or lexical materials, followed in some countries by a "de-Arabization" and precluding on occasion a subsequent re-Arabization as the result of new political imperatives...).
- A system that manufactures inefficiency, producing hordes of unemployed graduates, who, in those rare countries where respect for public freedoms is beginning to emerge, periodically demonstrate in the street and stage hunger strikes (in Morocco, for example, unemployed graduates, organized in associations and networks, have for years demonstrated on a regular basis in front of the Parliament).
- A system largely lacking structures for promoting dialogue, exchanges and common teaching agendas between the universities in a given country, still less between the different countries of the region (the negative influence of the colonial period is still evident: French-speaking North Africa has

more twinning arrangements, for example, with French universities than with Arab universities, whereas in the Middle East twinning profits above all the British and American universities).

It is a system constantly in search of its identity and that accordingly lives a state of permanent or latent instability. This heavily compromises its capacity to produce and diffuse the knowledge and research required for a knowledge society.

1.2. Concerning Arab university research

Part of a sector that, over the region as a whole, receives on average no more than 3 to 5% of GNP (public expenditure), Arab university research is the most impoverished and fragile branch of a poor family: the Arab University. Research in these countries is far from being seen as an essential function of higher education, a key tool for knowledge dissemination and the broadest possible promotion of learning within society¹¹.

Since it would take too long to enumerate the causes or consequences of this sidelining of research (which is in many cases the principal, not to say only, reason for the existence of UNESCO Chairs), we shall confine ourselves to highlighting the following:

- The Arab States, preoccupied by the demographic fact of the youth of their populations, by their budgetary constraints and choices (3 to 5% of GNP for the education sector as a whole), and by the social pressures and the strategies that the politicians derive from them, generally confine the university to only half its mission – teaching. Their strategies overlook the fact that the university cannot dispense with the second part of its function, namely research, if education is to be a generator of material and human resources for the nation, a permanent lever for a creative knowledge society, a pillar of knowledge renewal and of the continual adaptation of potential solutions to the successive and new problems posed to individuals and the collectivity.
- The concern with research (which calls for institutionalization and a certain stability to carry out long-term programmes) is untenable or constantly threatened and destabilized by the constant reform programmes introduced by these countries in their education sector, particularly at the university level, so vulnerable to the political upheavals and national or regime crises to which these countries have been subject since their independence (a comparison is in order here with countries such as USA, UK, France and Germany, which retain a basic minimum of continuity in their choices and plans even in the case of a political or university crisis).
- Research is rarely institutionalized in a productive manner within the Arab University; in many universities the « research/development » mechanism is unknown (even linguistically).
- The concept of the long-term, indispensable to research investment, is foreign to decision-makers, who focus energy and resources on « meeting the most urgent needs » - in particular, basic educational infrastructures geared to meeting/accommodating political and social targets. Moreover, a research budget always generates the need for further fund-raising, which is often considered unviable given the addiction to short-termism and to a vision dominated by budgetary considerations and basic infrastructures.

- The Arab University is generally closed in relation to its economic, social and cultural environment and in relation to the business world, which is itself not very open to the idea of partnership with the university world. The Arab University is also isolated in relation to other partners likely to generate knowledge and/or disseminate it in society, such as the traditional media and digital media (ITCs).
- The Arab University offers very few adequate opportunities to university teacher-researchers to enable them to acquire the capacity, means and motivation necessary to deploy their faculties as researchers and to develop and upgrade them in the cause of advancing knowledge in the service of their fellow citizens. Apart from the lack of resources and tools, one finds that the number of laboratories is very limited, that access for the generality of teachers is very difficult, that material motivation (salaries, research and publication grants) is very modest and that, in general, the Arab University teacher is not introduced, in terms of motivation and means, to the world of research from the final phase of student life (doctoral studies), nor supported by ongoing advanced-training or study and research travel programmes, nor even sufficiently alerted to the need for continuous training, to the "research adventure" or to systematic use of ICTs in teaching - such tools by their nature providing the means and know-how for research and its dissemination.
- The Arab University is still, in general, in a passive posture in relation to its environment, society and above all its natural element – the public education sector, which remains in the state of passivity and self-enclosure highlighted ten years ago, in 1993, by a conference of the Rectors of the "League of World Universities": « *Universities cannot sit on the sidelines during the education crisis (...) some countries could benefit more if there was more open dialogue between the academia and the public system (...) one could ask universities if they have been proactive or passively waiting to be brought into the action* »...
- This passivity and closure of the Arab University explains the marginalization of its research activities (compounding the isolation of the institution within society) and explains at least two deficits with which we are concerned here: the non-performance of the Arabic language on the Internet through a lack of research and the technical standards necessary for more thorough digital processing and more research in general on that language in the age of the knowledge society¹²; the manifest absence of university research on adult education (or andragogy), a key to the continuous further training of human resources, vital (together with mass literacy training) to disseminate knowledge and update it continuously as required by a knowledge society¹³.

These eight shortcomings attest sufficiently to the paucity, not to say insignificance, of research within the Arab university world, which is not among the leaders in those regions whose overall output amounts to no more than 12% of scientific publications worldwide (the industrialized countries producing the remaining 88%). It follows that research, the natural conduit for the progress of knowledge in society, is not available to supply structures such as university chairs with the firepower to advance and promote learning and knowledge.

This very unfavourable university and research environment is further compounded by certain phenomena that may be categorized as cultural or expressive of mindsets, particularly among Arab decision-makers and university academics.

Depending on the countries involved, decision-makers and politicians are to a greater or lesser extent opposed in their policies and outlooks to the introduction of a multilingual system in basic education curricula (« enabling the public to make adequate use of these languages in the information society », as underlined in the Action Plan of the ORBICOM Marrakech Declaration in November 2004); there is a strong resistance by public systems to calling into question the traditional forms of education (to the detriment of ICTs as disseminators of knowledge and self-learning tools); a final factor is the quasi-dogmatic persistence of a conception that sees the task of educating the individual as primarily a collective PanArab project, the notion of the “Arab Oumma” (Arab nation) being still very much alive, including in the Cairo Declaration.

As regards university teachers and researchers, we should begin by focusing on the “**reductionism**” that Edgar Morin urges us to combat in all the universities of the world but which seems to us to be the rule in the Arab university: “a compartmentalized, monodisciplinary, quantifying mode of thought or knowledge » that favours the dominance of specialization or the « prevalence of atomising disciplines », generative of “distinct, fragmented, compartmentalized knowledge”, whereas “the realities or problems are increasingly multidisciplinary, cross-cutting, transnational, global and planetary”. This is an attitude to knowledge and work that is reflected in “a form of education in which each discipline is self-enclosed, stifling in this way the ability of the human mind to conceptualise knowledge” and leading to what Morin calls a “**cognitive infirmity**”, which obviously cannot favour access to a knowledge society nor attain its ultimate objective, which is closely linked to the purpose of education: « There is a spiritual function of education, which is to foster understanding among people as a condition and guarantee of the intellectual and moral solidarity of mankind »¹⁴.

This prevalence of « disciplinary blindness » can go a long way towards explaining why it is so difficult for the notion of « teamwork » to take root in the mentalities, practices and behaviour of Arab academics. It has to be said that the institution itself does not help, always preferring to manage and finance (occasionally) individuals rather than teams. This can be conducive to political favouritism, whereby (scarce) research budgets, study and research trips and sabbatical tend to go astray. But it also has to be said that the Arab university teacher bears some responsibility in certain countries insofar as he or she finds it difficult to accept the notion of the team, to « return to the school benches » after hitting the heights with the attainment of a doctorate and to ensure that scarce sabbatical leave is genuinely devoted to research or advanced training. And then, as part of the « single-discipline culture », one finds a tendency among Arab academics to retreat into their specialized, elitist world with its hermetic language, which prevents them developing the skills of popularisation, communication and simplification vital to diffuse knowledge with the aim of helping to promote a knowledge society.

It is also worth reflecting on the fact that the Arab university system is almost closed to senior citizens, even more to adult education courses¹⁵. Confronted by this self-enclosed universe with its defensive mentalities, policies, practices and perceptions, the Arab world is witnessing the emergence of a marked social phenomenon in the form of the « under-appropriation » of the digital culture of the knowledge society, which has the effect of reducing the user of these new knowledge tools to no more than a target, a peripheral consumer, a viewer exposed daily to hundreds of satellite channels, to ICT contents that are rarely adapted to the individual’s situation, ambitions and problems, a citizen who is the victim of piracy and the counterfeiting of tools, programmes and contents, and who approaches

this new « knowledge economy » for the most part from the marginal standpoint of the « informal economy », without any prospect of recognition, institutional encouragement or solid legal referents for thinking about the social transformations that such technologies set in train and nourish in the individual's life and social environment¹⁶.

To unravel such a complex social phenomenon with a view to arriving at a knowledge society that is effective and equitable in the promotion of all citizens, a major research effort needs to be carried out by the university world (including the Chairs) and a substantial challenge has to be met within the university to change mentalities, working methods and perceptions of knowledge and of the real constraints determining its development and dissemination.

2. SITUATION OF UNESCO ICT CHAIRS IN THE ARAB REGION

The picture presented by Arab higher education, broadly speaking, reveals a very difficult environment for the effective contribution of UNESCO Chairs to the construction of a knowledge society. Admittedly, public university systems embody capacities conducive to the activities of a Chair. Yet it has to be recognized that such activities cannot be developed by ignoring the negative aspects of the university environment, which can in most cases represent real obstacles to the survival and even the usefulness of a Chair, particularly one with a modern and future-oriented focus through its recourse to ICTs as tools or as a substantive part of its remit. The UNESCO Chair is thus concerned by the reform and change agenda that the Arab university is called upon to address, whose minimum requirements are: a long-term planning and management vision, including a concern to preserve a measure of stability over time as regards the choice and establishment of practices; a conception of knowledge and learning that places the stress on multidisciplinary as distinct from the debilitating prevalence of monodisciplinary; a structural and discriminatory insistence on the quality of teaching and scientific output; institutional development within the university of the continuous training component, advanced training of the university's own human resources and adult education (andragogy); a rehabilitation of research on an equal footing with teaching, as a full half of the university's "spiritual mission"; and, finally, a strong civic commitment (banishing elitism and the fortress mentality) by the university and its staff to all components of society (including basic school and secondary education) for the construction of a knowledge society.

This agenda, which concerns the university, its decision-makers, managers and staff, should be reflected in that of the Chair and should inform its activities and its relations with its immediate environment, beginning with the host university.

2.1 Status, place, role and image of the UNESCO Chair

The share of the Arab region in the web consisting of 590 Chairs and Unitwin networks in some 600 institutions in 121 countries is very reduced and unevenly distributed: some fifty chairs located in 15 countries, of which 3 host almost half (23) : Morocco (11), Tunisia (7) and Jordan (5 Chairs). And when one restricts oneself to Chairs that have communication or ICTs as their main or an important function, it turns out that this region has only three out of fifty worldwide: the Moroccan Chair of « public and community communication » (1999), the Arab United Emirates Chair "Journalism and ICTs for Women" (2002) (the two being members of UNESCO's sole communication network, ORBICOM), and the Leba-

nese Chair of “Documentation and Information Sciences” (1996). To these may be added the Palestine Authority Chair on “Freedom of Expression” (1999).

If we confine ourselves to the communications field, the region is very poorly equipped with this tool, which is indisputably useful for furthering the information and knowledge society (Spain alone, for example, hosts two ORBICOM Chairs, the said network comprising 10 Chairs in greater Europe and 7 in South and Central America, out of a total of 26, including just one in Africa south of the Maghreb).

Such a panorama does not necessarily constitute an argument for increasing the number of UNESCO Chairs in general and communication chairs in particular in the Arab region. It can also serve as an indicator of the degree of preparation of this region to meet the challenges of a knowledge society; and also to prompt questions about the effectiveness and relevance of certain aspects of this cartography of UNESCO Chairs in the Arab world. One notes in particular that: the region has no less than 5 chairs concerned with human rights (Algeria, Palestine, Egypt, Jordan and Morocco), two chairs focused on copyright (Jordan and Tunisia), two chairs with the identical title of « Comparative religious studies » (Lebanon and Tunisia), not to mention the topic of water (4 Chairs) and the environment (4 Chairs). Can it be said that such duplication advances the cause of such topics in the region, in terms of research, knowledge production or knowledge dissemination in society? There is no lack of examples, by country, to raise serious doubts on this score. UNESCO needs to undertake some rethinking/readjustment in this area. For the question debated in 2002 by the World Forum of UNESCO Chairs – *Is 500 Chairs too many?* – is still topical insofar as it should prompt a redistribution by region and by topic and should encourage the establishment of networks of chairs on the basis of these two criteria. Yet to date no networking initiative has been undertaken by the UNESCO Chairs in the region.

These findings and doubts concerning the map of UNESCO Chairs in the region are matched by others concerning the situation in which a UNESCO Chair in these countries frequently, or generally speaking, finds itself, whether or not it is specialized in communications:

- The Chair has no visibility or a marginal one within the host environment, the world of higher education. This is particularly true of the countries of the South where the visibility of an institution often depends on the number of students for which it caters, this being the only concern – as we have seen – of university decision-makers and managers (the “quantifying” vision).
- The status of research and researchers in the Arab university is marginalized still further where one is dealing with a Chair, which is rarely organically integrated into institutionalised programmes and plans and managed by the administrations of the public university system. In this respect, it is symptomatic that Chairs that are linked by their contents to ministries other than higher education (ministry of communication, for example) find it hard to become accepted and adopted by the former.
- The networking culture is very little developed in the university environment, so that a UNESCO Chair finds it difficult to find an audience, resources and skills to take the initiative culture or to initiate simple alliances between two or three partners.

- The recourse of the UNESCO Chair to ICTs encounters a major obstacle that does not always depend on its resources or skills: the Arab university is under-equipped, has little connectivity (and in certain countries its connection to the Internet is controlled/regulated, from inside or outside, despite the adherence of these countries to the universal principle of « academic freedom »).
- Without powerful visibility, strongly backed by its host university institution, the UNESCO Chair is rarely called upon for its expertise or human resources. An example to reflect upon in this regard: in North America, holders and members of a chair are often invited by the national media (TV and newspapers) to comment/throw light upon topical questions (crises, wars, inventions, world summits).
- UNESCO Chairs, for reasons relating to the major trends identified in Arab higher education, seem unreasonably fascinated by the awarding of prestigious diplomas, of the doctoral type, as though to boost their standing as grafts onto the institutional university system or to rely on prestige to attain the visibility that they lack. It is moreover frequently the case, in the Arab region as elsewhere, that the designation of a UNESCO Chair is treated above all by the decision-makers (ministry, government, national commission) and by the candidates themselves as a simple matter of prestige (attraction of the UNESCO label).
- Because of the weakness of their activities and production, mainly in the research field, the UNESCO Chairs do not fulfil one of their main objectives: fixing national skills in the country concerned and highlighting their contributions, which should protect them from the brain drain¹⁷.
- In the environment of Arab societies, which are not very receptive to the information and knowledge societies, UNESCO Chairs involved with ICTs, with their use and modes of appropriation, have an essential task of investing through research in the social transformations that these tools are bringing about in their societies *“Knowledge has become a principal force of social transformation”* and this challenge for the social science necessitates *“(analyzing) and capturing the main components and processes inherent in these developments instrumental for policy-making, based on a common and shared vision to design strategies for developing open knowledge societies”*¹⁸.
- The UNESCO Arab Chairs, like the UNESCO Chairs in other regions, have a moral responsibility in relation to the aims of the Organization (2002-2007) to concern themselves with the “ethical, legal and societal consequences of ICTs, and (with) the increasing concentration of private sector ownership of the telecommunications industry, information technology and the providers of content – including the media and in particular AV productions”¹⁹.
- The Arab Chairs, existing in an environment scarcely favourable to partnerships, have to pursue to a greater extent the path of self-development through production and invention, while exploring the path of financing by the private sector provided this does not compromise the independence of their research, and displaying imagination and perseverance in their approaches to public sources of financing, including UN agencies.

This list of observations and information on the role and situation of Arab UNESCO Chairs may be supplemented by summarizing some of the recommendations regarded by the November 2002 World

Forum of UNESCO Chairs as “keys to ensuring that the programme functioned properly”. The Forum recommended in particular that:

- “Chairs not be established unless there was genuine commitment on the part of the proposing State and institution;
- the diversity of their field of expertise be maintained;
- they address, and treat both critically and effectively, issues that the community had to resolve;
- they develop genuine partnership with their students, and, beyond that, that students be genuine programme partners;
- they generate contributions from new partners;
- they meet the need to provide educational training to higher education teachers;
- they contribute to professionalization viewed in a new light, in particular by developing the use of new technologies;
- they make it possible to preserve and develop academic freedoms (in particular by disseminating UNESCO’s 1997 Recommendation concerning the Status of Higher Education Teaching Personnel);
- they act as relays for UNESCO’s various activities or programmes outside their particular field of specialization”

2.2 Concerning the use of ICTs by UNESCO Chairs

It is clear that the use made of ICTs by the Chairs depends on the fate reserved for these tools in the host universities. In the Arab region, the use of ICTs in the university world displays all the basic shortcomings: no systematic policies for equipping university structures; underexploitation of existing equipment due mainly to a lack of skilled personnel trained to use the equipment in question; and management traditions that confer responsibility for these tools (exploitation, maintenance, renewal, investment, office supplies, timetables for use) on administrative personnel.

With regard to teaching and the knowledge content circulating within the university, one finds that content and methods that fail to make use of ICTs still predominates, that ICTs are often integrated only in certain disciplines (some physical sciences, journalism, architecture, marketing and advertising) and that « e-learning » is an « adventure » risked by few Arab universities and not always with the necessary resources and regularity. This lack of e-learning and distance education in general may be linked to another major obstacle experienced by Arab universities, and consequently by the Chairs they host: the lack of computer research, standards, solutions and necessary protocols for the Arab language to adapt to these ICTs and exploit all their possibilities after the example of the two or three other globally powerful languages.

Another handicap seldom highlighted but which is part of the Arab reality: university teachers, and potential researchers, who have received their training without recourse to ICTs are still very numerous and indeed the overwhelming majority in some countries. This is not only a problem of generation but also a problem of system, which does not sufficiently renew the profiles of its teaching appointments in this regard, and also a problem of commitment, both of the teaching staff and of the university: the

former is not inclined to learn about ICTs and the latter does not encourage and assist teachers systematically in this respect.

These findings, the most obvious ones, prompt two questions: what is the role of the public sector in the adoption and general application of these tools? And are the university chairs going to wait until the technological crisis of the Arab university resolves itself, even though these tools are the most effective, not to say the principal, means of fulfilling their mandate in the areas of research, training (of all kinds) and knowledge dissemination. "These technologies have great potential for knowledge dissemination, effective learning and the development of more efficient education services" (...) There is a need to tap the potential of ICTs to enhance data collection and analysis, and to strengthen management systems, from central ministries through sub-national levels to the school; to improve access to education by remote and disadvantaged communities; to support initial and continuing professional development of teachers; and to provide opportunities to communicate across classrooms and cultures". Given that the "swiftness of ICT developments, their increasing spread and availability, the nature of their content and their declining prices are having major implications for learning, (they) may tend to increase disparities, weaken social bonds and threaten cultural cohesion". This summary contained in the Dakar Framework for Action regarding the potential contribution of ICTs to achieving the goals of Education for All is wholly in keeping with what was said in 2002 by the World Forum of UNESCO Chairs (Panel and Round Table V) concerning the contribution of UNESCO Chairs and Unitwin Networks in the information and communication field, namely: "A proposal was made that the Chairs should, with the assistance of UNESCO, examine the most extreme transformations that are taking place within various cultures, in order to diagnose the phenomenon in the context of WSIS (...) UNESCO Chairs should utilize their capacity and means to facilitate applications of ICTs for marginalized communities, both in urban and rural areas."

In the final analysis, the only path for UNESCO Chairs consistent with their contribution to the knowledge society is that of using ICTs, particularly in the case of Chairs in Communication. For these technologies embody many possibilities conducive to the development of the knowledge society, having education as its bedrock: the quality of teaching and training of teachers and researchers; the defence and promotion of academic freedom; the effective management of education systems and research centres; the reduction of education costs as well as of access charges and connectivity, ending the communicational isolation of remote communities or « info-illiterates »; right of access of communities and outsiders to the world of communication and to communication tools favouring community development (multimedia communication centre, community radios); broadening of the knowledge horizon of the general public on topical issues (local and global); an appropriately modern training for media professionals (professionally and ethically); helping to reduce the brain drain among academics, researchers and professionals of media content; helping to keep in touch with the latest technologies and researching and advising on them, on their ethical, legal, economic and sociocultural challenges.

As key practical tools in the approach to the use of ICTs, we would stress, like the Paris World Forum, the electronic forum and networking as appropriate devices for involving the Chairs in the advance towards the knowledge society, particularly in this vast and complex Arab region. In this respect, the relevance of both the network and of the electronic forum that develops and extends its activity has been clearly demonstrated by ORBICOM, which, it should be recalled, has only two chairs in this region

(Morocco and UAE). Specially commended by the 2002 World Forum, the ORBICOM Network, as an existing and active entity, was strongly recommended by the Forum to the UNESCO Chairs, which were urged to forge links with other networks, such as the United Nations Network of Information Technology Services (UNITES)” and even to establish new networks.

This leads us to conclude that the UNESCO Chairs in the Arab region, particularly in the communication field, should see this as the ideal way of embarking on a radical rethink of their situation in respect of various shortcomings that do not allow them at the present time to aspire to contribute effectively to the advance of Arab knowledge societies. This holds true whether these shortcomings are those of their « natural » environment - the Arab university - or whether they are specific to their particular situation or to that of the UNESCO Chairs in general. It is in terms, then, of these two imperatives or central recommendations - networking and the electronic forum - that we list below a number of approaches to the practical realization of this ambition for radical reform and for gearing the Chairs to the objectives adopted by UNESCO with regard to the construction of knowledge societies in these countries.

3. APPROACHES TO GEARING UNESCO CHAIRS IN COMMUNICATION (ICT) TO THE OBJECTIVES OF THE KNOWLEDGE SOCIETY IN THE ARAB REGION

The recommended approaches for the implementation of strategies for the effective involvement of the UNESCO Chairs in Communication in the construction of knowledge societies in this region concern three key actors: governments, understood to include the public-sector universities serving as host institutions for the Chairs, UNESCO and the UNESCO Chairs themselves.

We have been careful to classify the following list of suggested approaches according to whether the leadership or initiatory role devolves upon one or other of these three actors or whether this task is to be shared on the basis of equal responsibility and initiative among two or three actors. It remains the case that all the activities suggested in this table require, in the last analysis, concerted efforts and commitment on the part of all three actors, according to a synergistic and convergent approach calculated to strengthen the ambition of the Chairs to play a significant role in the development of the knowledge society in the Arab world.

1. At the governmental level

- Seek to ensure that every school, every administrative service (educational as a matter of priority) or community group (NGO, association) has at least one computer
- Open and equip facilities, ad hoc and virtual (electronic forums, connected networks) to enable a permanent dialogue to take place between universities and ministries on the strategies to be adopted in support of EFA and on the contribution of the Chairs and ICTs to this objective.

2. At UNESCO level

- Argue the case with Arab governments and universities for enhancing the legitimacy of UNESCO Chairs in Communication within university systems so as to give these Chairs credible status

- Urge the importance of these Chairs receiving substantial and regular funding from the public budgets of the Arab university system.
- Seek to ensure that priority is given to projects linked to ICTs submitted by Arab governments for funding by the developed countries and international organizations.
- Carry out periodic re-examinations of the situation of ICTs in the Arab world and of the UNESCO programmes that support them
- Redefine the role of the ORBICOM network and equip it accordingly
- Mobilize, in conjunction with the ORBICOM network, relevant resources for the Arab Chairs and support them in their quest for funding from national, regional and international partners
- Recommend that the ORBICOM network direct resources to this region and its subregions through the ORBICOM Chairs so as to enhance their status and strengthen their standing in their environment

3. At the level of government and UNESCO simultaneously

- Make the necessary international case for increasing and harmonizing bilateral and multilateral assistance for EFA in the Arab world

4. At the level of UNESCO Chairs in Communication

- Deploy, at the national level, arguments and a public relations strategy to establish the legitimacy and credibility of the Chairs among all potential partners, the university world in particular
- Be careful to defend UNESCO's values in all the Chair's activities
- Ensure that all the sectors and programmes covered by UNESCO's mandate are supported and backed
- Develop self-financing of the Chair, in particular by ensuring that its own productions are profitable and by inducing ministries and universities to support it by enlisting help from the private sector and other local partners
- Constantly seek to establish new partnerships without sectoral boundaries, both nationally and internationally
- Explore new alliances within society (government/NGO; university/NGO; public sector/private sector, etc)
- Ensure that the activities of the Chair are constantly focused on the aim of transforming knowledge and information into a means of promoting profitable autonomy and production for all citizens affected directly or not by the Chair
- Ensure and help to ensure that local and national content is placed online and offline with the aim of helping to promote local cultures and intercultural dialogue
- Develop publication activities and recourse to the media to ensure the wide dissemination of the Chair's productions and research. Equip the Chair with a « media strategy » in accordance with the principle that « media exposure forms part of the academic enterprise »
- Develop in-depth research on the impact of ICTs on lifelong learning and education
- Continually develop research on the capacities and potentialities of the Arabic language and the main minority languages so that they lend themselves to a productive and inclusive use on the Web and in ICTs in general

- Develop substantially, in every country and throughout the Arab region, research on the social transformations and economic and sociocultural impacts of ICTs
- Devise, individually or in partnership with other Arab Chairs, a basic training model on the use of the Internet in Arabic (navigation, research, sources, email, and creation of simple contents...)
- Build bridges of collaboration, support, research and continuous learning with primary and secondary school teachers, particularly from isolated communities, notably in the rural world
- Initiate twinning arrangements in the region between chairs, between universities, and between Chairs and school groups (primary and secondary level) so that the Chair can offer "big sister" support: in the use of the Internet, in the creation of school e-journals, in media studies and understanding of media language...
- Provide for a number of revolving or non-permanent seats on the scientific boards of Chairs, to be reserved for primary and secondary school teachers concerned by a research project linked, ultimately, to the aims of the knowledge society
- Offer diplomas or certificates of merit from the Chair to partners in the world of primary and secondary education and in the realm of community organizations that have been associated by the Chair in a development project on the knowledge society
- Involve in the Chair's research plans experienced or motivated students as well as, more systematically, young researchers
- Enlist the help as far as possible of volunteer academics from "Academics Across Borders"
- Make it a constant aim to keep national skills on home soil to encourage exiled brain power to return (temporarily or permanently)
- Make distance university education one of the Chairs staple activities
- Make the electronic forum one of the Chair's key tools in a maximum of its activities and relations nationally and in the Arab region
- At the level of both governments and Chairs
- Oppose in principle cultural conservatism and outdated and intolerant identity-based approaches
- Work for diversity and enriching dialogue in contents and approaches at the national and regional level
- Always focus on the present and future problems and needs of local communities and society in general
- Work for equity in access to knowledge in the interests of women, minorities and marginalized groups
- Help to make literacy training for adults and young girls systematic and efficient
- Encourage community participation in all actions relating to knowledge acquisition and production
- Support and join UNESCO's "Information for All" programme
- Work for greater access of the Arab public to information, primarily information of public interest
- Work for the wider dissemination of computer culture in Arab societies
- Keep up to date with the evaluation of reading skills in the Arab world
- Keep a close watch on educational development indices

- Work for the development of the social sciences in the Arab universities, notably to analyse the advance of the knowledge society and the social transformations that accompany it
- Place the emphasis in teaching and research on multidisciplinary as an approach and practice
- Deploy systematic strategies for the use of ICTs in teacher training, for self-instruction, to promote interactivity between teachers and learners and in distance education
- Constantly foster the networking of establishments for educational training, teacher training and the training of trainers
- Focus in research on the first levels of education: schools, colleges, vocational training centres
- Work for the emergence and viability of centres of excellence and poles of innovation in education, communication and ICTs, which the chairs could manage or support, depending on the country
- Place the main emphasis on the quality of teacher training
- Support teachers and researchers in their demands for motivating salaries and study and research trips and grants for their productive involvement in the cause of the emergence of a knowledge society

5. At the level of the chairs and UNESCO

- Launch a major programme of research on the Arabic language and ICTs, to include exploitation of the Internet
- Bring together on a single electronic portal the statistics, research and bibliographical and web references on education, teaching and ICTs in the Arab region
- Develop in cooperation indicators concerning academic freedoms and the autonomy of the university, which could be defended by the Chairs in the university world and by UNESCO in relation to governments

6. At the level of all three actors together

- Stress the role of governments in creating a favourable environment for knowledge transmission and for the establishment of infrastructures and modes of exploitation appropriate to ICTs
- Defend academic freedom, a difficult subject in the Arab world, particularly through the revision of their legal codes
- Recommend the practice of networking as the broadest and shortest highway leading to the knowledge society

Regional study on knowledge societies and cultural diversity in the Asia Pacific region with reference to the role of higher education and the UNITWIN/UNESCO Chairs programme

by *Anna Haebich*

INTRODUCTION

I have been invited to present a report on behalf of the United Nations Educational, Scientific and Cultural Organisation (UNESCO) Chairs of the Asia Pacific Region on 'Knowledge societies and cultural diversity in the Asia Pacific Region with reference to the role of higher education and the UNESCO Chairs'²⁰.

I am the ORBICOM UNESCO Chairholder for Griffith University in Brisbane, Australia. As a UNESCO Chairholder, Co-Director of the Griffith University Centre for Public Culture and Ideas and an Australia Research Council Fellow, I am involved in the development and implementation of research projects that encourage collaboration between the creative arts and the humanities and government, industry and community stakeholders and that articulate with contemporary debates in public culture and ideas. My own research is interdisciplinary and broadly based in the humanities and creative arts, with a particular focus on Indigenous studies and cultural diversity. I have worked extensively with Indigenous communities and I am part of an Indigenous family in Western Australia through marriage. I was appointed as UNESCO Chair in recognition of my contributions to the Indigenous communities of Australia.

The other ten UNESCO Chairs of the Asia Pacific region are located in universities in the following countries:

China	Pakistan
India	Philippines
Japan	Sri Lanka
Kazakhstan	Thailand
Korea (Republic of)	Uzbekistan

The Chair titles and areas of research and teaching include:

Communications	Information Sciences
Distance Education	Information Technology
Journalism	Automated Information Technologies
Freedom of Expression	

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This paper is more in the form of a discussion paper than a report and is intended to open up dialogue and conversations. It is based on current research and my experience as a UNESCO Chairholder. This approach was necessary as reports from other Chairs in the region were not available. Since cultural diversity in knowledge societies is an emerging area, I have included a general discussion on its significance. The paper also presents a broad overview of diversity and challenges in the Asia Pacific region, and general proposals on the role of higher education involvement in knowledge dissemination and exchange and knowledge application and utilization and the role of UNESCO Chairs. Case studies of ORBICOM and other projects at Griffith University are included to open up discussion about standards of good practice and networking models for Chairs in the Asia Pacific region.

The report is divided into the following sections:

1. Knowledge societies and cultural diversity
2. Diversity in the Asia Pacific region
3. Strategies for Higher Education and UNESCO Chairs
4. Models of good practice

1. KNOWLEDGE SOCIETIES AND CULTURAL DIVERSITY

Knowledge societies and cultural diversity are demanding increasing attention in international forums on Information and Communication Technology (ICT) environments.

UNESCO has identified as a 'high priority' the construction of knowledge societies and the bridging of knowledge and digital divides. Mr Koichiro Matsuura, Director-General of UNESCO, has stated that these priorities are 'precisely what UNESCO is all about'²¹.

The paradigm of 'knowledge societies' shifts our focus from foundational stages of ICT infrastructure development and institutional mainstreaming and integration. It demands consideration of the broader social, cultural, economic, political and institutional environments that accommodate the complex and dynamic transformations occurring within information and communication technologies²².

As stakeholders – governments, the private sector, civil society and regional and international organisations – we need to work together to generate multi-level policies that respond flexibly and rapidly to the 'exponential pace of change'²³ in ICTs and related revolutionary shifts in knowledge production and dissemination and learning. We need policies that address management of socio-economic change, protection of basic human values and rights and sustaining of cultural diversity. We urgently need strategies to reduce the digital divide within and between nations, to democratise knowledge and knowledge sharing and to build citizen capacity in knowledge literacy and lifelong learning.

In discussing plans for the World Summit on the Information Society (WSIS) debates in 2002 Mr Koichiro Matsuura stated:

The very nature of knowledge societies and their construction would be at the heart of WSIS debates. Vital social, political, cultural and institutional aspects of change must be taken into serious consideration. This requires that issues of human rights, social inclusion, intercultural dialogue, cultural diversity,

gender and youth are accorded a central, not marginal, place within the Summit and its preparatory processes'²⁴.

UNESCO acknowledges the 'central place' of cultural diversity in its four essential principles for constructing knowledge societies, which are:

Freedom of expression, universal access to information, equal access to education and cultural diversity²⁵.

The Plan of Action adopted at the WSIS meeting at Geneva in 2003 states that:

Cultural and linguistic diversity, while stimulating respect for cultural identity, traditions and religions, is essential to the development of an Information Society based on the dialogue among cultures and regional and international cooperation²⁶.

In common usage cultural diversity refers to 'the variety of cultures and the need to acknowledge this variety to avoid universal prescriptive cultural definitions'²⁷. This definition should not encourage views of cultural differences as merely exotic and static elements of a pure original tradition but should invite discussion of the multiplicity of cultural processes and dynamics of change and hybridity.

The significance of cultural diversity for humanity is recognised in Article 1 of the UNESCO Universal Declaration on Cultural Diversity 2001:

As a source of exchange, innovation and creativity, cultural diversity is as necessary for humankind as biodiversity is for nature. In this sense, it is the common heritage of humanity and should be recognized and affirmed for the benefit of present and future generations²⁸.

At the time Director-General Mr Koïchiro Matsuura observed that the Declaration makes the protection of cultural diversity 'an ethical imperative, inseparable from respect for human dignity' and expressed his hope that the Declaration would 'acquire as much force as the Universal Declaration of Human Rights'.

In contrast to views that cultural diversity is a divisive force acting against global and national harmony the Preamble to the Declaration argues that:

... respect for the diversity of cultures, tolerance, dialogue and cooperation, in a climate of mutual trust and understanding, are among the best guarantees of international peace and security²⁹.

The Declaration affirms the positive role of cultural diversity in development – 'not simply in terms of economic growth, but also as a means to achieve a more satisfactory intellectual, emotional, moral and spiritual existence'³⁰. Cultural diversity also fosters 'creativity in all its diversity'³¹ and opens up 'vast prospects for creation and innovation'³².

Objectives listed in the Declaration Action Plan coincide with those identified for the construction of knowledge societies:

Encouraging digital literacy, countering the digital divide, universal access through global networks to all information in the public domain, exchange of knowledge and best practice, part-

nerships, awareness through education, diversified content in the media and global information networks and balancing copyright protection with public right of access to information.

Other objectives from the Declaration now being folded into the paradigm of knowledge societies include:

Safeguarding of linguistic heritage, linguistic diversity, protection of traditional knowledge, in particular that of indigenous peoples, inclusion of traditional pedagogies and development of appropriate cultural policies and cultural industries³³.

These are optimistic pronouncements. In the public domain there are urgent unresolved questions about the implications of ICTs for cultural diversity in knowledge societies. At present there are no simple answers but rather a series of tensions that can only be resolved through ongoing dialogue and strategic research involving all stakeholders. Will cultures be subsumed by a new cultural imperialism coming from the global mindset of the Internet and the international media industry? Are the structures of ICT technology so geared towards English language speakers and Western epistemologies that the cultural and linguistic specificities of the majority of the world's populations will be inevitably homogenised in a global ICT culture? Are world powers and global corporations creating through the strictures of trade agreements and new copyright restrictions³⁴ an irreversible stranglehold on the free flow of knowledge and use of new forms of technology essential to sustaining cultural diversity? Is the 'democratic freedom of cultural and artistic exchange'³⁵ gradually being taken away from us?

Alternatively, is it the case that 'the global future is much more radically open than the discourses of homogenisation and Westernisation' suggest? That the 'crude model of one-way flow of cultural influence' is inadequate since 'culture... simply does not transfer in this linear unidirectional way' and that 'movement between cultural/geographical areas always invites translation, mutation and adaptation.'³⁶ That by reducing time and distance, blurring boundaries between place and people and opening up new modes of communication and knowledge production, ICT can open up creative new possibilities of expression and communication for all communities. An article in the *Digital Review of Asia Pacific* for 2005-6 argues that 'technology is socially determined, rather than society being technologically determined. This means that society can choose how to use the technologies available – including ICT.'³⁷ Rather than homogenising cultures ICTs encourage:

Expressions of culture to be shared and to claim space in the public sphere, creating a discussion between all those with an interest and a stake in the healthy expression of a culture and in the well-being of the people who constitute that cultural group.... Free communication can be culture-enhancing. It can also help to educate the world about the culture of a specific people, nation or place³⁸.

The article cites the example of Iran, which supports ICT in order to develop and empower the 'national and Islamic culture and the Persian language in the digital arena'³⁹.

There is also concern that disparities in ICT equity will serve to widen the gap between information rich and information poor populations within and across borders. Critics note the focus on increasing the volume of ICT consumers at the expense of creating knowledge literate users who are actively creating information and turning data into information and knowledge. Critics also question whether the

extension of the Internet is bringing diversity and choice in content or circulating increasing amounts of homogenised bland content dominated by the West⁴⁰. Of course, in the current global climate there are also serious issues of terrorism and surveillance and control of information on the Internet in the 'war against terrorism'.

Domestic realities of individual States further complicate these issues. Australian publics, for example, endorse cultural diversity but many still look nostalgically to a recent past of cultural uniformity and this is reflected in current public debates and some government initiatives. Despite heated negotiations over the treatment of culture in the US-Australia free trade agreement, Australia abstained from voting in the recent UNESCO meeting on an international treaty on cultural diversity. Official reasons were that provisions might 'conflict with domestic policies' or 'obligations under other international conventions'. However, some local commentators are interpreting the vote as a 'gesture of support' for the US⁴¹.

2. DIVERSITY IN THE ASIA PACIFIC REGION

The Asia-Pacific Regional Conference in Tehran in 2005 observed that the Asia-Pacific region's 'unique characteristics and special features endow it to promote the growth of Information society'⁴². The Tehran meeting cited as distinctive the region's rich cultural heritage, mix of languages with links across the region and the world, vast human resources, proven technological capabilities and the significant role it is already playing in the information revolution. The region's political leadership is committed to bridging the digital divide. I would add that these features also endow the region with a particular capacity to sustain cultural diversity in knowledge societies in creative and innovative ways.

The Asia-Pacific region is vast in area and extremely varied geographically. The region is also demographically complex with over 60% of the world's population and 65% of the world's poor. Youth constitute the bulk of the population⁴³. The region is prone to natural disasters – most recently the tsunami that devastated coastal regions of South-East and South Asia and the destructive earthquakes in parts of Pakistan and India – which cause tragic loss of life and property and major set-backs for development.

Cultural diversity is a hallmark of the region. The Tehran meeting noted that it is the 'home of orient cultures and wisdom' with 'some of the world's oldest centers of learning and having created huge intellectual property in several languages'⁴⁴. The region is also home to many indigenous cultures that are facing enormous risks and pressures in their efforts to sustain traditional knowledges⁴⁵. All major world religions are represented as well as many local indigenous religious traditions. While countries such as Japan are internally culturally homogeneous, others are internally diverse. China for example has a Han Chinese majority with Muslim and ethnic minorities spread out over a vast area. Linguistic diversity is extreme. The Tehran report noted that 'of the more than 6,800 languages in the world, 3,500 (51%) are spoken in the Asia-Pacific region'⁴⁶. (Papua New Guinea alone has 700 recorded languages). These include major languages (e.g. English, Arabic, Chinese, Japanese, Hindi), hybrid languages (e.g. pidgin in Papua New Guinea, krio in Northern Australia), official languages (e.g. Bahasa Indonesian), languages with millions of speakers (e.g. Chinese within its national borders and diasporic communities in the region), and those with few native speakers (e.g. Aboriginal Australia). English is increasingly the

lingua franca for the region. This is an advantage for countries with an English-speaking colonial legacy (e.g. India, Australia, New Zealand, Malaysia, PNG and many of the Pacific Islands). Some countries provide accelerated English learning programmes and support international student programmes in English-speaking countries such as Australia.

Economically the region is the 'most dynamic and fastest growing region in the world' and the Tehran meeting anticipated that it would 'account for more than half of the world trade in this century'⁴⁷. However, there are vast disparities between advanced economies (e.g. Japan, the Republic of Korea, Singapore, Hong Kong, Australia), rapidly developing economies (e.g. China, India, Indonesia and Thailand forecast to join the worlds top economies by 2020)⁴⁸ and developing and transitional economies in South East Asia, Papua New Guinea and Melanesia and the Pacific Islands.

These economic disparities are reflected in variations in ICT environments in terms of levels of ICT infrastructure, access, take up and use, and involvement in ICT development, production and service provision. Countries such as Japan, the Republic of Korea, Hong Kong and Singapore are advanced powerhouses in ICT manufacturing industries. China is emerging as a manufacturing giant producing high-end technology equipment. India has carved out a niche as a leading world provider of ICT services and software creation. The US, Australia and Europe all outsource software development and customer services to India. ICT skills in India and the Philippines are in high demand by international corporations, particularly in the US, raising alarms locally about a brain drain from these countries. While the region boasts the highest percentage of ICT users in the world it also has the greatest digital divide. In terms of infrastructure and access the Republic of Korea leads the field with programs to accelerate PC diffusion into the home and is the most active user of the Internet in the region. The Philippines has the highest rates of ownership (over 25% of the population)⁴⁹ and use of mobile phones. ICT take-up and use in China is expanding rapidly. The Pacific Island countries are developing basic infrastructure for connectivity and access. Bhutan has a commercial Internet service provider but two-thirds of households do not have electricity⁵⁰. Differential access is also found within countries along the lines of gender, ethnicity, indigeneity, income, age, special needs (e.g. disabilities), language and remote/rural/urban divides⁵¹.

Significant differences are also found in approaches to education in ICT in the Asia-Pacific Region. Attention to higher education lags behind the region's focus on ICT use in logistics management, e-commerce, service delivery, communication and information access. The *UNESCO Meta-survey on the Use of Technologies in Education in Asia and the Pacific*⁵² found that all countries acknowledge the growing impact of ICTs and the need for 'skills and knowledge to enable their country to function in a global "e-economy"' but are at very different stages of development and implementation of policy frameworks for application of ICT in education.

The most advanced policy frameworks and implementation strategies with supporting infrastructure and resources are found in the more advanced economies [e.g. Australia, Republic of Korea, and Japan]. Many of these countries provide sophisticated world-class standards of higher education that meet the demands of their growing middle classes. Some developing countries are still struggling with management of conventional educational programs. Others like Papua New Guinea battle with inherited colonial education infrastructures and continuing neo-colonial relationships with former colonial

powers (Australia in the case of Papua New Guinea) that can hinder the emergence of systems that can best respond to their particular development needs and socio-cultural specificities⁵³. Perceptions of the role of ICT in education vary between countries. For most the top priority is developing an ICT-skilled labour force. Some are improving subject teaching through ICT appliances and teacher training, and a minority are addressing the need to create knowledge literate citizens. In many countries ICTs remain an 'add-on' in education.

The survey noted innovative responses in teaching modes to the realities of technology access in the region, such as the creative "mixing and matching" in teaching of existing broadcast technologies of radio and television with more advanced ICTs. Networks using satellite application are delivering e-teaching programs for the Pacific Island University consortium. The Philippines has an innovative mobile m-learning project that incorporates wireless technology. Pakistan has established a Virtual University for distance learning.

The survey concluded that countries urgently require more information about practices in the region and around the world and indicators to assist in evaluating options for ICT development. Through the sharing of experiences within the region, developing countries can 'leapfrog' earlier stages and join at higher levels of productivity. They can selectively adopt advances in ICT technology (e.g. voice recognition systems to overcome problems of illiteracy and language keyboarding) and take advantage of decreasing costs in technology and infrastructure. They can identify what suits locally, for example the use of open- source software, which is low cost and easier to adapt to local languages and scripts.

These unique features of the Asia Pacific region point to an exciting potential to sustain cultural diversity in knowledge societies. The vast cultural capital and human resources of the region and demonstrated economic and ICT innovation and power are platforms from which to develop culturally diverse knowledge societies that can maintain and multiply diversity in the face of Western ICT hegemony and neo-colonial interventions, such as the exploitation by international ICT corporations of cheap labour in the region. Indeed, processes here may shape a new 'participatory paradigm of communication for development that goes beyond the modernisation and dependency paradigms'⁵⁴. However the same features also raise major challenges. While there are numerous economic and cultural organisations and networks linking countries in the region [e.g. Association of South East Asian Nations (ASEAN), Asia Pacific Economic Corporation (APEC), ASEAN Free Trade Area (AFTA)], regional unity is threatened by external alliances based on trade and commerce, cultural links and in some cases historical colonial relations and the tyranny of distance and geography. This can leave countries vulnerable to the homogenising influences of global media and ICT and militates against the development of a unified voice to negotiate with other ICT powers and regions to protect interests of the Asia Pacific region. The strategic importance of the issue of unity in the Asia Pacific region was raised in the Digital Review of Asia Pacific 2005/2006, which noted:

While other regions of the world... shift progressively towards regional integration, the Asia-Pacific region faces the threat of fragmentation... fragmentation may constitute a very potent risk in the current globalisation, which help to "flatten" the world⁵⁵.

This review also warns that in the region the 'stranglehold' created by 'the stifling copyright restrictions and intellectual property mechanisms asserted by economies with well-developed ICT industries' is taking over from access as the major causal factor in the digital divide⁵⁶.

3. STRATEGIES FOR HIGHER EDUCATION AND UNESCO CHAIRS

The role of higher education in the 'generation, dissemination and application of knowledge, and for building technical and professional capacity of nations'⁵⁷ is formally acknowledged by UNESCO, the World Bank, the United Nations Development Programme (UNDP) and numerous other international and regional organisations. The UNESCO Higher Education Partners' meeting indicated that:

... the role of higher education as a key factor and major driving force for sustainable development in knowledge-intensive and information societies has continued to grow... but developing countries ... lag behind in capacity for knowledge generation, dissemination and utilization'⁵⁸.

For universities to fully participate requires new levels of innovation, flexibility, collaboration and risk-taking in university practice. Essential to this is the generation of strategies for working inclusively with stakeholders in cross-cultural contexts. The revolution in learning demands from universities new paradigms of knowledge production and dissemination; new pedagogies, curriculum, content and modes of learning delivery; and new research partnerships to produce the socially robust knowledges required by knowledge societies.

It is my experience that many staff in universities today feel they are living in a constant state of change and crisis. Universities are grappling with the challenges of the knowledge and learning revolution as well as pressures to internationalise and become more entrepreneurial and vocationally oriented. These changes are driven by the forces of globalisation, rapidly changing ICT environments and the demand for democratic forms of education in evolving knowledge societies. The UNESCO-CEPES conference on higher education in 2002 identified the following tensions facing universities in the twenty first century⁵⁹:

- Integration/maintaining diversity
- Vocationalism/humanistic general education
- Marketing and entrepreneurial objectives/traditional 'pursuit of truth for its own sake'
- Internationalisation/local
- Discovery and furtherance of knowledge/meeting needs of the population
- Government support/government interventions

Pressures to cut costs and institutional resistance to change hinder many universities in developed countries in their efforts to adapt. As the World Bank has observed, many developing and transitional countries face particular problems because their 'systems of tertiary education are not adequately prepared to capitalize on the creation and use of knowledge'⁶⁰.

A report by the Australian Government on international trends in ICT in education⁶¹ identified the following strategies currently being implemented to achieve ‘innovation in education and training systems in adjusting to the new context of education’:

- Building a shared vision and leadership
- Strengthening and focusing on research and development
- Building networks to foster the generation and spread of new ideas
- Building banks of case studies as models and exemplars of leading practice
- Linking education reform to broader community-oriented strategies
- Fostering of a range of partnership strategies.

The UNESCO experts meeting on “Cultural Diversity in Knowledge Societies”⁶² identified the following strategies for the important task of measuring the sustainability of cultural diversity through the opportunities offered by ICT for knowledge societies:

- New intercultural connections and networking;
- New opportunities to make old and new knowledge available;
- New opportunities for creativity;
- New access to cultural contents and services produced worldwide

These also present strategies of action that institutions of higher education can adopt in contributing to knowledge societies and cultural diversity.

In addressing the issue of cultural diversity in universities it should be noted that this should not be confined within the concept of ethnicity and indigeneity but should also be considered as a condition of the learning institutes. Disciplinary cultures come with their own isolating lexicons and traditions of knowledge access. Without effective dialogues between disciplines knowledge exchange is itself limited.

UNITWIN/UNESCO Chairs have an instrumental role to play in these processes through ‘functions of teaching, training and research, and their contributions in strengthening national capacities in production, dissemination and utilization of knowledge’⁶³. The responsibility for UNITWIN/UNESCO Chairs to share new ideas and research and creative solutions, particularly between developed and developing countries, has never been greater. Many of us are contributing in important ways already but, in my own experience I often feel overwhelmed and frustrated in my capacity to contribute by the many other institutional demands on my time, the problem of keeping up with ICT etc change, the lack of direct contact with other Chairs and their work and limited resources to support research projects. I have been fortunate that, as Co-Director of a major Research Centre, I have been able to capitalise on Centre resources and networks in my work as a UNESCO Chair and that I have colleagues at Griffith University who are passionate about the possibilities of ICT.

The following are selected areas of innovation where higher education can contribute to sustainability of cultural diversity in emerging knowledge societies. No doubt UNITWIN/UNESCO Chairs in the Asia Pacific region are already addressing many of these areas. I acknowledge the important roles for higher education in ICT policy formation and the development of ICT professionals and teachers, ICT research and online publication but have confined myself to particular themes that reflect my research interests. The projects referred to are ones that as UNESCO ORBICOM Chair I am involved in/would like to be

involved in/or have taken an interest in. They address areas of knowledge preservation and dissemination, content, knowledge literacy, creativity and new modes of learning.

Decolonising knowledges

The fact that conventional university structures can perpetuate the colonisation of indigenous knowledges is addressed in a paper by UNESCO Chairholder Dr Evangelia Papoutsaki of the Divine Word University in Madang, Papua New Guinea⁶⁴. This nexus of power and knowledge can be challenged by collaborations between communities and universities using innovative ICT technology that connects to the 'culture-technology nexus'⁶⁵ emergent within the communities. In the case of indigenous communities in the Asia Pacific region, a recent report by the Australian Institute of Aboriginal and Torres Strait Islander Studies states that there is an urgent need for measures to support the maintenance and transmission of traditional knowledges⁶⁶. The WSIS Action Plan also identifies the need to work with Indigenous communities to 'develop content in their own languages' and to 'enable them to more effectively use and benefit from the use of their traditional knowledge in the Information Society'⁶⁷.

Examples are digital repositories or archives of traditional knowledges, languages and tangible and intangible heritages built according to the 'cultural construction of IT' by the community of speakers themselves⁶⁸. Media-rich digitalised content can include documents, works of art, still and moving images, oral material, repatriated items, contextual material, exhibitions and links to other websites and portals and print media. Access to sites can be confined to the community or extended to others through conditions protecting the rights of custodians and allowing for 'fair use' of materials for educational and research purposes. An obstacle to achieving these goals can be limited community ICT skills. Australian Indigenous communities are seriously disadvantaged by lack of ICT skills at all levels.

In Australia government libraries working with Aboriginal communities are driving the creation of knowledge repositories but there is room for university support and participation in these processes. Particular attention has been paid to negotiating protocols and practices that recognise the rights of Indigenous people as owners of their knowledge⁶⁹. Other issues are repatriation of materials from colonial collections and legal imperatives of copyright and ownership and Indigenous ownership practices. The ultimate aim is to create community-based collaborative projects using techniques of participatory design and ICT capacity building that empower Indigenous partners to generate models that fit their cultural obligations.

An early example of cooperation involving the South Australian State library and the Pitjantjara people of Central Australia is the Ara *Iritja* archival project, an initiative of the Pitjantjara Council, which identifies copies and electronically records Pitjantjara history and culture. In Arnhem Land the Australian Institute of Aboriginal and Torres Strait Islander Studies [AIATSIS] and the Galiwin'Ku community are working closely together to set up the Galiwin'Ku Indigenous Knowledge Centre⁷⁰. AIATSIS works closely with local people, endeavouring to set up a 'specific community intellectual propriety protocol' that is based on Galinwinku understandings of knowledge management and that also negotiates with broader Australian laws of intellectual property. The project aims to create new different relationships between researchers and institutions through local protocols to guide researchers in the field.

Creating knowledge literate publics

Universities can contribute to developing knowledge-literate publics by creating or participating in online and other public forums to keep the public up-to-date and informed about new developments in ICT technology and issues such as protection of intellectual and creative property, open access versus pay-for-view, the role of creative commons, e-governance and so on. This initiative is currently being developed at Griffith University.

Creative industries and the creative arts

The creative arts add to the vitality of cultural diversity. The Centre for Public Culture and Ideas and the Queensland College of Arts at Griffith University promote exchange and collaboration in the creative arts through support for new media in the arts, online exhibitions and artist networks and visits. In the case of Indigenous artists, web-site marketing can showcase local artists and link art centres directly to consumers. Griffith University's Sustaining Cultures project is a major collaboration with Australian performing arts centres. Its brief includes development of online exhibitions, searchable databases for audiences and web-publication of project research.

Language teaching and learning

Learning a language is about learning a culture and understanding the self from a different perspective. This process often takes place in isolation from the community of speakers and the challenge is to create innovative processes to immerse students in the culture while also creating efficient modes for language learning. E-learning provides exciting possibilities for enfolded new technology as an integral part of the curriculum. The School of Languages & Linguistics at Griffith University is developing innovative approaches that link curriculum goals and options in pedagogy and technology with researched student and teacher needs. Outcomes include language learning in real time with native speakers through the Internet, an online notice board for identifying local speakers, mobile learning using text SMS to send clusters of vocabulary etc to students at regular times between normal classes and MP technology to download chunks of language materials to facilitate listening skills⁷¹.

4. MODELS OF GOOD PRACTICE

The criteria for 'leading practice' in the policy of ICT education listed in *Towards a Connected Learning Society An International Overview of Trends in Policy for Information and Communication Technology in Education* commissioned by the Australian government in 2002 include the creation of:

A bank of models and exemplars of good practice... built up through case studies to benchmark good practice, which are accessible to all through an appropriate web site⁷².

The following projects from Griffith University are presented in the context of this recommendation. The outlines are intended to stimulate discussion about criteria of good practice in research and teaching in ICT education and about the potential to create a web site for the Asia Pacific region based on models of good practice from the work of UNESCO Chairs and their universities in the region. The creation of information-sharing networks of scholars is an important contribution that we can make to the sustaining of cultural diversity in knowledge societies. This network could have links to existing UNESCO and other regional organisations such as the Regional Clearing House on ICTs in Education for the Asia and the Pacific Project in Bangkok.

The projects meet the objectives of promoting cultural diversity, forging industry and community partnerships for knowledge production and creative output, capacity building for indigenous communities, preserving Indigenous and other community knowledges and heritage, encouraging inter-disciplinary research, creating appropriate content and curriculum, developing innovative pedagogies and articulating with important contemporary debates in public culture and ideas.

QPACifika⁷³

QPACifika is a joint initiative of Griffith University, the Queensland Performing Arts Centre and the Queensland Museum in collaboration with Pacific communities, cultural bodies and organisations. *QPACifika* is a response to the knowledge gap that currently inhibits greater understanding of contemporary Pacific culture and aims to address this shortcoming by promoting multidisciplinary and cross-cultural dialogues contributing to institutional and communal knowledge and knowledge practices. The practical outcomes of *QPACifika* will generate a wealth of new insight and material for in-depth analysis of innovation and cultural continuities in Pacific artistic production and its significance for promoting cross-cultural understanding in Australia and the Pacific region.

The primary objectives of *QPACifika* are to:

- 1.** Strengthen the visibility of Pacific cultural production, specifically the visual and performing arts, and cultural heritage.
- 2.** Research and identify continuity and innovation in Pacific 'living traditions'.
- 3.** Develop new scholarship on Pacific art, which moves beyond the paradigm of post-colonial theory, to emphasize the diversity and plurality of Pacific Island cultural production.

QPACifika will pursue these goals by:

- a.** Curating complimentary exhibitions of Pacific island visual and performing arts and cultural heritage at the Dell Gallery Queensland College of Art, the theatres of the Queensland Performing Arts Centre, and the exhibition spaces of the Queensland Museum.
- b.** Creating multi-media archives of the exhibitions, for public access through the World Wide Web.
- c.** Placing full focus of scholarship on the plurality of cultural production in the Pacific, resulting in a published text of 'case study' analysis.

Digital documentation of the Pacific cultural exhibitions is a crucial part of *QPACifika* research. This documentation will involve close collaboration with indigenous artists and knowledge custodians to ensure that what is recorded will reflect as accurately as possible the meaning and values and rights of the indigenous cultures.

A further innovative dimension of this project is that it will research, devise and implement new techniques for employing digital media to document contemporary Pacific art. The Queensland Performing Arts Centre and the Queensland Museum are responding to growing public demand for information in digital forms by creating surrogates of heritage items and artworks that are freely accessible via the Internet. Documenting contemporary Pacific art presents unique conceptual, technical and ethical difficulties arising from its being grounded in cultural assumptions and practices that are markedly different from those informing Western notions of art. This project will overcome these difficulties by develop-

ing new techniques for the recording and documentation of Pacific art for use by cultural institutions that maximize the cultural and economic benefits to artists, their communities and the wider public.

Significantly, this project involves indigenous participants in all aspects of the project (art, dance, music, performance, exhibition management, research). Training and education of Indigenous personnel is an essential element of the project, which will contribute to the building of creative connections across the region in line with the project's overall goal of enhancing the capacity of cultural institutions to foster Pacific artistry in ways that provide strong, healthy informed awareness of the benefits of sustaining cultural diversity in this rich region.

Intersections: Environment Through Art⁷⁴

Intersections: Environment Through Art has been sponsored by my role as ORBICOM UNESCO Chairholder in association with The Centre For Public Culture and Ideas, Griffith University. *Intersections* is essentially a web portal which promotes public knowledge, innovative interdisciplinary endeavours and culturally diverse interpretations of the Australian landscape. In keeping with one of UNESCO's central mandates – to increase, maintain and promote the free exchange of ideas and knowledge - this website disseminates public knowledge about the many exciting projects bringing together science, culture, history and community in innovative ways to study the Australian environment. Advantages of this website include publicising projects, providing a centre point to streamline research, and creating opportunities for greater communication, networking and information-exchange between practitioners, new researchers and interested members of the public.

Intersections is especially focused on promoting; indigenous knowledge and perceptions, Australian Aboriginal archaeology and anthropology, cultural identity and nature, imaginings of the future and sacred ecologies among other more prominent environmental issues such as pollution and salinity.

Preceding the launch of *Intersections* and contributing to its formation, was the nationally acclaimed and award winning project *On the Bunya Trail*.

On the Bunya Trail⁷⁵

Queensland's noble giant of the forest, the Bunya pine, has become the focus of a multimedia exhibition and web resource, bringing together scientific and cultural research, documents, images and sounds which canvas the stories associated with this intriguing tree. Various viewpoints and ideas from Indigenous, popular culture and historical perspectives can be explored in an entertaining and educational way via online access from anywhere in the world. Initiated and researched by myself, while assuming the role of director for the Centre for Public Culture and Ideas at Griffith University, the project was produced as a collaboration between Global Arts Link, a major regional art gallery and museum in Ipswich, Queensland, and the Queensland Studies Centre at Griffith University. Identified areas of research include: ecology and natural history; Murri culture, language, history and ongoing linkages; European settlement, timber industry, food, crafts, folk lore; recreation and tourism; and representation of the tree in literature and the visual and performing arts.

By making the Bunya pine tree visible in our cultural landscape, the exhibition encourages a sense of connection with landscape and environment and with people, places and stories of the region, and it

continues to do so today via its presence on the World Wide Web. The multimedia website employs new technologies to represent an ancient environmental treasure and presents a variety of perspectives on the tree's place in the history and environment of the region by bringing together natural and human histories and ecological and cultural perspectives. This information links to tourist sites and heritage trails in the region, potentially expanding a community centred around Bunya culture, forestry, history and knowledge.

Salt Water Films⁷⁶

This project seeks to create and extend tools of empowerment in the community of West Cairns, where some 3000 Aboriginal or Torres Strait Islanders and some other 3000 people of non-English speaking backgrounds live. Via the development of a 'screen culture' this project creatively engages different Indigenous groups via the common goal of writing, filming and publishing. This project is a direct response to community interest in fostering cultural projects aimed at overcoming cross-cultural differences and will be facilitated by Griffith University's Centre for Public Culture and Ideas and the Department of Housing and Urban Renewal, West Cairns.

The loss of place and traditional culture effectively results in the loss of identity, continuity and self-esteem, igniting intercultural tensions. We believe that information, knowledge and education are empowering and central to the wellbeing of communities and aim to promote harmony and cohesion within these communities via shared experience and communal acquisition of new skills.

This project will link professionals, academics and community to enable the achievement of tangible outcomes fostering life skills in a cultural context. For people with poor literacy levels, film is a valuable means of expression and of learning language, history, visual techniques and aesthetics, creating realistic pathways to further learning and training. In comparison to global access databases and broadband Internet connections, film might seem somewhat of an archaic technology, yet film remains a powerful medium, capable of inspiring, communicating, and documenting knowledges across cultural divides. Also, empowering its users to share and document these knowledges in a creative manner, developing skills and building self, communal and cultural esteem.

IMERSD: Music Education and Research Design⁷⁷

IMERSD operates as a hybrid commercial model, bridging teaching, research and industry environments; it signifies immersion and engagement as an umbrella concept for community and industry partnerships, student internships, explicit alumni links, research-led teaching and contribution to a creative practice-led research agenda. The facility is designed to undertake large projects stand-alone, or in tandem with industry and commercial partners, and/or other Griffith University elements.

IMERSD offers Griffith University music technology students access to:

- a comprehensive range of high-end hardware and software products for high sample rate sound recording, analysis and manipulation;
- a broad range of highly specialised sound and multimedia production tools;
- multiple environments featuring rigorous acoustic and ergonomic designs;
- state-of-the-art audio, video monitoring and reproduction systems;
- dedicated video, audio, data networks, computer workstations and servers.

Music technology industries and their populations exist in a wide array of configurations, networks and workflows. Various cited as knowledge workers⁷⁸ in an informational society,⁷⁹ this creative class⁸⁰ of independent musicians and sound designers leverage pervasive and powerful technologies to produce a wide array of creative products and build highly successful collaborative networks, both subversive and formal⁸¹. Conversely, big business and governments move to increasingly prescribed operational modes for risk management, legal frameworks and control of intellectual property, yet which may often limit or discourage creativity and/or innovation⁸².

Such trends flow to the higher education sector amid other challenges, including decreased Federal funding, a desire to widen access to higher education, and accountability imperatives to maintain quality and improve learning outcomes⁸³. Some observers note signs of student disengagement with learning⁸⁴ while others comment on the escalation of derivative outputs by students in the creative arts⁸⁵. In the case of music technology students at Queensland Conservatorium Griffith University, many perceive employment prospects as surprisingly limited and traditional⁸⁶ while Alumni successes, industry feedback and other anecdotal evidence indicates that workplace opportunities are far broader than popular conceptions. Employers indicate a core need for highly developed generic skills including team work, project management, communications skills, creativity and a willingness to take calculated risks⁸⁷.

IMERSD responds to these demands, both in a physical and philosophical capacity. In an established Griffith University ensemble culture and with a focus on the development of procedural knowledge,⁸⁸ IMERSD teams feature cross-year, cross-disciplinary groupings that respond to a given project as the learning unit/business model⁸⁹. The IMERSD project is a flexible learning and research tool which seeks to inform, interact and evolve in parallel to creative arts economies, best practice, the growth of technology and the changing face of musicianship.

South Seas⁹⁰

South Seas is a research venture conceived and undertaken by Griffith University Professor Paul Turnbull with the support of the National Library of Australia and Centre for Cross-Cultural Research, at the Australian National University.

The first phase of South Seas is a rich and freely accessible web resource exploring the cultural impact of James Cook's momentous first voyage of discovery. It provides the first online complete text of the holograph manuscript of James Cook's Endeavour Journal, listed by UNESCO on its register of world cultural heritage. South Seas also provides the full text of the journals kept by Joseph Banks and Sydney Parkinson on the voyage, and the text of all three volumes of John Hawkesworth's *Account of the Voyages undertaken... in the Southern Hemisphere... (1773)*.

Readers can compare and contrast how occurrences on the voyage struck different participants. They will also find explanatory commentaries, short articles and reflective essays, in both written and hyper-media forms, drawing upon the National Library of Australia's rich and remarkable collections relating to voyaging and cross-cultural encounter in Australian and Pacific seas. In particular, South Seas aims to facilitate the discovery and educational use of knowledge of Pacific heritage and culture.

South Seas builds upon research over the past decade that has sought to redress the failure of earlier colonial scholarship to appreciate the true richness and dynamism of the cultures of the peoples of Oceania. The project employs visual and sonic softwares to simulate the cognitive weight that oral, visual and kinaesthetic modes of communication have in Pacific cultures representing the past. It offers histories of cross-cultural interaction with greater accuracy and cultural respect than conventional print-based media allow.

The Queensland Indigenous Cultural Atlas⁹¹

The past several years have seen fierce debate in Australia about the nature of frontier relations and the impact of colonial settlement upon Indigenous people. It seems clear that we risk simplifying the historically complex and diverse experiences of Indigenous people and those non-Indigenous people with whom they interacted on a daily basis in specific tracts of country.

This project employs digital technologies to capture and represent the complexities of experience that have shaped Indigenous and non-Indigenous senses of self, community and land.

More specifically, the project aims to address a significant weakness in Queensland historiography. This is the paucity of detailed histories of particular Aboriginal peoples of Queensland. Until the publication of detailed studies of frontier relations, the Indigenous peoples of Queensland either did not figure in the region's history or received brief mention in the course of narratives focused on the exploits of explorers and pastoralists. In the wake of Reynolds, there have been numerous studies of northern Aboriginal settlements and missionary ventures, as well as remarkable studies of the contribution of Aboriginals to the pastoral industry (McGrath 1987, Davis, 2004). However, for all of their virtues, these histories have mostly focused on events happening so long ago that they could only be reconstructed from European records and treat Aboriginal people as an homogenous entity.

To advance Queensland historiography so as to do justice to the region's Indigenous cultural diversity, then we must work closely with particular communities, using new and cost-effective technologies to document their experiences. This is especially the case in respect of writing the history of Aboriginal communities in Queensland and their aspirations for self-determination since the late 1960s against the background of the gradual demise of the state's notorious protectionist regime.

Historians of Indigenous-settler relations are conscious of working within a tradition of history writing that has until very recently been overly teleological, and inherently Eurocentric. This is most noticeable in the intellectual currency it has traditionally given the written word as a medium for representing the past.

Aboriginal intellectuals and artists have variously highlighted the conceptual limitations of historians relying solely on the printed word to explain the actions and likely intentions of Indigenous peoples as recorded by European observers. Indigenous modes of knowing and communication need to be accorded their due significance in interpreting the history of voyaging. Hence a further significant dimension to this project is that it employs visual and sonic softwares with a view to giving oral, visual and kinaesthetic modes of communication the cognitive weight they possess in Indigenous ways of presenting the past.

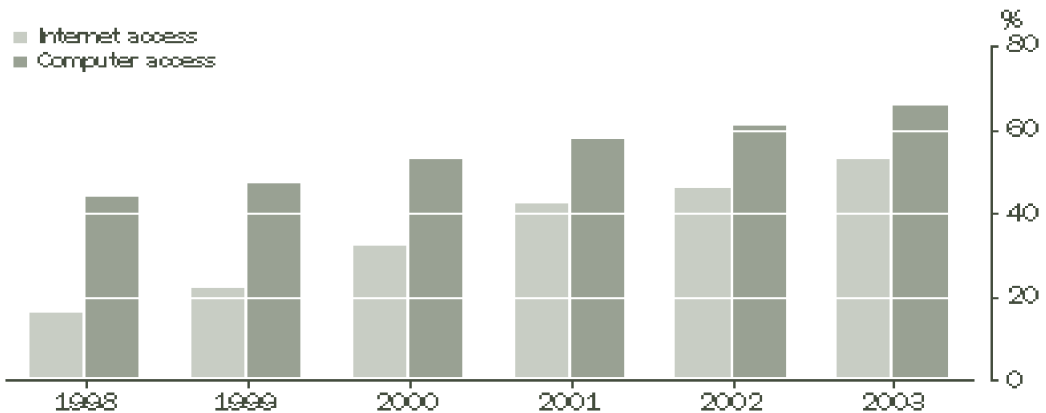
Using digital media presents various conceptual, technical and ethical challenges. Hence this project is seen as a 'test-bed' by which to identify and resolve issues such as those relating to intellectual property and rights management of Indigenous knowledge in digital media, and the task of creating techniques for the description and retrieval of information about places, natural and cultural phenomena that may be understood differently in the knowledge domains of Indigenous Australian and European science.

APPENDIX 1: ICT ACCESS IN AUSTRALIA

Australians are keen users of new technology

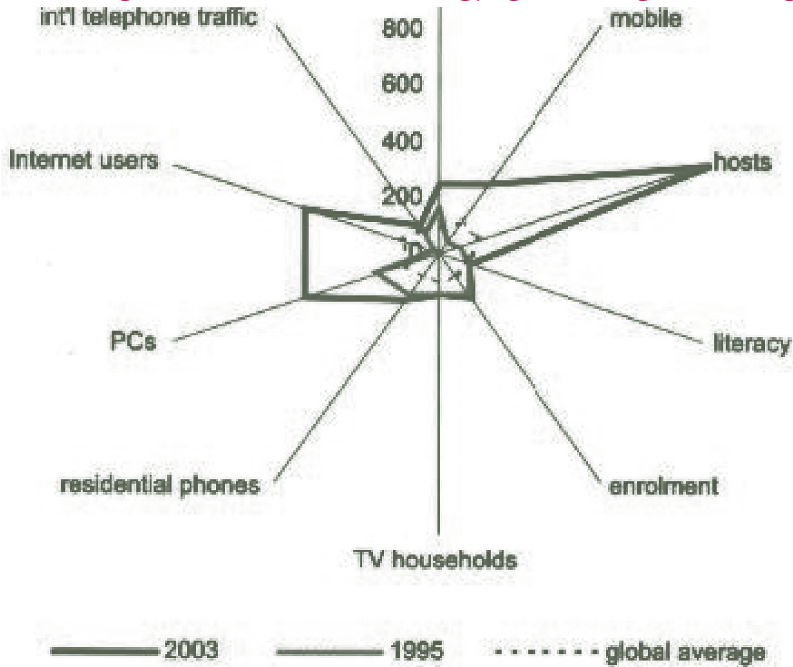
The percentage of Australian households with access to a computer at home has increased steadily from 44% in 1998 to 66% in 2003 (see graph below). The percentage of Australian households with access to the Internet at home has increased strongly, rising from 16% in 1998 to 53% in 2003.

Australian household use of information technology trends 1998-2003



Source: Australian Bureau of Statistics © 2004

Demonstrating Australia's use of technology against the global average



Source: Monitoring The Digital Divide © Orbicorm 2004

Australians online: Characteristics and percentage of online users⁹²

Age profile

18-24 years	24%
25-29 years	64%
40-54 year •	52%
55+ year •	19%

Employment status profile

Employed	63%
Not employed	25%

Personal income profile

0-\$39,999	41%
\$40,000+	75%

Gender profile

Males	53%
Females	47%

Regional profile

Capital cities •	52%
Other areas •	44%

Australia is a culturally diverse nation⁹³

In June 2004, almost one quarter (24%) of the nation's population was born overseas. The five most common countries that overseas-born Australians originated from are:

1. United Kingdom accounting for 24% of overseas-born Australians
2. New Zealand accounting for 9% of overseas-born Australians
3. Italy accounting for 5% of overseas-born Australians
4. Vietnam accounting for 4% of overseas-born Australians
5. China accounting for 4% of overseas-born Australians

The number of overseas-born Australian residents increased by 1.4% per year on average from 30 June 1996 to 30 June 2004. This was a larger increase than that of the Australia-born population (1.1%) and the total population (1.2%).

Of the 50 most commonly stated countries of birth from 30 June 1996 to 30 June 2004, Sudan-born people had the largest annual average increase (26%), followed by persons born in Afghanistan (12%) and Iraq (11%).

Australian's from a non-English speaking background and ICTs

The statistics above indicate that Australia's multicultural population is rapidly increasing. It is therefore a necessity that English speaking Australians accommodate the multiplicity of languages now spoken in Australia and assist people from non-English speaking backgrounds to maintain a high quality of life. The following project briefs indicate some of the measures that Australian governments are implementing to provide Australians from non-English speaking background with greater access to information and enhanced communication capabilities.

The Care Health Education and Community Project⁹⁴ (2002 - 2004)

This project, funded by the Commonwealth Government, was undertaken in the Park's area of South Australia. This location was chosen as it has one of the largest local populations of people for whom English is not their first language as well as a higher-than-average proportion of Indigenous persons; lower than average income levels; lower than average education levels; while the area shows one of the highest levels of crime in districts across Australia. The project's aims and achievements included:

- Developing effective partnerships with agencies so that families and children have access to appropriate services.
- Supporting families to strengthen local networks and to take positive actions within their lives and communities.
- Providing opportunities for participants to learn more about local resources which helped extend their learning.

Australian State Libraries with special reference to Queensland State Government Policy⁹⁵

Australian state libraries aim to meet the library needs of people not fluent in English or from a non-English speaking background within the local community. State government policy states specific requirements in order to meet this aim, the following are a selection of these requirements:

- Access to Newspapers and magazines in languages other than English, both Australian titles and titles published elsewhere, to reflect the needs and linguistic background of local communities.
- Large type, talking books and videos should be provided in languages other than English where possible.
- Develop working relationships with local user groups, community agencies, government organisations and educational institutions concerned with the provision of services to the ethnic community
- Pursue a multicultural media policy which enables the library to promote its intercultural programs, services and resources.

Remote Indigenous communities and ICTs

There are 1291 Indigenous communities in Australia, 1210 being in geographically remote or rural areas distant from centres of population. ICT benefits for these communities would bring improved employment opportunities, better service delivery and communication and support for cultural maintenance. However the communities are disadvantaged by limited availability of ICT infrastructure and costs and geographic isolation, harsh environmental conditions and lack of supporting power infrastructure. The situation is aggravated by social (poverty, small populations), cultural (non-English speaking, reliance on oral communication, communal practices), educational (low computer skills, poor literacy, lack of culturally appropriate learning materials) and business (limited experience in modern commerce) factors. The federal government sees infrastructure roll-out as the fundamental issue as well as basic computer training and research into ICT needs and to date has paid little attention to social, cultural and educational needs⁹⁶. In 2005 the digital divide persists but there is evidence of more ICT in Indigenous homes and communities⁹⁷. This reflects in part recent government initiatives such as the federal government's *Indigenous Communities Online Project* [media release 5/4/2005] and the Queensland state and Northern Territory governments Indigenous Knowledge Centres⁹⁸.

APPENDIX 2: HIGHER EDUCATION IN AUSTRALIA⁹⁹

Higher Education Institutions

37 public universities cater for 96.6% of the total student load

3 private universities, 5 specialist academies, 84 private non-university

Association of Universities is the Australian Vice-Chancellors' Committee, which provides summary information and maintains links to member universities.

Australian universities are informally grouped into:

Australian Technology Network

History of the Australian Technology Network

Regional study on knowledge societies and cultural diversity in the Asia Pacific region
with reference to the role of higher education and the UNITWIN/UNESCO Chairs programme

Group of 8
Innovative Research Universities Australia
New Generation Universities Network
Regional Universities
[Griffith University in Innovative Research group, features interdisciplinarity, collegial governance]

Student demographics

Total enrolled

795,000 [649,500 domestic, 145,500 international]

Program enrolments

75% undergraduate/bachelor
18% postgraduate coursework
5% research higher degree
2% other

Enrolment type

80.8% internal
15.5% external
3.6% multi-modal
64.1% full time

Student profile

54.4% female
14.5% low socio-economic status backgrounds
Of domestic students:
1.2% Indigenous Australians [2.5% of adult population are Indigenous Australians]
3.3% born overseas, arrived last 10 years, speak language other than English at home.
17.4% from rural backgrounds
3.4% reported a disability

Student fields of study

Management and commerce	26.9%
Society and culture	21.9%
Health	10.9%
Education	10.0%
Information technology	8.8%
Natural and physical sciences	7.6%
Engineering and related technologies	6.8%
Creative arts	6.1%
Agriculture, environmental and related studies	2.1%
Architecture and building	2.0%
Non award	2.5%
TOTAL	100%

Tuition fees

All students pay a higher education administration charge [HECS] based on percentage of higher education teaching costs.

Limited means tested support for disadvantaged students

Full fee paying students

Staff demographics

86,342 full time equivalent staff

42% academic staff [22% above senior lecturer level, 26% senior lecturers, 34% lecturers, 18% academic level A]

58% general staff

APPENDIX 3:

ICT AND EDUCATION POLICY

Australian Department of Education, Science and Training, 2002

Australian Education and Training Action Plan for the Information Economy¹⁰⁰

People

Infrastructure

Online content, applications and services

Policy and organisational framework

Regulatory framework

2002 Report on policies for ICT in education and training in Australia¹⁰¹

Phases of policy development

Roll out - equipment computers into institutions, some professional development of teachers, software development

Mainstreaming – integrating ICT into teaching and education strategies

Transformation – innovation in education and training systems

Australia is passing through first two foundational stages but practice remains ‘a mosaic of the old and the new, and there has not yet been a transformation in the way learning occurs in these institutions and in society’¹⁰².

Partnership development

Federal, state and territory governments

Strategic framework for the Information Economy

The national initiative to develop a whole-of-government approach see Learning for the Knowledge Society

State and territory governments have developed similar strategic frameworks

‘It could be argued that there is an economic emphasis in the Australian national strategic framework in contrast to the broader social vision which has emerged in the European Union and its member countries and in other countries such as Canada.’¹⁰³

ICT and life long learning

States and territories have adopted a strong commitment to lifelong learning

National government has not demonstrated similar level of commitment in any comprehensive way

Access and equity

Networking the Nation supports extension of telecentres and community technology centre across Australia

Focus on formal education system

More national attention to needs of adults lacking ICT skills and digital literacy

General comments

Need for affordable access to broadband

Need ICT training for adults

Linking community adult and formal education systems requires further whole of government collaborations

Cultural change in education institutions and community requires policies to build a culture that ‘supports enterprise, leaning, innovation and creativity’.

Equity and the Use of Communications and Information Technology in Higher Education: A Sydney University of Technology Case Study¹⁰⁴

Summary of specific issues and implications

ICT policy formation and implementation

Address equitable access, effective use, appropriate support

Balance demand, potential, rapid change in ICT/decreasing resources/access and equity

Avoid creating 2–tiered HED system for ‘technology rich’/‘technology poor’

Need for policy and incentives for good practice

Create national-level monitoring mechanisms to ensure equity for all groups

Research needs

ICT in universities with different profiles to UTS

Needs of rural and isolated students, postgraduate students, distance education students

Resourcing

Major cost implications of roll-out and constantly changing ICT infrastructure for quality of ICT support

Cutting services, user pay not appropriate options

Target needs of low socio-economic status and other educationally disadvantaged students

Strategic investment in optimal ways for ICT to add to student learning outcomes

Effective ICT use not a cost-cutting exercise, complements not replaces other existing 'non-technology-dependent' learning tools, resources

Need to address costs of education funding allocations

Resources to meet needs of equity students [with special needs]

Access

Strategies needed to overcome technology lag experienced by designated equity groups through variety of access options

Accommodating needs of students with family responsibilities and part-time/alternative patterns

Use of ICT

Appropriately embed in combination of learning strategies in overall design of student's learning experiences, create expanded choice and increase range of learning designs

Combine with sets of self-learning skills for various stages of learning development

Good teaching practice based on thorough knowledge of student needs, abilities limitations etc

Decision re ICT use in education to be evidence-based

Support

Proactive implementation strategies also needed to inform students re ICT services and real expectations of ICT, student and staff information literacy, appropriate infrastructure and support service available

Ensure technical support

The role of UNESCO in the construction of knowledge societies through UNITWIN/UNESCO Chairs Programme based on the example of UNESCO ICT Chairs in Central and Eastern Europe

By Yuly I. Kashinsky

INTRODUCTION

Knowledge societies are regarded by UNESCO as ones in which knowledge production; diffusion and application become the organizing principle of all human activities.

UNESCO's role and contribution in building knowledge societies is indisputable, since UNESCO's programmes are instrumental in the realization of internationally recognized socio-cultural human rights, including those in the educational sphere.

Issues relating to the construction of knowledge societies have become particularly relevant at a time when information technologies are developing and impacting increasingly on all spheres of social life, including education.

It is against this background that the study of UNESCO's role in the construction of knowledge societies through the UNITWIN/UNESCO Chairs Programme, based on the example of UNESCO ICT Chairs in Central and Eastern Europe, has been prepared on the eve of the second phase of the World Summit on the Information Society at the request of the UNESCO Secretariat.

Organization of the Study

To carry out the study, the UNESCO Chair in Information Technologies and Law endeavoured to attract the widest possible range of participants.

Invitations to take part in the study were sent to 17 UNESCO ICT Chairs established in Central and Eastern Europe. The information concerning the study was publicised on the National Legal Internet Portal of the Republic of Belarus (<http://pravo.by/news.asp?type=2#2>) and on the web-site of UNESCO Chairs in Belarus (<http://portal/unescochairs/news.asp?type=0#1>), as well as on the portal of the Russian Committee of the UNESCO Information for All Programme (<http://www.ifap.ru/forum/viewForumphp?f=10>).

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The study was based on the analysis of information concerning 23 countries of Central and Eastern Europe (deriving from Internet resources, the National Library of Belarus, the libraries of the National Academy of Sciences of Belarus, the libraries of Belarusian State Pedagogical University named after Mr Tank and the Belarusian State University) and of the legislation of 10 CIS countries (Russian Federation, Ukraine, Moldova, Georgia, Armenia, Azerbaijan, etc.). In addition, information on the activities of the Institute of Law and Informatics of Saarland University (Germany) was kindly provided by Ms Ju.Doering, a postgraduate student in the department of Professor M. Herberger. In this way, the researchers attempted to draw on the broadest possible range of sources in order to identify common tendencies regarding the role of information and communication technologies and their impact in the construction of knowledge societies.

The study also used UN and UNESCO documents: the text of the Millennium Declaration of September 8, 2000 and the Millennium Development Goals; documents of the World Conference on Education for All (Jomtien, Thailand, 1990) and the World Education Forum (Dakar, Senegal, 2000); the priorities of the UN Literacy Decade (2003-2012) and the UN Decade of Education for Sustainable Development (2005-2014); UNESCO's Programme Priorities for 2006-2007 as set out by the Moscow and Almaty Offices in the framework of the Organization's Medium-Term Strategy for 2002-2007 (31 C/4), together with a report by Mr Quéau on information policy within knowledge-based societies.

The study, which was the result of a corporate effort by all the divisions and affiliates of the UNESCO Chair in Information Technologies and Law, was carried out under the direction of the Chairholder Yuly Kashinky, with the active involvement of Ms M. Satolina, Mr B.Slavin, Mr V.Nesterovich, Mr A.Shilovich, and Ms Ju.Doering.

1. OVERVIEW OF HIGHER EDUCATION (TENDENCIES, ISSUES AND CHALLENGES)

Higher education in Central and Eastern European countries is marked by a search for new concepts and development orientations. Emphasis is placed on university education for adults and on the role of post-university education in a rapidly changing world.

We note that change in the university sector in these countries is related, among other things, to serious competition in higher education. This stimulates new forms and methods of learning, modern approaches to the organization of research, as well as the widespread creation of 'networks' that interact with other study and research centres. Regional knowledge communities become more differentiated and include a large number of entities serving to generate the knowledge required to meet the needs of different segments in today's society.

A reform of higher education is currently under way in practically all countries in compliance with the basic provisions of the Bologna process, which has led since 1998 to the introduction of a two-level structure and the development of new orientations and modernization of the education system (alongside the partial preservation of old degrees and qualifications in former Socialist countries where a Soviet model of education continues to function).

In the Republic of Belarus, for example, new specializations in legal education (“Information Law” and “Legal Informatization”) have been introduced, and teaching in the methods and means of applying legal information technologies to the training of management staff, economists and other specialists is becoming one of the most important new directions in the development of the higher education system.

A key tendency in educational processes, including in the sphere of legal information technologies, is distance learning. Graduate and postgraduate students already enjoy access to the existing capabilities of the National Legal Internet Portal of the Republic of Belarus (<http://pravo.by>, <http://law.by>).

The Institute of Law and Informatics of Saarland (ILI) in Germany is concerned with the question of how legal professionals can improve their ways of working with legal knowledge with the aid of information technology and how to select such technology for legal education and resolving legal problems. ILI also deals with information law and with the legal problems of the new media, with particular reference to Internet law. Internet law (also called online law, netlaw, cyberlaw) encompasses many different areas of law (civil, public and criminal law) and has recently become an area of law in its own right. Closely linked to Internet law is the law of e-commerce, which mostly concerns the Internet.

2. THE DISTINCTIVE ROLE OF UNESCO CHAIRS

There are today more than 500 UNESCO Chairs worldwide, some 40 of which operate in the sphere of information technologies. UNESCO ICT Chairs contribute to some extent to strengthening national capabilities in generating knowledge, its diffusion and application. The activities of these Chairs are linked to various aspects of ICT development as well as to the application of information technologies in different spheres of educational and scientific activity.

2.1. Knowledge Generation

Knowledge generation is one of the principal objectives of UNESCO ICT Chairs. In particular, the main purpose of the UNESCO Chair in Information Technologies and Law at the National Centre of Legal Information of the Republic of Belarus is to provide an integrated system of research, training, learning, information and documentation in the field of information law and legal information technologies (“legal informatization”). Its primary concern is with questions of methodic and methodological support to education at all levels – ranging from law students to the teachers of legal disciplines.

A new scientific and practical discipline of “legal informatization” has been conceived and actively developed in recent years in the Republic of Belarus. One of the convincing achievements in this innovative direction is the State System of Legal Information (SSLI), based on the application of modern information technologies.

2.2. Knowledge Dissemination and Exchange

UNESCO ICT Chairs are actively involved in the process of knowledge dissemination and exchange and have contributed to the organization of numerous international conferences and meetings.

For example, the UNESCO Chair in Information Technologies and Law at the NCLI took part in more than 40 different conferences, congresses and meetings in 2004-2005 and played an important role in staging the 2nd International Scientific and Practical Conference "Information Technologies and Law (Legal Informatization – 2004)" under the auspices of UNESCO. On the National Legal Internet Portal of the Republic of Belarus, the section "Education and Science" (<http://www.pravo.by/science/>) covering the problems of scientific support and staff training in the sphere of law and legal informatization is developed with the participation of the Chair.

2.3. Knowledge Application and Utilization

UNESCO ICT Chairs provide a certain assistance in the knowledge application and utilization process, taking advantage of modern ICTs.

It should be mentioned that UNESCO Chairs are created not only at institutions of higher education but also at scientific research establishments such as scientific centres. In this way, it can be said that the results of the researches undertaken by the organizations concerned are applied.

For example, the UNESCO Chair in Information Technologies and Law at the NCLI and its affiliates participate actively in the conception and implementation of scientific projects. Realization with the Ministry of Culture of the joint project "Public Centers of Legal Information" made it possible to provide access to legal information in nearly 200 public libraries in the country.

A good example of the utilization of the Chair's research in the field of new materials is the development of curricula for the masters' training programme at the UNESCO Chair in New Materials and Technologies (Krasnoyarsk), as well as the working model of a virtual enterprise presented on the stand of the Ministry of Education of the Russian Federation at CeBIT-2004/2005 (Hanover, Germany).

2.4. Bridging the Knowledge Gap

The knowledge gap is created by the unequal capabilities of different nations and regions to generate, share and exchange knowledge. UNESCO ICT Chairs are making their contribution to bridging the knowledge gap.

The approach of the Republic of Belarus in reducing the legal knowledge gap by providing wide access to legal information on the basis of modern ICTs deserves to be applied more generally.

The results in Belarus have been achieved within the framework of the State legal information system by the following means:

- a)** making available at affordable prices legal-information search systems (LISS) containing regularly updated national legislation;
- b)** providing access free-of-charge to the legal-information resources of the National legal Internet portal of the Republic of Belarus (<http://pravo.by/webnpa/webnpa.asp>), comprising over 19, 000 national legal norms;

The role of UNESCO in the construction of knowledge societies through UNITWIN/UNESCO Chairs Programme based on the example of UNESCO ICT Chairs in Central and Eastern Europe

- c) providing access to legal information under the joint NCLI/Ministry of Culture project in the public legal information centres established and operated in nearly 200 public libraries nationwide.

2.5. In harnessing ICT in higher education

The utilization of ICT potential enables UNESCO ICT Chairs to develop education systems based on innovative methods, such as distance learning, e-learning and virtual educational institutions.

The UNESCO Chair in Information Technologies and Law at NCLI is actively involved in the introduction of ICTs in legal education. Courses on methods and retraining programmes for teachers of legal disciplines have been prepared in the field of ICT applications in education. These programmes are geared to the different knowledge levels of teachers – from the eradication of computer illiteracy to the use of modern ICTs. Courses on methods, including the training aid «Information technologies for lawyers», are prepared in electronic form and can be easily adapted for the purposes of distance education and e-training.

The main obstacle in this work is insufficient computer equipment and inadequate software and communication lines, as well as the low capacity of available communication lines.

One of the problems posed by e-learning is that the legislation does not provide the necessary rules for the recognition of diplomas and certificates obtained through such learning.

In training programmes at ILI (Germany), traditional lectures are closely combined with electronic workshops, with the online publications of the Law Department - the so-called Library of Saarbrücken - playing a central role in this regard. The Remus information system describes the current legal situation in the field of modern mass media publications and the Internet in a clear and comprehensible manner, with the help of legal comic strips (<http://remus.jura.uni-sb.de>). The project is sponsored by the Saarland Ministry for Culture and Science and is a classic example of the use of multimedia and the Internet within schools and universities. The Internet journal published by Professor Herberger, covering various topics relating to Law and Informatics (<http://www.jurPC.de>), can also be used for these purposes.

3. OPPORTUNITIES TO STRENGTHEN THE ROLE OF THE CHAIRS

To overcome the obstacles faced by the UNESCO ICT Chairs and to enhance their effectiveness in building knowledge societies, specific proposals need to be formulated, at both the host institution and the national level.

The results of this study would suggest that, in developing the activities of the UNESCO ICT Chairs over the period 2006-2010 and up to 2015, priority should be given to the following scientific, practical, organizational and technical lines of emphasis:

- A. Initiating and assisting in the organization, creation and development of national scientific and research computer networks (SRCN) in each of the countries concerned and the utilization of such networks to set up an international computer network for Central and the East Europe.

The main objective of the establishment of the SRCN should be to increase the efficiency of scientific research, experimental development and educational processes through a broad and integrated use of available and newly created information resources in order to provide users with full, reliable and up-to-date information.

- B. With the purpose of promoting greater interaction among UNESCO ICT Chairs and organizing a teamwork system, taking the necessary measures to create a corporate information resource on the Internet during the period 2006-2008.

This information resource can be modelled on the organization of the representation on the Internet of UNESCO Chairs in Belarus, the official presentation of which took place within the framework of the 2nd international scientific and practical conference "Information technologies and the law (Legal informatization-2004)" in October 2004 and on the basis of the ORBICOM network, which unites the associated Chairs with computer technologies.

- C. Given that scientific research is the basis for the development of higher education, and that the creation of a system of European scientific research should go hand in hand with the creation of a European system of higher education, taking steps to increase the participation of UNESCO ICT Chairs in the Bologna Process.
- D. Developing new-generation network technologies aimed at remote regions so as to give them access to the information, new knowledge and educational services available under UNESCO's "Education For All" programme.

In this connection, there is a need to step up considerably the activities of UNESCO ICT Chairs with the purpose of organizing and undertaking research in each country of the region to determine social needs in terms of accessible educational information Internet resources and their orientations.

One way in which educational resources on the Internet can be developed is through the creation in each country of the region of a national educational information and law resource, providing wide sections of the population with knowledge in the field of jurisprudence. This resource should be geared to people without legal education, and should focus on studying the basics of the national legal system and on providing free-of-charge official legal information in electronic form, e.g. the official texts of legal provisions, as well as the documents of legislative bodies concerning the processes whereby draft legal provisions are prepared and adopted.

- E. There is also a need to concentrate activities of UNESCO ICT Chairs on assisting higher education institutions in the search for partners and in the organization of mutually beneficial cooperation. To this end, consideration should be given to creating thematic databases containing information on higher education institutions of the region and partner relationships.

4. CHALLENGES FOR UNESCO

The experience of the UNESCO Chair in Information Technologies and Law in carrying out this study shows that UNESCO Chairs are not in a position to join forces in solving common problems without the adoption of prior measures, particularly as regards financing. At the same time, UNESCO can and should in our view work on the principles of interuniversity (inter-institute) cooperation, uniting efforts for the implementation of programmes important not only for them, but for the UNITWIN Programme and for UNESCO as a whole.

It also is necessary to address the issue of a lack of a proper level of cooperation of UNESCO Chairs with state bodies responsible for education in the countries of Central and Eastern Europe.

Another problem is that of attracting financial resources for carrying out extensive sociological research, as well as for implementing specific projects in the field of information development and education technologies. It is frequently impossible for lack of funds to pursue priority lines of educational development in accordance with international guidelines on computerization.

This difficulty can be overcome by developing subject activities under UNESCO Chairs - for example, the orientations and proposals set out in section 4 of this study, subject to their proper financing - and by creating at UNESCO or in its regional offices a special unit for the coordination of the activities of national Chairs.

There are also general (objective) problems involving the activities of UNESCO Chairs linked to the processes of globalization, whose negative consequences particularly affect the countries of the region. Meanwhile there is a vital need to preserve the best features of national systems (including educational ones) and the cultural heritage of these countries. It could become a focus of sustained attention on the part of UNESCO Chairs in the human sciences.

5. FINDINGS AND CONCLUSIONS

The results of the study have confirmed the need to develop modern information technologies, in the first place to ensure the harmonious development of the individual, to create the necessary conditions for obtaining socially significant knowledge, and to promote spiritual growth and the development of science. In this context, the concept of the «knowledge society» should be regarded as the main qualitative aspect of the information society.

The results of the study have also shown that active processes of reform in this sphere are currently taking place in the region. However, the construction of a knowledge community and the active introduction of modern information and communication technologies in educational process are not fully operational always and everywhere.

One of the major results of the study can be seen to be the practical experience of how UNESCO Chairs can and should work on the basis of the principles of inter-university cooperation, uniting their efforts in the implementation of programs important not only for them but also for the UNITWIN Programme and for UNESCO as a whole.

Note should also be taken of the following as constraining factors in the development of activities of the Chairs:

- a) the non-systematic application of international educational standards regarding the use of ICT in educational and scientific activities;
- b) the lack of a legal base and and of the necessary cyberspace to enable the Chairs to appropriately carry out their functions for the creation of the information society;
- c) the inadequate level of information culture.

In this respect, the UNESCO ICT Chairs need to play a more active role. The Chairs should cooperate more closely with state bodies in matters concerning the introduction of information technologies in the educational process, as well as initiate the preparation of national educational development programmes (projects) geared to the creation of knowledge societies and concrete information and education resources in accordance with UNESCO's «Education For All » programme and other such projects.

6. RECOMMENDATIONS

In preparing this part of the study, consideration was given to the proposals of the UNESCO Chair «New materials and technologies» (Krasnoyarsk, Russian Federation), the recommendations of the international forum held last year under the auspices of UNESCO «Education for sustainable development: on the way to a knowledge-based society» (Minsk, April 5-6, 2005), the proposals and recommendations of the UNESCO Chair in Information Technologies and Law and its divisions and the 2nd International scientific and practical conference «Information Technologies and Law (Legal informatization – 2004)». The recommendations are also based on the results of researches on this subject. The following practical (applied) recommendations and proposals are considered to be particularly important.

6.1 To UNESCO

We ask that the UNESCO Secretariat take into account the recommendations of this study in determining the direction of future UNESCO educational policy with respect to Central and Eastern Europe, including the CIS, and to consider the results of the study as a whole in the preparation of the preliminary draft programme and budget.

Having regard to the fact that that UNESCO is part of the UN system and has a certain authority in the field of education, we offer:

- to organize, under the auspices of UNESCO, regular conferences, studies and other events in the countries of Central and Eastern Europe, CIS, along the lines of this study, with wide discussion of the results obtained;
- to encourage wider cooperation between UNESCO Chairs, UNESCO institutes and the CIS with a view to achieving the purposes of the Education For All programme and the programme priorities of Education for Sustainable Development, including through the implementation of joint events;

- to promote the creation of networks of UNESCO ICT Chairs as a new type of organizational and technological educational system geared to the complex application of the innovative technologies of open electronic training (e-learning) in educational environments for the preparation of specialists in the information society;
- to facilitate to the extent possible the expansion of the international movement “Scientists Without Borders”, in cooperation with a wide range of partners and enlisting the active participation of the international academic community;
- to develop uniform schemes and conditions of financial support in the context of international cooperation, including the UNITWIN/UNESCO Chairs Programme, for using information and communication technologies to develop distance education;
- to provide UNESCO Chairs with full and up-to-date information on UNESCO’s activities in the field of international cooperation in educational programmes.

6.2 To the States of Central and Eastern Europe

With regard to improvements in national education systems taking place in the majority of the States, it is proposed that they should:

- place more emphasis on the generalized use of modern technologies in education, in particular information and distance learning, so as to provide access to quality education for persons with limited opportunities, as well as for those residing in rural areas;
- cooperate more closely with UNESCO Chairs and their divisions in developing distance learning and training;
- speed up work on the development of national systems for monitoring and measurement of the quality of education, as well as on the creation of regional (for CIS countries) systems for monitoring the quality of education, the improvement of statistical tools for analysis in the field of education, and the training of personnel for monitoring and analysis;
- bring national legislation - which in many countries of the region is geared to traditional systems of teaching and training and today impedes the introduction of new ICT-based forms of education - into line with modern conditions and with the main international principles of the knowledge society;
- to include the development of skills in keeping with the pedagogical and technological requirements of the 21st century in national programmes for the training of teaching staff;
- to devise new national educational standards in the light of international educational norms;
- to introduce competitive distribution of the State order for the preparation of specialists;
- to develop mechanisms for the co-financing of higher education directly by citizens, on the basis of nominal state financial obligations;
- to develop a new generation of national standards for higher education in light of the modern prospective needs of the State, society and the individual;
- to increase the role of local government and self-governing bodies in determining the structure and quantity of specialists to be trained, and in assessing the quality of work of higher education institutions (by certification and accreditation and through the existing control over the meeting of license requirements by educational establishments);
- to develop new and stricter requirements for the certification and accreditation of higher education institutions, in particular their branches and non-state entities;

- to provide state guarantees of accessibility and equal opportunities for obtaining quality education;
- to seek to achieve a new modern quality in pre-school, comprehensive and vocational education;
- to raise the social status and professionalism of educational workers and strengthen their state and public support;
- to develop education as an open state-public system by distributing responsibility between the subjects of educational policy and increasing the role of all participants in the educational process, including trainees, teachers, parents and educational institutions;
- to introduce in higher education establishments in the human sciences, regardless of jurisdiction, hierarchical status and forms of ownership, disciplines or courses on "Information law", "Legal informatization" and "Informatization", taking into account the specialization of such establishments;
- to facilitate the establishment of UNESCO Chairs divisions in large higher education institutions.

6.3 To UNESCO Chairs

With a view to improving coordination, it is proposed that UNESCO Chairs should:

- concentrate their efforts on improving key aspects of educational quality, which should today conform to the principle of sustainable development and the ideals of humanism;
- participate more actively in the creation and unification of new educational standards geared to the preparation of students for real life and the elimination of distinctions between "education" (teaching of subjects) and "training" (transfer of skills and real life values);
- initiate a discussion about the problem of improving the quality of higher education in the region and pursue the creation of a uniform (common) educational space of participating CIS States in the context of integration processes developing in the world;
- promote the inclusion in educational content of elements of civic education with the overall objective of helping the individual to adapt through new knowledge to new public attitudes and to learn to represent and protect his or her own interests while respecting the interests and rights of others, thereby helping to mitigate the problem of terrorism. For this purpose, it is necessary to develop within educational programmes the principle of multiculturalism (mutual understanding and peaceful co-existence of persons with different historical backgrounds and religious beliefs) and to expand programs for inter-faculty exchange of undergraduate and postgraduate students;
- enhance the professional development of professors, including through increased state financing for vocational training programmes, enlisting teachers for the purposes of their development.

UNESCO Chairs in Communication in the construction of knowledge societies in the West Europe and North America region

By *Rainer Kuhlen*

INTRODUCTION

This report reflects the special role of UNESCO Chairs in Communication in the construction of knowledge societies. UNESCO Chairs in Communication are members of an international network organized by ORBICOM. "ORBICOM is an international network that links communications leaders from academic, media, corporate and government circles with a view to providing for the exchange of information and the development of shared projects"¹⁰⁵. ORBICOM, according to its mission, aims at building expertise in seven key areas:

- "Communications and international development which include international aid policies, decision-making processes, and cross- cultural communications issues.
- National information policies and communications law which include issues relating to access to information, the impact of media and cultural products on the economy, standards and regulations, as well as intellectual property concerns. Access to, transfer and use of new technologies (NTIC) which include multimedia, automation, innovative media applications and interconnectivity.
- Strategic development with reference to communications training, conflict resolution, and inter- or intra-institutional communications.
- Media development and management which include new media issues (Internet, www, Hypertext, etc.), editorial freedom, and private and public media.
- Public relations, public affairs and advertising which include crisis management, political and social communications, accountability, and promotion and marketing of goods and services.
- Professional training and ethics in journalism, public relations and other communications activities."

As can be seen from the denomination of the different Chairs, they are in their majority not specifically ICT experts but experts in communication in general. This, of course, covers a broad field, ranging

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from sociology/social sciences, economics, media science/journalism to information science. There are seven UNESCO Chairs in Communication in the West Europe and North America region:

1. **Jan Annerstedt** is professor in the Copenhagen Business School and is in particular interested in reviewing and assessing user-driven, pioneering ICT mobile technology in order to determine their value-adding effects for business firms as well as for public agencies, for professionals as well as for ordinary citizens. He also works on projects (such as “Closing the Digital Divide. Information and Communications Technologies for Community Development in Southern Africa”) concerning how to overcome the digital gap particularly between African countries and the more advanced countries in the North and West by putting emphasis on the development potential of ICT. He also aims at establishing and organizing a regional (Southern African) forum to exploit policy complementarities in the application of ICTs to enhance rural (community level) development and service delivery. The forum will develop activities to promote mutual benefits and increase access to market opportunities between Southern African rural communities and Europe.
2. **Rosental Calmon Alves** is both Knight Chair in Journalism, and UNESCO Chairholder in Communication. He is particularly interested in international journalism in a globalized world, including the flow of international news, the work of foreign correspondents, and the creation of a “global journalism” that seeks a planetary audience. He concentrates particularly on journalism in Latin America, emphasizing the struggle for the establishment or consolidation of a free press, the role of journalism in democratization processes, the quality of journalism. He does research on the impact of the Internet on society in general, but especially on journalism, emphasizing the emergence, all over the world, of a new genre of journalism that takes advantage of the capabilities of the World Wide Web.
3. **Jean-Paul Lafrance** is the Chairholder of the “Chaire UNESCO-Bell en communication et développement international” of the University of Québec at Montréal (UQAM). He does research on the impact of modern information and communication technology on (good) government, on the processes of democratization and on e-commerce in general.
4. **Antonio Sánchez-Bravo** at the Universidad Complutense de Madrid – there is no up-to-date information available on his website.
5. **Claudine Carluer** at the University Stendhal-Grenoble has been recently proposed by the Director-General of UNESCO to replace Prof. Bernard Miège. She is in the process of defining her role as a UNESCO Chairholder and carrying out UNESCO-related projects.
6. **Manuel Parés I Maicas** is professor at the Institute for Communication of the Autonomous University of Barcelona. There was no further information available about his recent activities.
7. **Rainer Kuhlen**, the author of this report, is Professor for Information Science in the Department for Computer and Information Science at the University of Konstanz, Germany. His scientific and teaching profile comprises: information retrieval, hypertext, information markets, information politics and ethics. Recent projects are Collaborative Knowledge Management, Electronic Dictionaries

UNESCO Chairs in Communication in the construction of knowledge societies in the West Europe and North America region

(ENFORUM); Collaborative Virtual E-Learning (K3). He is a member of the German Commission for UNESCO and Chairperson of the Committee for Communication and Information of the German Commission for UNESCO. He is the Chairperson of NETHICS e.V. (Ethics in the Net). His recent publications include a book about information ethics (2004).

In accordance with the guidelines given by UNESCO Paris, UNITWIN/UNESCO Chairs Programme, a questionnaire was sent to the six UNESCO Chairs with a reasonable response time of two months. Unfortunately, none of them was able to respond to this questionnaire in time, mainly because they seem to have been overwhelmed by the range and the specificity of the questions and the request for recommendations, which, in order to give appropriate answers, need to be based on extensive and partly empirical studies.

The following text is therefore less (if at all) a representative report about the contribution of UNESCO Chairs in Communication (West Europe and North America region) than it is a somewhat personal view (from a mainly German perspective) on the contribution of UNESCO Chairs in Communication to the construction of knowledge societies - which, according to UNESCO's widely accepted definition, are societies "where knowledge production, diffusion and application become the organizing principle in all human activities".

The Role of Higher Education and the distinctive role of UNESCO Chairs

While aware of the limitations of this study, the German Chairholder fully agrees with the intention of UNITWIN/UNESCO Chairs Programme to have a better overview of higher education and what its role can and should be in the development of knowledge societies.

According to a study¹⁰⁶ commissioned by the Ministry of Research and Education of the Federal Government in Germany and carried out a few years ago, there are some alarming tendencies/deficits in higher education with respect to information and communication competence.

Googlerization of higher education and deficits in information and communication competence

Most students in higher education increasingly rely on search results which they obtain from international commercial search engines (mainly Google) without being able to evaluate the quality of these search engines or of their ranking algorithms and without having the competence to evaluate the results of the search presented to them according to criteria such as correctness/truthfulness and relevance.

Even worse, impressed and overwhelmed by the ease of handling (comfortable user interfaces) and the efficiency of search tools and services available on the Internet (there is always an answer to whatever question, and, in addition, the results are immediately available and in general at little cost), students (and university teachers increasingly as well) tend to neglect (be it due to convenience or ignorance or lack of financial resources) both the traditional knowledge and information resources provided by library services and the professional information services, in particular the global domain-specific on-line-data bases.

That is what we call the googlerization of higher education with respect to information competence.

Commercialization of knowledge and information

The increasing commercialization of knowledge and information in education and science also has a negative effect on access to information and on the availability of knowledge, which is indispensable for education and the growth of science and, consequently, for innovation in the economy.

Without going into detail about the situation of institutions of higher education in Germany and their information supply, there is a real threat in the form not only of what is called a serial crisis (journals crisis) but of an information crisis in general. Because of decreasing information budgets and dramatically increasing costs for journals and books and, in particular, for their electronic equivalents, libraries are increasingly incapable of providing their clientele (students and teachers/researchers) with the information they need.

In addition, the enforcement of copyright regulations (in Europe and North America in the last 20 years), which heavily supports the commercial exploitation of knowledge and information, makes it more and more difficult to freely access the information resources that are in principle available on the worldwide information markets.

Consequences with respect to the role of UNESCO Chairs in Communication – information and communication competence

As a professor for information science (at the University of Konstanz in German) one of the Chair's most important objectives in research and education is to raise information awareness and competence. This has been done with respect to the information science and information engineering programmes at the University of Konstanz and the library science programme at the Humboldt University at Berlin by offering courses such as

- Information and knowledge management
- Information markets
- E-commerce/-business and information marketing
- Information retrieval and data base technology
- Meta-information services (search engines, agents)
- Knowledge representation and knowledge ontologies
- Content analysis (indexing, summarization, semantic webs, thesauri)
- Hypertext/-media – non-sequential organization of knowledge
- Electronic publishing and information services
- Models of machine-supported communication
- Quality management and evaluation methods (reviewing)
- Information and technology transfer
- Information ethics and politics
- Intellectual property rights
- Usability studies and user behaviour

As the founder and member of the Board of the German Society for Information Science for many years, the German Chair has been able to support the development of a core curriculum in information science in Germany as the basis for raising methodically controlled information competence. But this has been effective only in the very limited area of information science and information practice.

Information science, compared to its big brother/sister computer science, is still under-represented in the academic arena. This is true in Germany, but also in most other countries in West Europe and North America. The dominant technological (formal) view of knowledge and information has undoubtedly been successful both in science and education and the economy but has partially blocked the understanding of the need to raise not only computer but also information competence.

Recommendations with respect to the distinctive role of UNESCO Chairs in supporting higher education

UNESCO Chairs in communication, in their field of competence, need to strengthen information and communication competence (information literacy), both practically in their immediate environment by developing and offering courses such as the ones mentioned above and by raising public and political awareness of the importance of information literacy in addition to general computer literacy.

The German Chair has attempted to do this by being a member of advisory committees of the Federal Government and other regional international (public and private) committees and by using his role as Chair of the Committee for Information and Communication of the German Commission for the UNESCO to permanently emphasize the need for information and communication competence for everyone.

UNESCO Chairs can and should make intensive use of the high reputation of UNESCO among the general public, in the media and in politics in order to raise awareness of UNESCO's objectives in terms of fair, inclusive, and sustainable knowledge societies. These societies need to be based on information competence in every citizen as an indispensable means for becoming and remaining autonomous individuals in information and knowledge societies.

Knowledge application and utilization – free access

UNESCO Chairs in Communication, although well aware that modern societies are highly dependent on an innovative and productive information and knowledge industry, should strongly support all efforts aimed at strengthening free access to knowledge and information in education and science (where "free" does not necessarily mean "cost free").

Supporting Open Access and Creative Commons

In particular, UNESCO Chairs should support activities falling within the broader paradigm of open access, i.e. actually free of cost. Open access in this paradigm is a counter-model to the monopoly of commercial exploitation of knowledge and information.

Open access retains quality control through traditional or new forms of peer reviewing and/or peer commentary and interactive discussion, but avoids many of the additional transaction costs that make commercial supplies of e-products such as e-journals so expensive and also does not have to satisfy private stakeholders' expectations of profit. Therefore open access publishing in its different versions is an appropriate means – appropriate to the electronic environment, which is supposed to reduce transactions cost and facilitate end-user access and participation – for improving the knowledge and information supply and thus advancing the development of the knowledge society. The open access concept needs to be supported world-wide by UNESCO Chairs in Communication.

In addition to open access, UNESCO Chairs need to support other activities that allow authors or creators in general to regain part of their autonomy or to regain their information self-determination. This is what can be achieved by the Creative Commons (CC) initiative, where the traditional "all rights reserved" in the copyright regime is replaced by "some rights reserved" in the CC domain. Under the CC license, free access and the right to make free copies for one's own usage is always guaranteed, but authors, among others, can determine whether they allow commercial exploitation (under conditions they have agreed on) or modification of their work (of course, with reference to the original work and to the author).

The German UNESCO Chair has established a special CC office at his workplace at the University of Konstanz¹⁰⁷, and a special person is responsible for spreading the CC concepts and encouraging other people and institutions to have CC licensing established in their work environment. All publications and teaching material produced in the information science department in Konstanz is CC licensed and thus open to and freely usable by the public at the department's and the Chair's website (www.kuhlen.name).

Supporting all means of free access does not mean making "war" on commercial information markets. In knowledge societies, free and open access cannot be in opposition to commercial interests in the exploitation of knowledge and information. On the contrary, the more open and free access to knowledge and information in education and science is, the higher the chances for innovation in industry and commerce.

The German Coalition for a sustainable and fair copyright for education and science

Above, we mentioned the enforcement of copyright regulations, which, in addition to other negative aspects, in particular with respect to the increasing digital divide, has threatened free access to knowledge and information in education and science.

Education and science traditionally do not dispose of powerful enough institutional means to establish a counterweight against the professional lobby in the publishing and ICT industry in general. Therefore the influence of education and science on copyright regulations and laws has been unacceptably low. To change this unsatisfactory situation in Germany, a Coalition for a fair and just copyright in education and science was founded, and the German Chair in Communication, together with other scientists, has formulated the so-called Declaration of Goettingen (named by the City where this declaration was agreed on). As soon as this Declaration was published, it was signed by almost 4000 individuals, by approx. 300 domain-specific scientific societies and other institutions such as libraries, universities and research centers, and by the six major scientific organizations in Germany, for instance the Council of Science, the Max-Planck-Society, and the joint Conferences for Science and Culture.

In this Declaration there are many proposals which are fully compatible with UNESCO's objectives. The main message is:

- In a digital and networked information society, everyone must be assured - everywhere and at all times - of access to world-wide information for educational and scientific purposes .

Founding this *Coalition* has been one of the major successes of the Chair's activities in Germany. The Chair is momentarily the speaker/chairperson of this Coalition and in this function has organized and taken part in many actions to develop an open and free copyright regime, which is in the interest of both scientific invention and commercial innovation, and thus in the interest of information and knowledge societies in general.

Knowledge Dissemination and exchange – improving the quality of education and teaching methods and techniques - harnessing ICT in higher education

As mentioned earlier, the information science curriculum at the University of Konstanz focuses intensively on the dissemination and diffusion of knowledge, supported by information and communication technologies. Information science was established in Konstanz in 1980, and since then many hundred students have acquired skills in knowledge-building methods and have established themselves as information and knowledge managers in professional environments or as professors in other universities and departments of higher education.

The German Chair has carried out several projects related to knowledge management (mainly in close contact with industry, but in general financed by public funds). The development and implementation of an online-master programme in knowledge management is on its way. This programme (as part of a lifelong learning initiative) is especially designed for people who already have received an academic degree and are in work or are planning to re-enter the work space after an (enforced or voluntary) interruption. Although, as necessary in knowledge management, technically oriented methods and skills play an important role in this new programme, there is also sufficient room for building information competence and for building awareness of the social, ethical and political aspects of information and knowledge work.

Information ethics course in the paradigm of constructivist e-learning

To give an example of the last-mentioned ethical aspect of information and communication curricula, we elaborate below on an information ethics course. This course is also an instance of modern teaching and learning means appropriate to electronic environments, which replace the traditional role of exclusive expert teaching/lecturing by a collaborative learning approach whereby students in virtual groups share their knowledge and build up common knowledge bases (naturally, supported and monitored by the lecturer).

This information ethics course has been regularly offered at graduate level for a number of years as part of the Information Engineering Curriculum in the Department of Computer and Information Science at the University of Konstanz. In addition, it has been organized and carried out several times as a joint virtual electronic course, together with other institutions of higher education in Germany, Austria and Switzerland. The course takes advantage of the K3 e-learning system¹⁰⁸, which the Chair's research group has developed in Konstanz as a knowledge management system for learning environments in higher education.

In accordance with the current shift in knowledge management from a data warehouse approach to collaborative knowledge management¹⁰⁹ and applying this new paradigm to teaching and learning, K3 is an e-learning system where students acquire knowledge by working collaboratively (according to *ex*

ante defined work tasks and objectives) in (primarily) virtual groups. In addition to the work in electronic communication fora, the results of the working groups are regularly presented via video-conferencing between Konstanz and Berlin.

Collaborative e-learning in K3 has a twofold general objective. Firstly, it allows virtual groups (and in them, of course, individual learners) to produce content and acquire knowledge in the special course domain; and, secondly, it furthers the acquisition of information and communication competence. With respect to raising information competence, students are encouraged to attach so-called reference objects (web links, bibliographic references, external files) to their contributions in the K3 system, which improves their skills in retrieving and evaluating information.

According to this constructivist approach, knowledge is not an image of external reality but a function of the knowledge acquisition process itself. Learners construct a new reality of knowledge rather than internalizing images of the world. Beyond this epistemological foundation, constructivism has a major influence on higher education because of its (a) cognitive, (b) motivational/pragmatic and (c) social functions:

- Cognitive: Learning produces sustainable results when external information or the requirements of a task can be embedded in already existing cognitive structure, be it as confirmation, modification or contradiction of the learner's existing knowledge.
- Motivation: The learning process will be better accepted and will lead to permanent (sustainable) knowledge when learning can be experienced as the result of one's own activity, not as a mere adaptation to the knowledge of other people.
- Social construction: Understanding, knowledge acquisition and production is to a great extent socially constructed, based on collaborative knowledge-sharing interaction with others.

In the course on information ethics where the K3 collaborative virtual approach is applied, students learn about information ethics in information/knowledge societies. The topics are in general related to genuine UNESCO themes, such as information capacity building, privacy, human rights, knowledge ecology, digital divides, IPR, etc.

We continue to offer this course, and other K3 courses, not only in Konstanz but also at other universities.

There are plans for a multicultural, internationally organized information ethics course (2006/07), which will be supported by ORBICOM, the network of the UNESCO Chairs in Communication.

The governing hypothesis in such a multicultural course is that only discourse between participants from different cultures can contribute effectively to a global consensus on information-ethical principles and thus to more just, inclusive and sustainable knowledge societies. Contacts with relevant academic institutions in South Korea, Brazil, Uruguay, Israel, and Switzerland have been in place since 2004.

NETHICS

Information-ethical topics have been at the centre of the Chair's interests since the first UNESCO conference on Information Ethics (InfoETHICS) in Monte Carlo, Monaco, in 1997. In addition to the curricular activities mentioned above, the German Chair in Communication founded in 1998 the society *Information Ethics in the Net* (NETHICS) as a means to support UNESCO's information-ethics activities in Germany. The website was reorganized and modernized in 2004 and is regarded as one of the leading and most frequented information-ethics websites in Germany. This institution, which is independent of the university but can rely on the university's resources, is a very useful instrument for pursuing information ethics policy in the public domain.

Conclusion and recommendations

As mentioned at the beginning, this report is based on rather limited grounds. It is formulated primarily on the basis of German Chair's experience in the information and knowledge field. This needs to be taken into account.

- UNESCO Chairs in Communication, rather loosely connected in the ORBICOM network, normally do not have the local resources to carry out programmes that are directly related to UNESCO's objectives. Chairs are normally located at a university and, like all other members of their departments, have intensive teaching duties, carry out research projects in their field of competence, are involved in academic administration, and regularly have many contacts and duties (advisory committees, expert opinions, talks, conferences, publications, etc.) outside the university. UNESCO should therefore consider ways of improving the infrastructure of the Chairs, which cannot normally be supported by the university - at least not in the case of the German Chair.
- UNESCO Chairs in Communication should in particular be concerned with the development of information and communication competence not only in their own field but also in curricula for higher education in general. Of course, computer and technical communication literacy is also the necessary basis for information work. But information literacy, the methodically controlled usage of information and communication resources, needs to be implemented generally in all higher education curricula.
- With computer and technical communication devices and services available everywhere in Europe and North America, UNESCO Chairs should take advantage of their media and (technical) communication skills and should be encouraged to communicate more closely with each other (using electronic communication services such as fora, teleconferencing, weblogs and wikis).
- UNESCO Chairs in Communication should work more closely on common courses and training units that can be carried out cooperatively/collaboratively in an electronic environment (such as the course on information ethics).
- UNESCO Chairs in Communication should actively support initiatives and activities in the broader open access and open electronic publishing arena in general. They should support the concept and use of Creative Commons licensing as a means of regaining scientists' information autonomy in education and science – a practice that is compatible with the existing regimes of intellectual property rights.

- UNESCO Chairs in Communication also should acquire expertise in the intellectual property right (IPR) field in cooperation with genuine legal IPR experts in order to advocate copyright regulations that further the advancement of education and science rather than making access to knowledge and information more and more complicated and a privilege reserved for those who can afford to pay for the commercial services.
- Finally, UNESCO Chairs in Communication should use the potential of the ORBICOM network more intensively in order to support education and science in the countries of the South, for instance by developing, together with experts from the relevant country, appropriate curricula, courses and learning modules in the field of their competence and/or by providing access to electronic services used in their own environment. Sharing competence, knowledge and skills in education is the major challenge for the future. UNESCO Chairs in Communication are the appropriate people to achieve these goals.

To bridge gaps and broaden knowledge

By *Lourdes Feria*

*"...Where is the wisdom we have lost
in knowledge?"*

*Where is the knowledge we have lost
in information?"*

T.S Elliot

*"Knowledge is the only item that
multiplies when distributed "*

Fabián Romo

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INTRODUCTION

In the knowledge society, the presence of ICTs constitutes a radical transformation in our traditional representation systems. Is cyber-communication - as Baudelaire asserted - a search for simulated reality? The web seems to become the core, cyberspace seems to become a vast expression experiment, and all that is required - apparently - is a computer. In order to take advantage of the benefits of technology, it is absolutely necessary to be able to read and write, and a minimum level of digital literacy is required, as well as the ability to manage information. However, there is underdevelopment in both respects in the world. Furthermore, one third of the planet lacks power, and one half of the world's population does not possess a telephone.

In its latest study on *e-readiness*, the Economist Intelligence Unit¹¹⁰ reports that, of the 65 countries with the greatest ICTs capacities¹¹¹, the highest ranking country in Latin America is Chile, in twenty-first position¹¹². Except for Mexico, all Latin American countries occupy lower positions as compared to the year 2004. This is the result of problems such as: unequal access, lack of infrastructure, and a knowledge base that is in its early stages. These countries are trying to bridge the gap by investing in cutting-edge technology and by implementing public policies aimed at promoting the use of ICTs.

The number of PC owners is still low, and even though broadband connections increased by 51% last year in countries such as Chile, the cost of this kind of Internet access remains high there, as in the rest of the region. Thus, no more than 4% of remote users will have broadband connection in the year 2005. Countries such as Brazil, Mexico and Argentina are growing fast in mobile telephony and the Internet. It should be noted that government policies have helped to boost the installed capacity. That is the case with Mexico, where 3,200 community centers have been opened and where kiosks that provide public Internet access in the country. In Argentina, too, a set of laws have been recently passed with the aim of promoting the country's software industry.

Are we really becoming the owners of technology? Can the countries of Latin America and the Caribbean aspire to participate fully in the digital world? To what extent do higher education institutions assume their responsibility? To what extent do universities endeavour to bridge this gap?

Nowadays, the countries of this region increasingly endorse initiatives designed to support ICT applications¹¹³ through schools and programs aimed at creatively recycling computer equipment so as to take technology to places that would not be reached otherwise. They develop applications designed to teach mathematics efficiently, and they even launch projects intended to have an impact at the local level for the benefit of our countries. An example of this is the Latin American Network of Educational Portals, which not only aims to support the more advanced, but also the least developed, in these practices. We are therefore faced with the following question: What is the responsibility, under these circumstances, of the UNESCO Chairs? The directory contained on the website of the UNESCO/Unitwin Chairs¹¹⁴ shows that there is only one Chair in Information Technologies in this region - two of the other Chairs concerned with ICTs being specialized in communication media, and two more in distance learning.

The Chair to which we are referring is the Chair in New Information Technologies hosted by Mexico's University of Colima. This report presents the Chair's proposal to support, with technology, educational processes as well as information management processes, with the aim of building up a Society-Network that does more than merely doing the same with new tools - one that imaginatively strives to develop new competences, in order to learn to be, learn to share, learn to do and learn to learn in the digital world.

1. AN OVERVIEW OF HIGHER EDUCATION (TRENDS, ISSUES AND CHALLENGES)

"One of the characteristics of economic development should be a human countenance"

Carlos Salazar¹¹⁵

A few months ago, Claudio Rama, Director of the International Institute for Higher Education in Latin America and the Caribbean (IESALC/UNESCO) said:

"Latin America is a community that has common historical interests, as well as a common language and tradition, strong similarities among its university systems, and very similar weaknesses and strengths. This region has university systems with common autonomy traditions, similar weight carried by the public sector, a strong professionalizing drive, scarce research, societies that increasingly import science and technology, and have low global budgets that are allocated to higher education as well as to scientific research [...] The university systems have stagnated in terms of coverage, they lack strong systems aimed at ensuring quality; they offer unequal access to the indigenous people, inmates, the disabled, black people, have low institutional diversity, a low budget, limited research and an enormous number of alumni that graduate from a small number of programs for which there are no openings on the market..."¹¹⁶

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However, a transformation is gradually coming about, and is reflected in strong measures, such as the creation of consortiums whose objective is to combine strengths, encourage collegial negotiations and ensure quality. This is the case, for example, with the institutions that constitute the Consortium of Quality Mexican Universities (CUMex)¹¹⁷, comprising 9 institutions that seek to provide mechanisms aimed at comparing curricula, implementing credit recognition systems, establishing student exchange programs, building up collaboration and exchange networks among academic bodies, and implementing national chairs of excellence.

The creation of the Macro-universities network coincided with the birth of the new millennium. The title of this network refers to a university model with specific and common characteristics prevailing in almost all the countries of this region and not present in any other part of the world. These characteristics include: their size - the Macro-universities of Latin America and the Caribbean have between 40,000 and over 60,000 students and include around 10% of the 9,400,000 students enrolled in higher education institutions¹¹⁸; their administrative complexity; their knowledge generation - these institutions are known for their support of research projects that carry the greatest weight in this region; their funding - since the Macro-universities (all of them state institutions) account for the largest share of national budgets allocated to the higher education system; and, finally, the historical and cultural heritage they represent - since they all preserve and protect a large and very important tangible and intangible heritage.

Another recent example of this commitment to quality is Universia's first International Meeting of University Presidents, held at the University of Seville, on May 20. This meeting brought together 400 Presidents from the most important universities of Spain, Portugal and Latin America. At this meeting, they agreed that it is the responsibility of the Iberian-American universities to build a new model embodying new functions and guidelines that could enable universities to become a catalyst for sustainable development through their commitment to broadening and promoting knowledge and to thoroughly renovating teaching-learning methods and incorporating ICTs into university teaching and management.

The above goals are becoming a reality, although in uneven fashion, through heavy investments in private universities and, to a lesser extent possibly, in state universities. However, with respect to the supposed role of technology in teaching and research, several specialists agree that a great deal of work remains to be done to foster a culture of transition, which involves a change not only of technology but also of paradigms, methodologies and the socialization of technologies. For, as one of the participants in this meeting said: "if universities have been important in the industrial era, their role in the society of knowledge can be a lot more important, as long as they meet, with flexibility, the new demands of these society. The university is regarded as the source of knowledge, although not the only one, and as a corporation that fulfils the needs for education and technological development in the context of the society of knowledge"¹¹⁹.

1.1 Knowledge generation

Electronic libraries, software, educational multimedia, virtual reality, digital telephony, creating and maintaining websites, videoconferencing, interactive learning about computer platforms, library automation, files, telecommunications and digital publishing are permanent topics covered by the UNESCO Chair in New Information Technologies established in 2001 at the University of Colima, Mexico.

Before receiving the UNESCO appointment, and with greater thrust thereafter, it has “consolidated its working methodology, gained experience in technology development and its application to education, put together a solid and specialized team, and now has the minimum infrastructure that is necessary to launch projects aimed at facilitating the University’s technological evolution, and at making sure that each branch constituting the University broadens knowledge and experience in order to solve the problems they face about information access and electronic libraries, software, educational technology and connectivity, while improving communication and exchange among them at the same time.”¹²⁰

The results that we have tried to achieve are, firstly, to effectively diffuse the utilization of technology in academic activities so as to improve educational quality and support the development of new educational models necessary for the development of formulas that adapt to the innovative and demanding paradigms of the 21st century. With this end in view, the projects include the following:

Applications and services - namely the development of products in carriers such as multimedia CDs, DVDs, websites, Internet portals and virtual reality, as well as software development to support the various university departments, management processes, research applications and, of course, library automation. As regards information services, a distinguishing characteristic of the Coordinating Department of Information Technologies and Services (CGSTI) has been its efforts to increase these resources on a permanent basis and to establish links with other libraries, as well as to acquire texts and materials in electronic media.

Collaborative projects within the University. As part of the telematics higher education departments, the links that have been established with the areas constituting the Coordinating Department have been the key to launching projects and planning long-term strategies. Additionally, we work with the University’s higher education departments, research centres and branches to meet their technological needs.

Examples of collaborative work are embodied in our, Multimedia Centers for Interactive Learning (CIAMs), interactive sites such as *Nucleum*, software development for other University branches, and the *Thesis* database that includes theses completed by our graduates throughout the University’s history.

Development of infrastructure and resources. This project is aimed *inter alia* at expanding our collections, improving the facilities and equipment of the libraries located on every campus, and permanently developing the University Intranet and its specialized content, such as the 21st Century Library, digital telephony, bandwidth increase to provide better quality services, Internet 2 access, high speed wireless network, and methodological design and proposals for interactive classroom utilization.

Fostering the culture of technology within the University. In this respect, we have given continuity to the courses that have been offered to ensure the adequate use of technology. Examples include the 21st Century Faculty Certification Course, the course on computer tools, the student and professor training in the use of the 21st Century Library software, and the refresher courses on technology intended for the staff responsible for our computer centres.

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Researching and learning about the latest technological applications. This refers to the continuous training given to the staff of the four areas constituting the Coordinating Department, and the assistance provided to thesis writers in subjects such as the impact of technology in education, library and information service utilization, network setup, information system development, and other related subjects. It also has to do with proposals for new network computing applications and optimal use of the existing ones.

Cooperation with other institutions. Collaborative relationships with other institutions have always been a concern of the technology departments of our University, and include activities ranging from courses, internships and conferences to significant actions with bodies such as ANUIES (Asociación Nacional de Universidades e Instituciones de Educación Superior), UNESCO, FAO, OAS and the United Nations, pursued "as part of the academic tradition of the University of Colima, and with the aim of continuing to offer a forum to learn about these subjects and reflect upon them"¹²¹.

Towards a Virtual University. Within the framework of a grand *Technological Integration Program*, the seed of what we call the Virtual University (VU) has already been sown. VU was conceived by ANUIES as "an institution through which processes associated with teaching, learning and management take place... a national organ-network based on the system of higher education institutions of our country"¹²².

The UNESCO Chair in New Information Technologies, through its educational, applied research and content generation programmes, looks to contribute towards bridging the digital gap. To that end, it has produced over 300 software products in Spanish relating to Latin American culture, as well as multimedia educational products.

With the aim of making the *Virtual University a reality, the 21st Century Faculty Certification Course* is currently in operation, the first Virtual Reality Laboratory in Latin America has been set up, we are participating in the establishment of International Standards in Distance Learning, and we have also set up three technological platforms – *Educ*, for distance learning, *El Dorado*, for digital libraries, and a third one designed to manage learning objects.

Technology development has led the Chair to venture into university/government and university/enterprise outreach programmes. With respect to the former, mention must be made of the *Microbanking and Microbusiness Website* project, for which we have received financial support from the Asia Pacific Economic Cooperation (APEC), in which China, Indonesia, South Korea, Mexico, Peru and Chile participate with the aim of assisting their microbusinesses in securing financing, training and exchange and information access for decision-making purposes.

Other organs and institutions with which we carry out joint programmes are: the National Autonomous University of Mexico, the University of Guadalajara, universities belonging to the CUMEX Consortium, the University of Antioquia, international organs such as UNESCO and IFLA, private businesses such as CISCO and OCLC, governmental organs such as the Government of the State of Colima itself, the National Council for Science and Technology, the Ministry of Public Education, and other organizations

such as the University Corporation for the Development of Internet 2 in Mexico and the Universia Group.

The resulting high capacity for knowledge application and development has led, among other goals, to improvement of the constructivist pedagogic methodology - which, by connecting with ICTs, has achieved tangible goals such as a 60% reduction in failure rates, an increase in student participation and faculty improvement, improved student performance, collaborative work thanks to the networks of professionals that have been established among local, national and international academic institutions, the development of new technology for export, and a reduction of up to 97% in national investments, as well as Spanish content publishing in digital format. Other achievements are shown in the following list:

- 1500 users of the *SIABUC* library automation software
- online training intended for the staff of libraries from 36 countries of the region
- 12 academies with the aim of preparing specialists in telecommunications
- 1 Virtual Reality and 3D laboratory
- a 500-product portfolio
- 12 digital libraries
- 5 platforms to be used by our region's institutions:
 - distance Learning
 - library management
 - digital libraries
 - digital files
 - digital museums
- 200 online courses
- 1 Latin American Volunteer Network in ICTs (10 universities)
- 1 annual Latin American forum on reflection and update on ICTs: *Interfaces*
- participation in the national group that has been set up to evaluate competencies in ICTs
- 1 national usability observatory (being developed)
- 1 Master's degree in ICTs
- *Kaleidoscope*: field research carried out to assess the relationship between the Mexican students of Colima and ICTs.
- participation in the Advisory Board of the Dublin Core group for the world standard in Metadata

1.2 Knowledge dissemination and exchange

From the start, the Chair offered integrating courses, workshops, seminars, meetings, colloquiums, conferences, expert meetings, certification courses, master's degrees and specialized documentary material. In fact, the Chair began its activities with a pilot project: the "Certification Course on Digital Libraries" linked to the Grand Iberian-American and Caribbean Digital Library. This course was intended for 144 trainers of the 36 National Libraries of the Latin American and Caribbean Member States, based on the UNESCO methodology that is aimed at recording digital media, defining standards in audio and video digitalization and software, and developing an information management software to be used internationally. In this way, each participating National Library will have the tools needed to maintain and develop its National Digital Library.

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Distance group administration, communication always using technology, beginning on the date the call for proposals was published, hiring professors, giving courses, teamwork with students, faculty, with administrative clerks, and translators (when it has been necessary).

The fact that our project is not an isolated entity, that it is a combination of projects, that it is much more than simply computers and technology, that it is more than the sum of its parts, has made it possible to deal with the topics of dissemination and international teaching.

Project incubator laboratory. Without this necessarily being its original objective, the Chair has become a project and human resources incubator. Telematics, computer science and information technology students can set up technology projects thanks to the experience they have gained in their vocational training under the Chair's programmes, translating it into real projects. Examples of successful results incubated by the Chair are the Teaching Media Center, the School of Telematics and the Virtual Reality Laboratory. A particular case that has transcended national and international boundaries is the *Electronic Government* project, which has made the State of Colima well known, and which has its roots here inasmuch as its initiators participated in one of the Chair's programmes that developed successful applications for such *e-Government* projects.

The Chair is dynamic, flexible and its new approach goes beyond the Digital Library, since it takes account of technological trends (software development, search engines including more powerful meta-search engines, metadata and standardization, and developments focusing on the Internet) and does not merely respond to yet another market demand, but to its own vocation and the need to train young students and professionals according to the current trends of the labor market. Moving from personal skills to explicit knowledge capable of being disseminated, coping with quality evaluations, and maintaining high personal and group performance are added values.

1.3 Knowledge Application and utilization

The Chair has been engaged in the dissemination and implementation of the *Univercizen* concept, whose objective is to heighten social awareness among students and professors in order to encourage increased participation in projects that include the human process in connection with material advances.

We were thus invited to participate in the volunteers programme of the United Nations, in particular the UN Information technology Service (UNITeS). The University's commitment to educating young people, the importance it gives to social outreach, culture and exchange programs and the important links that have been established with other international educational institutions, have enabled us to strengthen this relationship.

The University of Colima was designated Coordinator of the Latin American Network of participating universities. These universities provide volunteers that are trained in new technologies so as to carry out work in communities inside and outside their countries, by developing and undertaking programmes aimed at bridging the digital gap. The first trips carrying volunteers to places such as Ecuador, the Dominican Republic and Colombia have already been organized, with young people who regard this not

only as a technology application experience, but also as an experience that heightens awareness of their environment and enables them to reaffirm their commitment to society.

With regard to the main obstacles and challenges, these can be summarized under four headings:

- The need, in some institutions where old conceptions and bureaucratic inflexibility narrow our scope of action, to reflect on the best way to make work patterns more flexible and eliminate shortcomings in administrative practice.
- The need to foster the culture of networks and teamwork.
- The need to stimulate investment in connectivity, in connections that allow faster access and computer systems that offer greater security.
- The need to look for more substantial financing that would make it possible to launch ambitious projects based on social and educational impact results.

1.4 Bridging the knowledge gap

While we are mainly committed to the University, the development of our work has led us to build up networks. How? By finding our way as we walk, by crossing bridges, sometimes returning to the starting point only to resume walking, by living a story of learning at the local level, later at the national level, and leading eventually to internationalization of our efforts. This is exemplified by the following case.

The local level. SIABUC was a catalyst. A product that satisfied our own need and that we could have kept to ourselves. However, we wanted to share it, and accordingly felt compelled to improve its quality. We have products to offer, but in order to offer them to the world we must commit ourselves to total quality.

The national level. The first links were established with seven institutions whose libraries were facing situations similar to our own, which we successfully improved through SIABUC. Between 1985 and 1987, 17 software use agreements were signed, and step by step we approached other institutions in the country. By 1989 we had 84 libraries, whereas the number in Latin America currently stands at over 1000. Even the largest networks start out with small achievements, and with time, perseverance and commitment they can accomplish objectives they had not dreamed of.

Participation in academic events such as seminars, lectures and conferences provides the perfect opportunity for networking. It was actually at a conference when, during a hallway chat with the National Archives director at the time, we proposed setting up a project aimed at systematizing the large database of the Archive's collection, which at the time was only available in card files. This was one of the first products we developed of the 500 that we currently produce.

Establishing links with other networks has also been important. The first time we did this was with Rencis (Network of Health Information Centers). We also collaborate very closely with CUDI (University Consortium for Internet-2), and with diverse projects of the Central-Western Network of the National Association of Universities, as well as with other groups engaged in distance learning.

To bridge gaps and broaden knowledge

The international level. Participation in events outside the country started in the 1990s. The first step was the designing of projects such as the Latin American Seminar on Cultural Information and the Regional Workshop on Information Technologies. Courses and consultancy on this subject continued to be offered in different latitudes. Thus, when in 1998 the ANUIES-CSUCA program was launched for the first time (with the aim of encouraging academic exchanges between Central American and Mexican universities), we were already prepared. In fact, we had already set up the project with the Technological Institute of Costa Rica, and this turned out to be the funding opportunity for which we had been looking.

The University of Colima has always had a keen interest in the links that have been established with the economies of the Pacific Basin region, since it is a part of its interest in networks and globalization. In this way, we discovered a correlation of interests and opportunities for collaboration with countries of that area. Within this framework, we are currently working on a project approved by the APEC Education Foundation: *Microbanking and microbusiness website*.

Another body to which we are linked is the Latin American Center for Social Sciences (CLACSO), whose headquarters is located in Buenos Aires, through its *Virtual Campus* permanent programme, which involves the participation of two of our specialists. At the moment, we are also participating in other courses and seminars with the Inter-American University Organization and the Dublin Core international group, in order to define the world standard in metadata registry, which makes it possible to broaden the scope of subjects and share knowledge with regional institutions.

2. HARNESSING ICTs IN HIGHER EDUCATION

Optimizing the effective utilization of technological resources among the academic and student communities entails designing and implementing innovative scenarios. This approach has resulted in technological developments such as the Multimedia Centers for Interactive Learning (CIAM), videoconferencing rooms and Virtual Reality Laboratories. These are educational facilities whose innovative pedagogic model is based on constructivism, which in turn has become a crucial factor in the development of a new student-centered curricular model by granting the academic and student communities 100% access to educational resources, thereby contributing to the acquisition of skills in technology and communication management as well as in collaborative work.

The benefits we have obtained from these facilities have exceeded our expectations, since they serve as laboratories where educational resources are developed, some of which include: online modules for the new Problem-Based Learning (PBL) curricular model, online courses, specific teaching material to be used by the Chairs, assembling PowerPoint presentations for educational purposes and videoconferencing sessions through the network set up for the Continuing Education programme.

The results yielded by the CIAM of the health department acted as a catalyst for planning and building similar facilities at the other campuses, and have been welcomed by the community. This is the result of a comprehensive programme aimed at raising awareness of technology among professors. This involved giving on-site lectures intended to foster the culture of optimal use of educational technology.

In order to clearly understand the benefits a student obtains from this immersion technology, we may relate a team anecdote: "We were all gathered at the Medicine Auditorium developing the contents of the *Embryology 2* course in multimedia. We asked one of the students to go to the board and point at the screen as instructed. When he touched the screen the model moved as if he had stepped into the screen. There were no interactive screens yet. It was a coincidence, but he said 'Now I understand!', and that was when we realized that if we had objects like these it would be easier to learn a lot more. It was a special moment in which we saw the learning potential of these resources".

But having a collection of one thousand 3D objects is not enough, since that is not our objective. The point is that every object should be designed with study guidelines, clearly defined teaching and learning approaches, which is why we are working on this, so as to enable students to discover learning. Thus, when a student faces the models for the first time and they perceive them with all of their senses, they will learn better. But not just that, they will also be capable of creating and discovering learning, thus enabling students to develop skills in different aspects such as communication, with the use of different media and formats, having access to information and exchanging it in different ways, increasing their capacity for finding information according to their needs, gathering, analyzing and summarizing information, drawing conclusions and making generalizations based on the information that is gathered, using information and selecting appropriate tools to solve problems, becoming "self learners", as well as collaborating and cooperating through teamwork.

This methodology combines research effort, the judicious proposal, documentation and critical evaluation with the flexibility, quality and creativity that Latin American education deserves.

3. POSSIBLE STRATEGIES TO REINFORCE THE ROLE OF THE CHAIRS

A large volume of experience based on many years of sustained work leads us to believe that the best technology in the world would be wasted if its full potential is not turned to account by placing it in the service of our institutions and society and, above all, if we do not prepare students and professors for the future.

This is the reason why telecommunications, programme development and other processes have involved the participation of students enrolled in various bachelor's programmes. In addition, most of the staff currently working for the Coordinating Department of Information Technologies and Services (CGSTI), its centres and directorates, have graduated from this University - a fact which provides us with the guidelines for seeking the best for our University. The students that enter a natural laboratory of this sort assimilate cutting-edge technologies in a process that is totally different to the one taking place in a classroom, thus putting their knowledge into practice and developing products.

Technologies are very important for the University of Colima. However, the formula that has enabled us to achieve goals is composed of four components: technologies themselves, information, methodologies and people. The first element, Information and Communication Technologies, are essential, because they constitute our supporting pillar and development tool. The second aspect, information, is also crucial, because it provides the basis for the valuable contents and services that flow through the networks and that are reflected in our products. The third component is the great contribution made by

To bridge gaps and broaden knowledge

the University of Colima: the *know-how*, the pedagogic methodology, library science and digital editing methodologies as well as “best practice” telecommunications.

The fourth component, without a doubt a *sine qua non*, is our personnel: professionals, workers and the students that join our projects in fulfilment of their social service and through internships. That is the key: the team consisting of committed people who love what they do, ranging from the easiest to the most difficult tasks, and who are permanently concerned to stay abreast of the latest developments in their field. It is a group comprising over 200 contributors, whose leaders have communicated their passion to their teams and have imbued them with an enhanced awareness of excellence enabling them to continually surpass themselves.

These experiences lead us to reflect on the fact that globalization, technology transfer and inputs to far-reaching technological projects are consequences of participation in technological and human networks, as in networks related to education, management, research, cooperation and outreach, and that collective intelligence thereby increases on a daily basis and, through its added value, constitutes a force for bridging the digital gap.

4. CHALLENGES FOR UNESCO

Bridging the gap. It is very simplistic to think that a large number of networked computers is all that is required to bridge the digital divide, even if this does make a contribution. We have seen that, in practice, it is easier to open a telecenter than to ensure its continuity. UNESCO's voice needs to be heard highlighting the policies that could be adopted to ease the transition to information technologies in such a way as to empower communities and foster digital literacy as a human right, rather than simply by setting up computers.

WSIS follow-up. UNESCO could support the follow-up to the declarations emanating from the World Summit so as to transform them into strategic programmes, thus fostering the Chairs' participation and commitment, and could call upon countries to invest more in technological research and digital literacy, thereby furthering human capacity and technical skills.

Links. There is a need to foster closer collaboration between the Chairs and the governmental institutions responsible for making development decisions and policies. The participation of universities as natural consultants should be promoted. Yet preference is given to large corporations; and, in some cases, the role of the universities is not even taken into account because the quality of their work is not seen as reliable. In this connection, there is a need to strengthen the image of the UNESCO Chairs as a quality standard.

Dissemination. There is a need to provide mechanisms whereby the value and work of the Chairs are more widely promoted. There is widespread ignorance about them in Latin America. UNESCO could launch a publicity programme aimed at assisting them to position themselves in the region, regardless of the activities that they undertake to make themselves known.

High-level seminars. Support could be given for programmes of high-level seminars for university presidents and senior officials, to encourage reflection on the importance not only of technology but also of information.

Networks. It would be interesting to encourage network collaboration, starting with the UNESCO Chairs themselves within each country. The UNESCO Chair Network was created in 2000 by UNESCO's Office in Mexico, in a country where there are nine Chairs. The project was devised in order to improve communication among each of the Chairs' programmes and build up an interaction network facilitating the fulfilment of their objectives through academic cooperation. The network meets regularly, considers possible joint undertakings and disseminates its actions through a website.

5. FINDINGS AND CONCLUSIONS

The development of ICTs in Latin America is both distinctive and uneven. However, significant progress in this regard has been evident over the last two decades. A critical element has been the outstanding development of telecommunications and information technologies. From the 1990s, many universities have introduced more and more equipment and applications, creating their own applications and producing projects conducive to the construction of the knowledge society in the region. It has given them a more alert and distinctive profile, opening up opportunities to conceive of new approaches, such as:

- creating Latin American networks for knowledge management
- negotiating with consortiums
- collaborating and competing
- developing a role as a validator of Internet offerings
- developing their role as educational actors
- serving as technological developers
- promoting learning on information resources
- serving as an Integrator of information services
- serving as information organizer for the worldwide web
- adopting an aggressive stance on the disclosure of information
- increasing the Spanish language offerings on the Internet

It is not without point to add that every activity has required from the beginning a great deal of perseverance, will and passion. The work undertaken by the information services requires commitment and a willingness to devote time, interest and love to all these activities, and to become part of the process of change, delivering and communicating the necessary attitudes so as to convert ordinary things into extraordinary achievements.

6. RECOMMENDATION

The door to a digital future is ajar, but none of us will manage to push it open by ourselves. We have to do it together, shoulder to shoulder, as in this auditorium where, whether we intend to or not, we are bringing about changes in old bureaucratic structures and in collective awareness and where, most importantly, we are aiming to create a world that puts an end to isolation. This is a creation of collective imagination and energy, an *interoperative* attempt to humanize ICTs.

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In order to make this vision a reality, we recommend the following:

To governments: that they should implement policies, but with greater emphasis on deeds, with less talk and more action. There is a need to invest in technological research programmes and digital literacy based on development models that look to encourage the development of human capacities and technical skills and are not focused solely on increasing infrastructure.

To higher education institutions: that they should foster networks and the culture of knowledge management, and that they should naturally continue to support knowledge, its production and its application. University Presidents should recognize that applied research into problem-solving is necessary in Latin America, because it sometimes seems that solutions are being sought in the stratosphere.

To UNESCO: that it should develop a communication strategy inside the countries, since there are places in the region where it seems that Chairs do not exist.

To the private sector and development agencies: that they should show willingness to establish links with universities, value the work and strengths of the Chairs, and support projects aimed at promoting welfare, thereby benefiting everyone.

And, of course, we the Chairs, also have a commitment to rise to the challenge of broadening knowledge and opening up knowledge so as to bridge gaps. Civil society uses ICTs and sometimes does things unwittingly because nothing destroys a network society, which functions because no one rules, because there are no hierarchies. Networks gain strength thanks to ICTs since they facilitate communication, allow for flexibility and increase the capacity for adaptation. Until now, we have been striving for infrastructure (more computers, more links). Starting today, we must focus on access, on acquisition. The question is: Technology for what? To work together, to change the ways we learn, to learn to think differently. We are making history with regard to these issues, learning to work together and learning about cross-acquisition. The issues here are creativity, will, love and dreams. Having a dream, envisioning it, firmly believing in it and realizing it.

The role of networks in the construction of knowledge societies: An International Perspective

- **The role of UNESCO ICT Chairs and networking in the construction of knowledge societies worldwide: The ORBICOM Network**

By Alain Modoux and Claude Yves Charron

The role of UNESCO ICT Chairs and networking in the construction of knowledge societies worldwide: The ORBICOM Network

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INTRODUCTION

UNESCO must be congratulated for convening this Round Table. The Tunis phase of the World Summit on the Information Society is the perfect set-up to demonstrate the unique supporting role of UNESCO Chairs in Communication and their network, ORBICOM, in achieving UNESCO's mission through knowledge societies.

International communication is a paradox. Today we have more ways of communicating, but we also have more problems understanding the impact the diverse means of communication have upon our world and within our communities. Our societies are increasingly reliant upon information. As well, knowledge-based industries demand innovative ways of exchanging information, technology and expertise. We require new models for sharing what we know and for contributing to the construction of knowledge societies. Set up to address these needs, ORBICOM is an international UNESCO network that links communications leaders from academic, media, corporate and government circles with a view to providing for the exchange of information and the development of shared projects.

1. OVERVIEW OF ORBICOM'S DEVELOPMENT

ORBICOM's mandate derives from UNESCO's New Communications Strategy unanimously adopted at the Organization's General Conference in 1989. This Conference foresaw that new communications technologies would have a significant impact upon the complex processes shaping economies, the environment, social justice, democracy, and peace. Societal change depends upon participatory communications. Greater access to information and increased ways of exchanging knowledge affect social development, democratization and good governance. ORBICOM brings the Chairs and its associate members together in a global network. The network constitutes the response to the new challenges of globalization and convergence in the field of communication.

Therefore, ORBICOM is a UNESCO network associating UNESCO Chairs in communications and associate experts. It now accounts 26 Chairs part of the UNESCO UNITWIN Programme, and 250 associate members in 73 countries. The majority of ORBICOM's associate members are from developing countries. The Network can be presented as a bridge to fill the gaps between info-rich and info-poor societies.

Signed in 1994, at the request of UNESCO, by the Director-General of UNESCO and the Rector of the Université du Québec à Montréal (UQAM), the convention between the two founding entities, UNESCO and UQAM, foresees that the financing of the ORBICOM Network and its International Secretariat will be assured by multiple sources: universities, foundations, international organizations including UNESCO, private enterprises and governmental institutions.

2. THE DISTINCTIVE ROLE OF ORBICOM

The ORBICOM Network is not external to UNESCO (it would not have seen birth without the will of UNESCO). It is dedicated to pursuing UNESCO objectives. It is non-profit, outward bounded, and its "raison d'être" is to accompany UNESCO in its quest for a better world.

ORBICOM is involved in more than "inter-university co-operation" with the active participation of partners from the industry and governments. It is not only dedicated to "implementing UNESCO's communication programme and to reach more people around the world", but equally important, ORBICOM is a network dedicated to modern communications and capacity-building through the transfer of knowledge.

2.1 IN KNOWLEDGE GENERATION

To pursue this goal, numerous knowledge generation activities were put to life. The 1999 Conference (New Partnership in Communications for the 21st Century/Strategies for Governance, Technology, Employment and Lifelong Learning), which attracted 500 specialists from 55 countries, focused on ICTs and how to adjust employment training in communications. ORBICOM, which is an active member of the Global Knowledge Partnership (GKP), also acted as the "sounding board" in preparation to the first GKP conference in Toronto and the second one in Kuala Lumpur.

In 2000, the Mexico meeting adopted a plan of action in support of UNESCO's principal priority for 2001-2003: "Promoting equitable access to information and knowledge for development". More, almost all of ORBICOM's action plan is related to UNESCO's Major Programme V on Communication and Information, in particular to **the development of human resources and capacities, and to the contribution of ICTs in education and transfer of knowledge (information and knowledge as a lever for development and participation)**.

Among past researches and publications, it is worth mentioning "*Les paradoxes du Savoir*" published in 2000, and in 2002, "*Generating Trust in Online Business*", an analysis of the "trust" phenomenon. The work is a tool to adapt e-commerce strategies so that they generate consumer confidence. It is above all an instrument of empowerment of small and medium size enterprises.

Also in 2002, ORBICOM developed a methodology and a model to measure the digital divide, published under the title "*Monitoring the Digital Divide*". The enormous interest in the role of ICTs for development over recent years, combined with the high-level attention the Infostate conceptual framework and model have received both at the national and international levels, have identified the need for an instrument to record and monitor asymmetries across countries. In December 2003, a first Digital Divide Index was published in English and French under the title: "*Monitoring the Digital Divide... and Beyond*". It constituted a major contribution to the development of specialised knowledge in the context of the World Summit on the Information Society (WSIS) - Geneva phase.

In direct response to the WSIS action plan of 2003, which called for the development and the launching of a "Composite Development Index", ORBICOM, in partnership with the ITU and with the support of IDRC, CIDA, La Francophonie, UNCTAD and UNESCO has produced for the Tunis phase of WSIS a new bilingual research: "*From the Digital Divide to Digital Opportunities, Measuring Infostates for*

Development" under the scientific direction of George Sciadas, an associate member of ORBICOM and prominent specialist in ICT statistics models.

The work is the first result of the merger of two well-known initiatives, ITU's Digital Access Index (DAI) and ORBICOM's Infostate framework and model and referred from now on as the "ICT Opportunity Index".

The research is a collaborative global endeavour that has involved some of the ORBICOM membership and the collective competence and dedicated efforts of many individuals and organizations. More than a dozen teams were at work across all continents, with 50-60 people working directly on the project and many more contributing indirectly through the extended networks. Networks like REDES in Latin America, ICTs in Africa and Mimos in Malaysia took charge of regional analytical work, while "Women in Global Science and Technology" (WIGSAT) and a team of Statistics Canada statisticians produced the component on "Women and ICT". The ITU and UNCTAD contributed specific chapters. The edition is based on a three-part work plan: the ICT opportunity index based on the Infostate framework and model; detailed regional analyses with a policy focus for countries in Africa, Asia and Latin American and the Caribbean; and Women in the Information Society, which incorporates unique quantitative and qualitative research to study the gender digital divide.

"*The Digital Review of Asia Pacific 2003-2004 Edition*" was also produced in 2003 as a major contribution in knowledge generation to the international community and in time for WSIS Geneva. The work was completed under the scientific direction of one of ORBICOM associate member, Chin Saik-Yoon, of Penang, Malaysia, in co-operation with 29 authors, most of them also members of the ORBICOM network. The research must be perceived as complementary to "*Monitoring the Digital Divide Project*" and was conducted in partnership. The 2005-2006 English and French edition of *The Digital Review of Asia Pacific*, has been published in 2005 for the Tunis phase of WSIS. Like the previous edition, it is an ORBICOM initiative with the partnership of the Asia-Pacific Development Information Programme (APDIP) of UNDP, the Pan Asia Networking (PAN) of the International Development Research Centre (IDRC), and La Francophonie. It constitutes a comprehensive review of the state of diffusion, adoption and application of new information and communication technologies in the countries and economies of the Asia-Pacific region. The necessary financing has been secured to allow for a third edition to be released in 2007. Again, such an instrument will be of great value to UNESCO and other players when considering activities for "*fostering digital opportunities*", "*harnessing ICTs for education*" or "*promoting cultural or linguistic diversity*".

ORBICOM has been intensely focusing on the digital divide and the digital opportunities because it is widely recognized within ORBICOM that rigorous inventories, measurements and analysis are basic to sound decision making.

Other knowledge generation initiatives were undertaken by Chairs within the ORBICOM Network. The following are just a few examples of some Chairs' international activities over the recent years. At the initiative of the Mexican Chair, a regional conference was held in 2001 in Mexico City on the topic of equitable access to ICTs. It focused on the participation and responsibilities of the private sector in relation with access to ICTs, and the strategies of various Latin American governments to reduce the digital divide. A nine-point action plan was developed and approved. The action plan implementation

was in direct preparation to the Geneva phase of the World Summit on the Information Society. The same Chair took the lead and organised subsequent conferences and recently participated in a joint experiment with its sister chair of the University of Texas at Austin on Internet journalism.

As examples of Chairs' international activities in knowledge creation and dissemination, it is also worth mentioning the knowledge-creation activities of the Chairs of Moscow, Sofia and Copenhagen related to the digital divide and digital opportunities. Also, the Moroccan Chair was instrumental in organizing, in November 2004, the Marrakech Conference on the role and place of Media in the information society in Africa and the Arab countries, a major event of ORBICOM in cooperation with the Government of Morocco. The "Marrakech Declaration" published in Arabic, English and French is the result of a unique consensus of the civil society and governments of the regions. Its wording is far-reaching and unsurpassed by any other agreed document so far.

2.2 In knowledge dissemination and exchange

In the aftermath of the 1999 Montreal Conference, where the objectives were to diagnose the challenges and propose concrete solutions to the growing gap between available human resources and training in the domain of communications in all economic regions of the world, follow-up initiatives were undertaken to disseminate knowledge and exchange within and outside the ORBICOM Network. Electronic forums for information-flow exchanges and regional training workshops were organized and held. For the benefit of readers, it is worth mentioning that the 1999 Conference itself was organized in wide partnership with the GKP, UNESCO, CIDA, UNDP, IDRC, BCE, Bell Canada, CGI, France Telecom, The Freedom Forum, and the National Research Council of Canada. The Montreal Conference, which convened Communications specialists from 55 countries, resulted in an Action Plan with two main orientations: an electronic forum for on-going assessment/exchange of information and communication trends, and training needs and opportunities, via the ORBICOM's Website, and the set-up, in 2001, of a series of regional workshops for the training and retraining of communication professionals for the new knowledge economy in Africa, in association with the North Dakota State University. The Proceedings of the Conference (374 pages) were published and distributed in 3 languages under the title: "New Partnerships in Communications for the 21st Century: Strategies for Governance, Technology, Employment and Lifelong Learning".

In preparation to the Tunis phase of WSIS, the 2004 Marrakech Conference attracted 300 specialists from all regions of the world, but mainly from Africa and the Arab countries. The *Marrakech Declaration* agreed at the Conference was published in electronic and paper formats and was very widely distributed. More, ORBICOM flagship researches on the digital divide and on the state of ICT in Asia Pacific are published in two languages, are widely distributed, and available for free on ORBICOM's Web.

In addition to the very wide distribution of all its researches, ORBICOM introduced, in 2004, its electronic bulletin "OrbInfo" produced in house every two weeks. This is a supplement to the four annual editions of ORBICOM Forum, a newsletter distributed in 1000 copies.

Other examples of dissemination of knowledge by ORBICOM are its valuable participation in important international conferences organized by stakeholders outside the ORBICOM Network: the *InfoDev Sympo-*

sium on the Digital Divide in China (Dec. 2002); *the AMIC Conference on ICT in Asia* in Beijing (July 2005); one in Mexico City (4-5 May 2003) organized by the Mexican Chair at Universidad Iberoamericana on "*Media and Terrorism*"; one in Moscow (23-24 May 2003) on "*Technology and the New Media etc.*"

2.3 In knowledge application and utilization

As mentioned earlier, ORBICOM is a specialized network of UNESCO dedicated to the development of communication in the world. The knowledge generated by the researches done by its Chairs or by the network itself is available to all, not only to its membership. But ORBICOM and its chairs are not developing agencies or international assistance NGOs, although some research works, like those conducted by the Mexican Chair in the field of digital radio for example, are designed for application at the national and regional levels with the involvement of public telecommunication or regulating agencies.

2.4 In Bridging the knowledge GAP

The two measurement and assessment instruments of the information society developed by the ORBICOM Network (*Digital Review of Asia Pacific and From the Digital Divide to Digital Opportunities, Measuring Infostates for Development*) are fundamental to any sound analysis, decision making and action to bridge the digital divide or the knowledge gap.

But other initiatives are awaiting seed money to be launched by ORBICOM. The project on "*Core Literature on Development Communications and the Impact of new ICTs in Developing Countries*" is a good example. A proposal made by four chairs to study "*The Impact and Use of New Information and Communications Technologies in Developing Countries*" was to be merged with the proposal on "*Core Literature for Development Communication*" submitted by an associate member. This constitutes an interesting development as some Chairs and associate members have decided to combine their research activities in a real partnership between the academics and the professionals.

The objective is to collect, review and select landmark publications, papers, articles and audio-visual material that have shaped the field of development communications since its beginning. This collection of Spanish, French and English material will form the core literature for the discipline; it will span the early application of mass media in development programs to current initiatives aimed at introducing Internet-based technologies to developing communities. It will be designed to support research, training and practice in the developing countries.

The promoters of this initiative are the chairs of Morocco, France, and Canada in association with the former chair of ORBICOM's Research Committee, Mr Chin Saik Yoon, of Malaysia. Professor Jan Servaes of the Catholic University of Brussels and now with the University of Queensland in Australia has accepted to be the Scientific Director; but, as stated above, the necessary core financing has yet to be found, although UNESCO and other international governmental organisations such as the World Bank have expressed interest in this project.

2.5 In harnessing ICT in Higher Education

Although ORBICOM contributed to the launching of the IDRC/World Bank REFORMA project, an online training of trainers of teachers in 8 African countries, in partnership with a number of education facul-

ties of Africa, Canada and the USA, the Network has not been involved in the creation of content as such but has provided a level of expertise in online interface gained through a decade of virtual general assembly of members' meetings, board meetings and discussion forums within the ORBICOM network. Also, the virtual forums open to the ORBICOM membership have contributed to the uptake of this virtual knowledge acquisition tool by the ORBICOM Chairs and associate members.

Final report

- **The General Report on the UNESCO Round Table on the Construction of Knowledge Societies through the UNITWIN/UNESCO Chairs Programme**

by Ruth Teer-Tomaselli – Rapporteur

The General Report on the UNESCO Round Table on the Construction of Knowledge Societies through the UNITWIN/UNESCO Chairs Programme.

By Ruth Teer-Tomaselli – Rapporteur

The primary purpose of the Round Table was to reflect on the contributions of the UNITWIN/UNESCO Chairs in Information and Communication Technologies (ICTs) towards moving from an 'information society' to a 'knowledge society'. Knowledge has been recognized a driving force for socio-economic development. Education in general, and higher education in particular, play an important role in the generation, dissemination and application of knowledge for building capacity and realizing development goals. This has been affirmed by UNESCO, the World Bank, UNDP and numerous international and regional organizations. It is against this background that the UNITWIN/UNESCO Chairs were established.

The Round Table of UNESCO Chairs in Information and Communication Technologies was held in conjunction with the Tunis Round of meetings of the World Summit on the Information Society. Participants in the Round Table included UNESCO's leadership, five UNESCO Chairholders, each from a different geographical region, the UNITWIN Secretariat and the facilitator. Participants included UNESCO Chairs in ICTs, NGOs active in the field of ICTs, relevant private sector representatives and regional and international facilitating organizations. The meeting elected Professor Ruth Teer-Tomaselli as the Rapporteur. The Round Table was organized by Mr George Haddad, Director, Division of Higher Education, UNESCO and Ms Hassmik Tortian, Programme Specialist, Division of Higher Education, UNESCO, who also moderated the session.

The first speaker was the Director-General of UNESCO, Mr Koïchiro Matsuura, who noted that the UNITWIN/UNESCO Chairs provide the opportunity for building research capacity in their fields of specialization, as well as creating strong North-South and South-South networks. He was followed by Mr Peter Smith, Assistant Director-General for Education, who focused on three main issues:

1. The role of higher education within UNESCO, with particular reference to understanding the corresponding core values;
2. The role of the UNITWIN-UNESCO Chairs in furthering those values;
3. An analysis of the current situation in terms of the strategic perspective of engagement.

We should never take the role of higher education for granted, Mr Smith stressed, since in many developing countries institutions of higher learning were the pillars of stability in situations where stability was rare. Universities were often the only places of consistency in societies that are in flux. Societies depend on intellectual institutions as an essential pre-condition for development and growth that can put education as a top priority rests among other things on tertiary education. He underscored the complexity and dynamism of new knowledge and noted that as media scholars and academics, we need to be sensitive to the capacity of new knowledge to affect change. Mr Smith cited an example from the UNESCO panel of the previous day, in which discussion centered on the

tension between new ways of doing things, new kinds of knowledge and the existence of old institutions. For him, the importance of UNESCO Chairs was to create networks within and across countries. Thomas Kuhn wrote of the creation of knowledge as a cycle. Applying this, we need to find a way of translating the Information Society into the Knowledge Society. There is a necessary time gap between the initial creation of an idea and its translation into knowledge. In our fast moving world, there is a temptation to contract and close the temporal space between the two. However, UNESCO is committed to preserving an open space for public participation in the formation of knowledge.

The main working paper was presented by Mr Abdalla Bibtana, who outlined the role of Higher Education in the Construction of Knowledge Societies, and the challenges faced by UNESCO. Mr Bibtana presented a working document in which he stressed the moral and ethical responsibilities of education in building knowledge societies. He noted that UNESCO had contributed significantly through the launch of the *World Report of Knowledge Societies* (see published volume). By way of a working definition, he suggested that a knowledge society was one in which emphasis was laid on the *generation, diffusion and utilization of knowledge for development*. This is a humanistic rather than a technical definition of knowledge. The paper identified four pillars for the construction of knowledge societies:

1. higher education
2. research
3. the role of ICTs
4. the private sector

Against this background, it was important to enquire into the distinctive role of the UNESCO Chairs, and the way in which they were able to facilitate the exchange of knowledge.

A significant problem concerning the barriers to the construction of knowledge societies was the slow production and low quality of research. There was also a brain drain from the developing countries as intellectuals were attracted to better facilities in the more developed areas. This was compounded by the lack of enabling policies for the use of ICTs in developing countries.

A key question when considering the role of UNESCO in the construction of knowledge societies remains *the responsibility of UNESCO in the generation and diffusion of knowledge*. The conclusions drawn by Mr Bibtana were that while knowledge is universal, it is useless unless we have the modalities to use and receive it.

The developed countries of the world are home to 5.9% of the population, yet they have 91% of the Internet connections. UNITWIN partnerships are an important element in the dissemination of this knowledge.

Mr Alain Modoux, President, and Professor Claude-Yves Charron, Secretary-General of the ORBICOM Network of UNESCO Chairs in Information and Communication Technologies, outlined the rationale of ORBICOM, stressing its role in facilitating close working relationships between academia and professionals in the fields concerned. ORBICOM was created in 1994 under the leadership of UNESCO. The

objectives of the Network are twofold: a) to foster scientific co-operation between Chairs; and b) to build bridges between the academic and the professional world.

Mr Modoux introduced the ORBICOM Network. The membership includes twenty six (26) UNESCO Chairs worldwide, as well as two hundred and fifty (250) associate members, drawn from journalists, public relations professionals, enterprises and companies working in the field of communication. The Secretariat of ORBICOM is based in Montreal, at the University of Quebec (UQAM). The challenge facing ORBICOM is how to achieve real impact without a real budget. One way is through holding the statutory meetings - the regular Board meeting and the Annual General Assembly - online. In this way, ORBICOM holds 'virtual meetings'.

ORBICOM facilitates two major activities: research and publications, and conferences. ORBICOM has made an important contribution to the WSIS, in terms of new information and, more importantly, new knowledge. ICTs are seen as the first step towards knowledge, education and learning. ORBICOM has produced two publications to coincide with WSIS:

- *The Digital Review of Asia Pacific* and
- *Digital Opportunities*

The latter publication builds on an earlier publication, '*Monitoring the Digital Divide... and Beyond*', presented at the Geneva round of WSIS in 2003. The project offers an innovative and reliable instrument to measure the relative strengths of ICTs in different countries in terms of the ability to create digital opportunities conducive to development. Based on the **Infostate** conceptual framework and model, it incorporates measurements of ICT capital and labour stocks, indicative of a country's productive capacity, and ICT consumption flows, indispensable for the functioning of an Information Society. This allows a complex yet reproducible set of indicators on how the Digital Divide actually works out in practice. A key conclusion of the study is that the educational divide between the developed and the underdeveloped countries actually is becoming larger.

Another important element in the ORBICOM programme is the promotion of the concept of freedom of expression. This was the central contribution in Marrakech in 2004, when ORBICOM, together with UNESCO, convened a Media Conference of African Journalists, and managed to reach an agreement on a text that was presented to the WSIS in 2005 (even though the text was not accepted at WSIS in its entirety). The ORBICOM secretariat and members facilitated a regional conference in 2001 in Mexico City.

Professor Claude-Yves Charron, noting that the text of his presentation was contained in the folders, used his allocated time to refer to the recommendations made by the Chairholders at a meeting held in Montreal in 2003. He pointed out that the heart of the ORBICOM approach was to bring together Chairholders at the apex of their careers in order to inform and influence policies and politicians. He noted that there were a large number of academic organizations in the world, and the specificity of ORBICOM was bringing together academics, both UNESCO Chairs and other associate members, with professionals in the world of communications. ORBICOM's objective was to implement UNESCO's communication programme, particularly with regard to filling the gaps between information rich and information poor countries. Professor Charron reiterated some of the considerations and recommendations made in a meeting of eleven Chairs that participated in a Round Table in 2002. These were:

On networking:

- UNESCO networks are necessary for disseminating material resources, both intellectual and conceptual, providing opportunities for comparative research within specialized areas of study and offering academic and pedagogical support.
- There is a need to go beyond networking to take in implementation strategies.
- There is a need to work with established networks, specifically the ORBICOM network.
- UNESCO networks could be diversified beyond the usual areas of interest to create flexible, ad hoc networks specific to particular projects and lines of enquiry.
- There is a need to establish an international database of available networks.

On funding:

- Funding issues must be tackled because individual Chairs have variable access to funding, and most find lack of resources a major constraint. Furthermore, UNESCO and the ORBICOM Secretariat lack core funding, which is particularly difficult to raise;
- UNESCO and ORBICOM need to develop a joint financial resource mobilization strategy and could help individual Chairs with logistical support and institutional backup to secure funding;
- The UNESCO/ORBICOM network needs to act as a conduit of resources through the Chairs, to the benefit of regional and sub-regional activities.
- Bearing in mind that private funding can compromise the direction and independence of research, Chairs must protect their credibility while actively seeking private sector funding.
- There is a need to streamline interactions across networks and partners, and to clarify the role, obligations, expectations and reciprocity between UNESCO, ORBICOM and the UNESCO National Commissions and relevant government departments, as well as the universities where the Chairs are situated.

Final recommendations:

- UNESCO Chairs should utilize their capacity and means to facilitate applications of ICTs for marginalized communities, in both urban and rural areas.
- UNESCO Chairs should involve research students to a significant extent, while simultaneously providing cooperation and assistance to student projects;
- UNESCO Chairs and ORBICOM should build links with other networks.

At this stage in the Round Table, the floor was opened for discussion¹²³. Pertinent points arising from the Floor discussion included:

- That the knowledge economy should be a *creative* economy.
- UNESCO Chairs should be linked.
- Partners were being sought for a project among Hungarian Gypsies and the use of ICTs.
- Hans van Ginkel, Rector of the United Nations University, pointed out that communication was communication *between people*, and that information technology was only there to *support people*, not to replace them. There should be an emphasis on sharing knowledge. The Internet should be open to all people.
- It is important to strengthen the African Universities Network.
- We have to think about interconnectivity on different levels.

- Knowledge is not just about learning to do things but also about understanding things, in order to be truly human and promote international peace.
- The Global Learning Portal is one place to access this dialogue.
- Ms Gloria Bonder, Director of FLACSO-Argentina, which hosts the UNESCO Chair in Gender, Science and Technology, stressed the importance of diversity in the process of knowledge creation.
- A representative from Massachusetts Institute of Technology (MIT) drew attention to the Open Courseware project of MIT. At present there are over 2000 courses taught at MIT, and it is envisaged that all of these courses will be available, in full, on the Net for access by all interested parties, whether individual students or university institutions. Many of these are used by top Universities worldwide. Already there are 1,250 courses available on the Net.
- The ORBICOM Chairholder, based in UQAM, Montreal, raised two practical points. Activities need money and, in his opinion, the best way to raise money was to interest companies and enterprises in sponsoring Chairs. UNESCO provides the prestige; Bell (Telephones) provides the money.
- Chairs should be grouped together, according to areas of interests, to meet and define common projects. These require financing for co-operation between Chairs.
- The ORBICOM member from Madagascar noted the role of private higher education as a complement to public education. Madagascar has created a research centre, and has moved towards post-graduate research and started the move towards becoming a University.
- The UNESCO Tunisian Chair in Mathematics and Development pointed out that, although the involvement of the private sector was important in developed countries, the same might not be true for the underdeveloped countries. This was particularly the case in field such as mathematics: because it was a fundamental rather than an applied discipline, the private sector was less disposed to fund it. In cases like this, it was necessary for UNESCO to help with source funding, rather than leave disciplines to their fate because they were unable to muster funding. Further, relying only on corporate funding left academia open to being the slaves of wealth, of doing only that work in which corporate sponsors were interested. Scientists were not necessarily fund-raisers.
- The UN is concerned with a culture of peace. Chairs should contribute to this project for intercultural peace, particularly in Africa.
- Universities think it is glamorous to be awarded a UNESCO Chair, but when they have one they don't know what to do with it. There is a real lack of support at the institutional level for UNESCO Chairs.
- Fackson Banda... Chair of Media and Democracy at Rhodes University drew attention to the annual Highway Africa conference, which brought together the largest number of African journalists to discuss matters of mutual importance.

End of the Floor session.

Part Two: Presentations on the Role of UNESCO Chairs in the Construction of Knowledge Societies from Regional Perspectives.

Professor Jamal Eddine Naji, UNESCO Chairholder in Public and Community Communication from Morocco, made his presentation on the Arab States region.

Professor Naji pointed out that the UNESCO Chairs were part of the matrix of higher education. He alluded to the fact that although they are sometimes regarded as part of the 'less developed world', Arabic Universities have had a long history, and have long been in the forefront of learning and knowledge creation. However, in their present circumstances, they have difficulty in finding research funding. The problem may in part be one of image, since a UNESCO Chair does not have the same recognition in the Arab world as in the first world. This means that it has not been possible to be self-financing as was the case, for instance, in Canada, where the Chair was a frequent Visiting Professor. As a result, research production is low, and this creates a vicious circle for funding opportunities. A further complication, in his opinion, was that researchers in the Arab world are educated without ethical training. Professor Naji pointed to the importance of networking through an electronic forum. In summary, he pointed out that Chairs need:

- Legitimacy
- Visibility
- Credibility

Professor Ruth Teer-Tomaselli, UNESCO Chair at the University of KwaZulu-Natal, Durban, South Africa, began by describing the manner in which the higher education sector in South Africa has been shaped by apartheid in a profound way. Universities and technical colleges were divided along racial lines, with the result that there was a large number of tertiary institutions, not all of which functioned well, either in terms of academic excellence or financial efficiency. While some institutions were world class, others lacked capacity, and were very inferior. One of the first challenges facing the new government that came to power in 1994 was how to restructure the sector in order to make it more efficient, more equitable, and better able to provide for the manpower needs of a growing economy. Individual institutions needed to transform themselves into non-racial institutions that provided equal opportunities and redressed past disadvantages. The tertiary landscape as a whole needed complete restructuring in order to perform role of providing the intellectual foundation for new processes and policies, seeking solutions to developing-world challenges and produce the high-level skills needed in a competitive technological world.

National policy with respect to information and communication technology (ICT) has received support from Government in terms of acknowledgement of the critical role to be played by digital communications. Particular importance has been attached to roll-out of voice and information infrastructure. In the area of higher education institutions, little progress has been made since late 2003. There is no comprehensive national ICT plan at the tertiary level. There is plan for secondary schooling, but at the tertiary level, each institution works autonomously.

Within the Universities, the South African Chair has undertaken a number of projects, all of which involve the participation of graduate students and cooperation with other Universities, both in developed

countries as well as in African Universities. A number of meetings have taken place over the past few years, bringing together academics from all over Africa to discuss issues of media, new media and democratic communication.

Ms Lourdes Feria Basurto, UNESCO Chair in Mexico, spoke on behalf of the Latin American Chairholders. While Latin American countries have a common language and common historical interests and traditions, many universities have suffered from stagnation over the past few years, and offer widely differentiated access to different strata of society. Nevertheless, there are attempts to come together in consortia with the express purpose of improving access, curricula and networking between institutions of higher learning. In this process, electronic libraries have played a key part. The UNESCO Chair in Mexico has contributed to the study and maintenance of all kinds of electronic data storage, retrieval and dissemination.

Professor Anna Haebich from Griffith University in Australia provided an overview of the unique specificities of the Asia Pacific region, which open up possibilities for the cultivation of knowledge societies while also posing a major challenge to the processes of transformation. The area is marked by strong disparities in demography, cultures, languages and economics. Not surprisingly, these are mirrored in vast differences in levels of ICT infrastructure, access and uses, both in academic applications and personal lives. These complexities provide a focal point for addressing processes involving knowledge societies and the roles of governments, the private sector, civil society and international agencies.

Universities can be significant players in sustaining cultural diversity in processes and outcomes. However, this requires that universities be flexible, collaborative and prepared to take risks. There are enormous challenges posed to universities in e-learning and e-research, particularly in relation to sustaining cultural diversity through partnerships and projects with local communities, including those with stores of traditional knowledge and cultural heritage. The projects to which the Chair has contributed include the creation of content for websites, research data bases, collaborative exhibitions and performances that engage with a rich diversity of people through the new media.

Professor Rainer Kuhlen, UNESCO Chair at the University of Konstanz, Germany, posed what was in his view the central question: who owns knowledge? In his view, knowledge is a balance between five vectors: economic, social, political, cultural and individual. The balance between these vectors shifts and changes over time. He warned against the banalization of knowledge through an over-reliance on the Internet, noting that there was an increasing tendency for information to be "googlerized". In his experience, students rely far too much on search engines, to the detriment of other more traditional sources of information. Indeed there is an almost total neglect of traditional, reliable sources of information. The problem with this approach is that people are not always able to assess the value or legitimacy of information. This provides an important challenge for UNESCO Chairs, who need to strengthen information and communication competence and literacy.

A parallel process is happening with the commercialization of knowledge, and this has a negative effect. Intellectual Property Rights (IPR) are no longer seen as a means of protection for artists and creators, but rather as a means of exploitation by the owners of the means of dissemination.

We need more emphasis on communication.

In summary, the Round Table raised a number of highly pertinent, timely and weighty questions. The central question in the debate was

What is knowledge, and who owns it?

Following on from this, the question becomes:

How do the UNESCO Chairs contribute to the creation and diffusion of knowledge?

The end goal should be to make knowledge accessible to all (including the under-developed countries, women and youth). In this regard, UNESCO Chairs have a responsibility to contribute to the accreditation of knowledge in terms of quality, legitimacy, reliability.

They must also contribute to the creation of information literacy, to enable students and scholars to distinguish, in critical fashion, between legitimate and illegitimate information and data.

Knowledge must be guarded against overt politicization and commercialization.

From the regional presentations as well as contributions from the floor, it is clear that there are differences in specificity between countries and between institutions within the same country. This could depend on:

- Size
- Resources
- The comparative weighting of teaching and research responsibilities
- Technical connectivity and the provision of infrastructure
- The role and status of women in different societies
- The place of fundamental as compared to applied research and applications

Common to all contributions is the understanding that there is a need for constant reinvention, transformation and critical assessment within the fields of both communication and education.

Mr Abdul Wahed Kahn, Assistant Director-General for Communication, UNESCO stressed the need for a pluralistic conception of knowledge societies. This awareness of diversity within the debates around information, knowledge and ICTs, triggered current discussions on the role of UNESCO at the first summit (Geneva Phase, 2003). While UNESCO had a clear agenda, this was not dictated simply by its own concerns, but arose as a result of a sustained process of consultation. UNESCO had worked with civil societies, and deliberated with civil society organizations, before drafting their position paper for the first summit. UNESCO was (and continued to be) guided by four fundamentals:

- Freedom of expression
- Quality of education
- Universal access to education (education for all)
- Respect for cultural diversity.

The Action Plan of the Geneva Phase stressed the following elements:

- Access to technology, particularly community access and especially among women and girls;
- Local content relevant to communities' needs;
- Content in languages that are comprehensible to people;
- In media (including ICTs), communication and not technology is of key importance. Information must be relevant;
- All communication must be based on an ethical framework. Children spend more time engaged with various ICTs (television, radio, computers, Internet) than they do at school;
- The importance of cultural diversity and indigenous knowledge.

Cultural diversity means there needs to be a revolution in knowledge production, in popular culture and in the entertainment and arts sector. This is particularly important for youth and education. Education and communication are in constant crisis and change. UNESCO believes that communication needs to be:

- internationalized
- streamlined
- costs needs to be cut.

Mr Khan stressed that knowledge needs to be decolonized. This can be fostered in a number of ways, for example, by digitalizing the repositories of indigenous peoples. The process of localization must be led by UNESCO National Commissions in each country, together with the Regional Networks. The work of the National Commission was to support and endorse that of both the local communities, but to do so in line with the priorities of UNESCO, both regionally and internationally.

Recommendations:

The UNESCO structures at the international, regional and national levels, should strive to:

- give greater visibility to the Chairs
- help the financial situation of the Chairs by facilitating the leverage of resources
- assist in the forging of links and partnerships between Chairs and with outside stakeholders
- strengthen the communication between the Chairs and all levels of the UNESCO infrastructure

At the same time, the individual UNESCO Chairs should commit themselves to make common cause with the strategic concerns of UNESCO.

ANNEXES

- **Contributing Authors**
- **Participants**
- **Documents**
- **Footnotes**

ANNEX 1

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ANNEX 3 a

Documents

UNESCO at the World Summit on the Information Society Tunis Tunisia, 16–18 November 2005

Round Table on The Role of UNESCO in the Construction of Knowledge Societies through the UNITWIN/UNESCO Chairs Programme

Briefing note

- Title:** The Role of UNESCO in the Construction of Knowledge Societies through the UNITWIN/UNESCO Chairs Programme
- Venue:** WSIS Venue, salle Saint Augustin, Parc des expositions du Kram, Tunis
- Date:** **18 November 2005; 9 a.m.–13 p.m.**
- UNESCO
organizing unit:** Division of Higher Education

Background

Knowledge is recognized as a main driving force for socio-economic development. Education – and higher education in particular – plays an important role in the generation, dissemination and application of knowledge, and for building the technical and professional capacity of nations. Higher education's instrumental role in the construction of knowledge societies has been confirmed by UNESCO, the World Bank, UNDP and numerous other international and regional organizations.

UNESCO is one of the organizations that give high priority to the construction of information and knowledge societies, and to bridging the knowledge and digital gap that exists between developed and developing countries. Mr Koïchiro Matsuura, Director-General of UNESCO, has said 'if the world community's special concern is to overcome the digital divide in order to build knowledge societies, then this is precisely what UNESCO is all about'. He further added that "one of our core missions is to promote the free exchange of ideas and knowledge; to maintain, increase and disseminate knowledge through our work in education, the sciences, culture and communication".

Among the most important objectives of UNITWIN/UNESCO Chairs Programme, launched by UNESCO in 1991 is to provide Centres of Excellence and an effective modality for the generation, exchange and transfer of knowledge. These aspects are instrumental for the construction of knowledge societies.

Chairs and Networks in informatics and communication technologies (ICTs) have certain responsibilities in this domain, particularly through their functions of teaching, training and research, and their contributions in strengthening national capacities in production, dissemination and utilization of knowledge. The knowledge gap is widening between developing and developed countries. This issue constitutes one of the main challenges facing higher education, particularly in developing countries. Other issues exist and will be addressed during the Round Table.

The World Bank, in recognizing the role of higher education, has explicitly indicated that developing and transition countries are at risk of being further marginalized in a highly competitive world economy because their systems of tertiary education are not adequately prepared to capitalize on the creation and use of knowledge.

The final report of Higher Education Partners' Meeting (WCHE+ 5) indicated that the role of higher education as a key factor and a major driving force for sustainable development in knowledge-intensive and information societies has continued to grow. This remains true for developed countries, but developing countries still face major challenges in their ability to contribute to development; in particular they lag behind in capacity for knowledge generation, dissemination and utilization. This is the main cause for the existing information and knowledge gap.

It should nevertheless be noted that a number of developing countries have made major strides in developing their national capacities in knowledge generation and harnessing ICTs in education and other human activities. Countries such as Brazil, India and South Africa can be cited as examples.

Participants in the round-table discussions will devote their time to address all issues relevant to the role of higher education in the construction of knowledge societies and to the challenges facing systems in efficiently playing this role and effectively contributing to the social, economic and cultural development of nations. A number of crucial challenges will be discussed, such as equity and quality of higher education, barriers to harnessing ICTs in education, under-development of research, diminishing government financial support to higher education, the brain drain, language barriers preventing access to information on the Internet and bridging the knowledge gap.

Themes

- Role of UNESCO Chairs and networks in bridging the existing knowledge and information gap;
- Role of higher education and UNESCO ICT Chairs and networks in strengthening national capacities for knowledge production, dissemination and utilization;
- Challenges facing higher education in the construction of knowledge societies;
- Chairs and networks as modalities of international cooperation and building partnerships for the exchange and transfer of knowledge and information;
- Future responsibility of Chairs and networks in the implementation of the declaration and action plan to be adopted by the World Summit on Information Society.

Objectives

- Review national, regional and world experiences in implementing UNESCO Chairs and networks in ICT and their impact in putting the potential of knowledge and ICTs at the service of development;
- Identify the potential role of UNITWIN/UNESCO Chairs in the construction of knowledge and information societies;
- Identify the contribution of UNITWIN/UNESCO Chairs in bridging the existing information and knowledge gap;
- How UNITWIN/UNESCO Chairs can contribute in the implementation of the objectives of the Summit and the plan of action to be adopted by it.

Expected outcomes

The Round Table is expected to formulate concrete proposals and recommendations concerning the following aspects:

1. How to re-orient the objectives and activities of existing ICT Chairs and networks to better serve the objectives of constructing knowledge and information societies on national, regional and international levels;
2. Best modalities for the effective contribution of Chairs and Networks in the achievement of the objectives and plan of action to be adopted by the Summit;
3. Re-enforcing existing Chairs and promoting the development of ICT networks on national levels to better serve national development needs;
4. Re-enforcing regional and international networks with a view of expanding their coverage to all existing Chairs in all regions of the world.

Panelists

Main consultant for the Round Table and five UNESCO Chairholders, one from each geographical region, and one UNITWIN network Secretary.

Chair

The Chair of the session will be selected from among the participants. A general-rapporteur and a drafting committee will be elected during the opening of the first session.

UNESCO organizer

Mr George Haddad, Director of the Division of Higher Education, to be assisted by Ms Hassmik Tortian, Division of Higher Education.

Participants

- UNESCO ICT Chairholders and Secretaries of relevant networks (79 Chairs);
- NGOs active in the field of ICTs e.g. Access-net, Dubai Internet City;
- The private sector, e.g. IBM, Microsoft;

- Selected relevant regional and international Organizations (European Union, the World Bank, the Organization for Economic Co-operation and Development). The expected number of participants is 140.

Structure

The round table will be composed of two working sessions and one closing session.

- Opening Session: 9:00 a.m. – 9:30 a.m.
- First Session: 9:30 a.m. – 10:30 a.m.
- Second Session: 10:30 a.m. – 12:30 a.m.
- Closure: 12:30 a.m. – 13:00 a.m.

The Programme will be sent to all participants in due time.

All sessions will be convened in plenary.

Interpretation

The Round Table will be conducted in three languages - Arabic, English and French - with interpretation into all three Languages

Documents

- Programme of the Round Table.
- The main working document: The Role of Higher Education in the Construction of Knowledge Societies: Challenges for UNESCO
- Six regional papers on the role of UNESCO ICT Chairs in the construction of knowledge societies: a regional perspective

All correspondence concerning the Round Table should be sent directly to

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ANNEX 3 b

Documents

UNESCO at the World Summit on the Information Society Tunis, Tunisia, 16–18 November 2005

Round Table on The Role of UNESCO in the Construction of Knowledge Societies through the UNITWIN/UNESCO Chairs Programme, Tunis

Agenda

Friday, 18 November, 2005, 9:00 a.m.–13:00 p.m., Salle Saint Augustin

Morning Session: 9:00 a.m.–10:30 a.m.

- 9.00–9.20 Opening session moderator: Mr Georges Haddad, Director, Division of Higher Education
- Mr Koichiro Matsuura, Director-General of UNESCO
- 9.20–10.15 First Session
- Election of Rapporteur
 - Presentations of the main working document: The Role of Higher Education in the Construction of Knowledge Societies: Challenges for UNESCO by Dr Abdalla Bibtana;
 - Presentation on the International ORBICOM Network of UNESCO Chairs in Information and Communication Technologies by Prof. Claude- Yves Charron/ Alain Modoux
 - Mr Peter Smith, Assistant Director-General for Education
- 10.150–10.30 Discussions

Second Session: 10.30–12.30

- 10.30–11.30 Presentations on the Role of UNESCO Chairs in the Construction of Knowledge Societies from Regional Perspectives:
- Africa region by Prof. Ruth Elizabeth Teer-Tomaselli
 - Arab States region by Prof. Jamal Eddine Naji
 - Asia and the Pacific region by Prof. Anna Haebich
 - Central and Eastern Europe region by Professor Yuli kashinsky
 - Western Europe and North America region by Prof. Rainer Kuhlén

- Latin America and the Caribbean region by Prof. Lourdes Feria Basurto
- Mr Abdul Wahed Khan, Assistant Director-General for Communication

11.30 – 12.30 General discussions

- Presentation of the oral report
- Closing remarks by Mr Peter Smith, Assistant Director-General for Education

ANNEXE 4

Footnotes

- 1 Koïchiro Matsuura, Speech delivered at World Economic Forum, Davos, 2001.
- 2 Knownet initiative, knownet@knownetweaver.org
- 3 Koïchiro Matsuura, Speech delivered at a Briefing Meeting with Permanent Delegations to UNESCO on WSIS, 8 July 2005.
- 4 World Bank Statistics.
- 5 <http://www.unesco.org/education/educprog/unitwin/index.html>
- 6 Koïchiro Matsuura, Speech delivered at the World Economic Forum
- 7 Observation made during the Cairo Conference by Mr Ahmed Al Sayad, UNESCO Assistant Director-General for External relations and Cooperation
- 8 Source: Institut de statistique de l'UNESCO. Rapport mondial de suivi sur l'EPT 2005 (Annexe statistique).
- 9 Document "Terms of reference" of "International meeting on the University community and education for all". UNESCO – Paris. Nov. 2004.
- 10 By way of an emblematic example, Morocco has been engaged for ten years in instituting an unprecedented reform of its whole education system, without it being possible to point to any tangible results testifying to its effective implementation, including in terms of the way it continues to be perceived and of the support it commands among those most concerned – university staff.
- 11 "L'université (...) a pour fonctions de reculer les limites du savoir par la recherche, de diffuser les connaissances par l'enseignement et les publications, ainsi que de servir le public par un questionnement critique des idées et des pratiques mises en œuvre par la société". Texte pilote de la «Conférence sur les libertés académiques». Alexandrie. 10/11 septembre 2005. op.cit
- 12 As highlighted in the Plan of Action drawn up in November 2004 by the ORBICOM/UNESCO network pursuant to the "Marrakech Declaration" in the context of the WSIS follow-up conference on the « Role and Place of media in Africa and the Arab States".
- 13 With regard to the consolidation of achievements by means of renewal activities (fostering among other things research on education and its tools), the dramatic example of Tanzania, where adult literacy fell in under 20 years from 80% to 50%, is well known.
- 14 Edgar Morin. Lecture given at Rabat by the former president of the European Agency for Culture (UNESCO) on 6 February 2004 to an audience of national education officials in Morocco.
- 15 In many Arab countries, students can only enrol in a university if they hold a baccalaureate (secondary school leaving certificate) obtained in the current year..!
- 16 As regards this phenomenon in Morocco, for example, a journalist considers that « the digital is a technological posture that presupposes the introduction of new social relationships (...) The question we have to ask ourselves is whether all these new technologies will enable citizens to exercise effective citizenship within their city? Do they enable the citizen to be more than a mere target? Every time a new technology arrives, it has an impact on civilization (..) For a technological procedure to achieve its full effect, a favourable social and cultural context is necessary (...) Only a propitious intellectual and cultural environment can give a technology the social impact productive of change". Mr BakriMr www.libération.press.ma. Oct. 2005

- 17 “Chairs helped to reduce the current and future brain drain by providing training and certification opportunities inside the country, while facilitating contacts broad. They were therefore an alternative to a commercial approach in the field of higher education, to admittedly generous but sometimes self-interested offers from foreign and private universities. Chairs added value to research, which meant that they often enabled poor countries’ research work to become recognized or known, but they also ensured that it was used locally or nationally”. General Report of the World Forum of UNESCO Chairs, Paris, 2002. Op. Cit.
- 18 Document (161 EX/Inf.12) submitted to the 161st session of the UNESCO Executive Board, May 2001.
- 19 Idem.
- 20 I would like to acknowledge in particular Jodie Taylor’s assistance in the compilation of this report as well as the valuable inputs from Griffith University colleagues – Professor Paul Turnbull, Associate Professor Mike Levy, Dr Paul Draper, Associate Professor Pat Hoffie, Dr Prudence Ahrens, Dr Tiziana Ferrero-Regis, Professor Marilyn MacMinimin and Professor Kay Ferres – and Deputy Vice-Chancellor (Technology, Information and Learning Support at Queensland University of Technology) Tom Cochrane and Chris O’Connell, C.E.V. O’Connell Pty. Ltd. Of course I take full responsibility for all opinions expressed in the paper.
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