Tertiary Education Today:
Global Trends, Global Agendas, Global Constraints

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Countries are facing daunting challenges in the global environment that have significant implications for human development, some universal and some unique to developing countries. These challenges have raised serious questions about the purpose, mode and operation of tertiary education, and are leading to earnest political, structural, institutional and instructional dialogue, readjustment and transformation.

 Tertiary education today, like many other economic and societal sectors, is in a state of disequilibrium, flux and dynamic evolution – amplified by its multifaceted nature, the diversity of its providers and clients, and the multiplicity of its stakeholders. The tertiary education institutions find themselves, to varying degrees, at the point of convergence of three very powerful factors: global trends, global agendas and global constraints:

1 GLOBAL TRENDS

1.1 *Globalization of the Economy*

At the start of the 21st century, countries are faced with significant shifts in the global economic environment characterized by three major developments: changing patterns of trade and competition, technological innovation and globalization of information. These shifts have two implications.

First, Nations will be operating in a global marketplace where competition spans national borders. They will be more interdependent, more susceptible to external economic shocks, and more vulnerable to international changes in demand for types and quality of products; it also makes it hard to predict the skills that will be needed in the future.

Second, the opening of economies to competition in conjunction with rapid technological change is also affecting modes of production. Industrialized countries with which developing countries are competing are moving away from mass production toward high performance systems, and are compensating for high wages with improved productivity. The production of manufacturing and high-valued services no longer filter down "naturally" from high-income to middle-and low-income countries based on labor costs alone. New goods, such as consumer electronics and new processes such as computer-assisted manufacturing have created a new reality: The location of manufacturing and high-value service depends on the producer's ability to *control quality*, and manage flexible, information-based systems. In addition, information can now be collected, analyzed and communicated with increasing speed through dramatic innovations in information technology, rapid international communication and transportation capacity, and massive technological connections across national boundaries. An important implication of this is that any service that can be digitized and transmitted can be produced and sold anywhere, e.g., computer

programming, banking, back-office operations. Whole new industries will arise from cheap and fast communications. Firms in industrialized countries will subcontract more services around the world.

These facts change the rules of the game for the economic success of developing countries. As new technologies and production processes transform the international economy, the future of individual nations in world development hinges much more than even a generation ago on the capacity to acquire, transmit and apply knowledge to work in everyday life, and produce according to international standards. They can no longer rely on a low-wage edge; industry in such countries will have to develop and mature technologically and managerially and will need to place a greater emphasis on productivity, quality and flexibility in production.

To summarize: Together, the significant changes in economic and technological developments are producing a new worldwide economy that is global, high speed, knowledge driven, disciplinarian, and competitive. Countries have to meet the competitiveness challenge in terms of agility, networking and learning, and to arrange production to achieve quality, productivity and flexibility. The good news is that, with the potential of human development and advanced technologies, developing countries can leapfrog. The bad news is that this process is not automatic. On the contrary, unless conscious efforts are made, countries are unlikely to be able to adapt to the demands of globalized economy. They may even experience, on one hand, displacement of workers who lack the necessary skills and the prerequisite general education to learn new skills rapidly, and, on the other hand, a shortage of qualified workers for the new industries and modes of production.

1.2 Globalization of Knowledge

1.2.1 Growing Role of Knowledge

Generation, selection, assimilation, and application of knowledge are fundamental to the economic growth and well being of any modern society. According to a recent OECD study, "underlying long-term growth rates in OECD economies depend on maintaining and expanding the knowledge base." The World Bank *World Development Report 1998/1999* concurred stating that "today's most technologically advanced economies are truly knowledge-based." So, economic growth today is a combination of capital accumulation and knowledge accumulation. Knowledge also plays a crucial role in resolving social problems related to areas such as health (including HIV/AIDS), water supply and conservation, energy generation and utilization, food security, and environmental protection.

In fact, all facets of society are becoming knowledge dependent. The very participation in a modern technological world necessitates a significant level of scientific and technological understanding. This applies to all areas of everyday living, including banking, business transactions, health services, transportation vehicles, home appliances, utilities, communication and information exchange. Without the essential knowledge and skills for modern living, people will remain on the margins of society, and society itself will lose their vast potential contributions.

1.2.2 Escalation of Knowledge

Knowledge, both basic and applied, is being generated very fast and is growing exponentially. More new information has been produced within the last three decades, than in the last five millennia.   We should be poised for dramatic technological advances and break-throughs in the macro-frontiers of the universe on the one hand, and microscopic secrets of the human body on the other hand – and everything in between. We will witness exponential (and sometimes incredible) advances in all areas, including cosmology, particle physics, chemistry, bioengineering, computer science, genetics and neuroscience. But not all generated knowledge is at the sophisticated levels, we should expect similar developments in areas related to everyday life and to the marketplace.

1.2.3 Advancement in Dissemination

As rapidly as knowledge is being generated, there are growing means by which to disseminate that knowledge through printed, audio, video and electronic media. The revolution in information and

communication technologies (ICTs) has made access to information less expensive, more feasible and nearly universal.

1.2.4 The Knowledge/Digital Gap

Unfortunately, though, most developing countries are behind on both the generation of and access to knowledge. While modern technologies are broadening the knowledge base in high and middle income countries and transforming their economies and societies, they are increasing the marginalization of low income countries and communities. The digital divide among and within nations is real and intensifying.

1.3 Globalization of Culture

1.3.1 Global Social Concerns

There is a growing consciousness all over the world about such issues as democracy, citizen empowerment, freedom of communication, culture, civic participation, gender equity, human rights, civil justice, peace, and general quality of life.

Likewise, development goals are no more restricted to economic growth. The International Development Goals (IDGs) target "a world free of poverty and free of the misery that poverty breeds." The goals are set in terms of reducing poverty, improving health and education, and protecting the environment. They have been adopted by the World Bank, the International Monetary Fund, members of the Development Assistance Committee of the OECD, and many other agencies. They found a new expression in the Millennium Declaration of the United Nations, adopted by the General Assembly in September 2000.

A major challenge in the face of existing and potential strife, exploitation, and human rights violations is to instill in the minds of citizens at all levels the principles of tolerance, democracy, human rights, responsibility, accountability, and peace—among countries, within countries, and among people. "Since wars begin in the minds of men, it is in the minds of men that the defenses of peace must be constructed" (Preamble to UNESCO's constitution). Meanwhile, and despite advances in health and medicine, massive human suffering continues due to ravaging diseases, bad health conditions, lack of understanding of health issues, and limited use of health services.

The challenges of social development, conflict resolution, peace, and better quality of life are not only formidable, but they belong to a category with which we do not have much experience. Unlike economic development, physical construction, and technological advancement, these challenges are not straightforward. Many of their elements are contextual, fluid, and controversial. It is in the interest of everybody (governments, businesses, communities, etc.) to draw on the best minds, approaches, and technologies, to face this challenge and create stable societies that are essential for political sustainability, social development, and economic prosperity.

1.3.2 Impact of Global Media

Global media and ICTs have the capacity to enhance two cultural developments:

- **"International culture"** – We are witnessing three major developments:
  - the near universal availability of a wide range of powerful media, including television, literature, cinema, music videos, internet and other digital technologies;
  - the presence of a strong cultural content to these technologies dominated by rich and powerful entities manifested by Hollywood, BBC, CNN, Disney and the like; and
  - free global flow of information and culture leading to common concerns, shared values, and enhanced social discernment.

  These developments are creating a unique international culture that is global in nature, a belonging to a "global village", and a virtual identity that is seemingly neutral vis-à-vis traditional identities (state, ethnicity, religion, etc...) This media-enhanced culture offers people (particularly the youth) the

opportunity to come into contact with other cultures without leaving home and to belong to "interest communities" without leaving one's own.

- **Extended home culture** – The same technologies have the capacity to enhance and promote dominant domestic cultures as well as sub-cultures in the home country and abroad. It is estimated that more than 100 million people live outside their country of origin. As a result, the cities all over the world have become multicultural, and homogeneous populations are now experiencing a significant infusion of cultural, ethnic, and language diversity. Migration is expected to increase in the years ahead due to rapid globalization of the economy and easing of barriers. This mobility is transforming societies and creating Diasporas that are struggling with cultural identity. These Diasporas can now remain connected with their original cultures through mass media and ICTs.

Experiencing these two cultural developments is exciting and enriching. However, it may lead to an identity crisis created by an apparent conflict between the present cultural identity and the foreign cultural forces and cultures to which one is exposed. Some make a clear-cut decision; they either adhere to their original culture and resist any influences that they perceive to be in conflict with it, or endorse the dominant international culture in its entirety – or at least its behavioral manifestations. Most people, however, go through an auto-equilibration process. When they are exposed to new cultural elements, they experience disequilibrium – an internal conflict of ideas and belonging. They then go through cycles of analysis, adjustment, partial assimilation, testing – until they reach a new internal cultural equilibrium with which they are comfortable. The result is a new identity mutation.

This process of mutation is difficult in cultures dominated by the concept of unitary identity. In most countries, though, multiple-identity is a well accepted and practiced concept. A person does not belong to one exclusive set, but to an intersection of many sets – state, culture, ethnicity, religion, gender, profession, etc… So there is, for instance, a composite identity of an Arab-American-Christian-woman-lawyer. The important issue here is not only the defined boundaries between cultural communities, but also the relative strengths of simultaneous belongings to different communities. In such an environment, the process of auto-equilibration, identity mutation, and even the acquisition of additional identities becomes a lifelong process.

The impact of global media on the process of identity conflict and mutation is moderated and constrained by other cultural sources – local, domestic, regional and transnational. First, global media are not monolithic nor do they promote one and consistent message; they carry different and conflicting messages. Second, contextual factors such as social pressure for conformity, state structures, economic incentives, communal connections, societal attitude towards cultural diversity, and education, constrain, dilute or reinforce the impact of global media.

1.4 Globalization of Demand for Education

There is now a solid recognition among decision-makers and beneficiaries alike that education is crucial for economic development, human welfare, societal advancement and environmental protection. Looking into the future the demand for education is going to escalate.

We have already entered the 21st century with a basic education deficiency gap of an estimated 50 million children out of school and about 850 million illiterate youths and adults. Equally pressing will be the demand for higher levels of education, triggered by more completers of first-level education, higher ambitions of parents and students, and more sophisticated requirements of the marketplace. As developing countries are forced to compete with more developed countries in a competitive knowledge-based global economy, they are far behind in providing educational opportunities at the post-basic levels. Moreover, the fast changes in knowledge and skills will require further education, upgrading, and reorientation of a significant segment of the population. If only 10% of the adult population needs such educational services, we are talking about more than 300 million participants.

In two regions of the world, Sub-Saharan Africa and the Middle East and North Africa, the demand education is further compounded by demographic trends that further tax the limited resources.

1.5 "Marketization" of Tertiary Education

The relationship between the marketplace, the state and tertiary education sector is evolving significantly. Education is no longer a monopoly of the state or a "protected industry." Local and transnational private entities have entered this field as a result of expanding economic liberalism, increasing political pluralism and rising demand for tertiary education as discussed above. Government funding has not been able to cope with the evolving demands and new providers have entered the market in large numbers. In fact, the growth of private institutions in developing countries has been more rapid than in OECD countries. For instance, private tertiary education institutions grew in Sub-Saharan Africa from an estimated 30 in 1990 to more than 85in 1999. A large number of the new providers are private, non-governmental institutions, many of them being established in partnership with American or European institutions of higher learning, and most are profit-driven and therefore, accessible only to those who can afford them.

ICTs have facilitated this trend. ICTs allow for flow of information and educational services across borders and over geographic and social barriers. Open and virtual universities and high schools as well as internet-based lifelong educational programs have simultaneously internationalized and decentralized education. Education and training can now be practiced by anyone, anytime, anywhere.

2 GLOBAL AGENDAS

The above five global trends pose serious challenges and vital questions for the planning of tertiary education and training, and are forcing a rethinking in the way tertiary education is perceived and managed and in the priorities, scale, size and speed of its development. Business as usual will not suffice. This may place some countries at risk of not developing their human capital to a threshold necessary for poverty reduction, and economic and social development. Such countries may find themselves marginalized in an age of globalized economy and knowledge. Similarly, tertiary education institutions may find themselves outdated, serving another set of demands for another age.

Where does this leave tertiary education development? Governments, institutions and professionals are struggling with five far- reaching agenda items:

2.1 Revisiting the Objectives of Tertiary Education

There was a time when planning for education and training was a straightforward exercise: manpower planners would map out needs of different sectors of the economy with reasonable precision, classify corresponding jobs by level, define skill requirements for each job, and, subsequently, project the manpower needs. Then it was fairly easy for educational planners to take this "dependable" information and build on it when devising education and training programs.

The workforce of the future will need a whole spectrum of knowledge and skills to deal with technology and the globalization of knowledge. It also will need to be agile and flexible, to adjust to continuous changes, both economic and social. This means that countries must embrace a holistic and radical approach to tertiary education. There is an educational pressing need for:
- a workforce that has the foundation to enhance the quality and efficiency of product development, production, and maintenance, and the flexibility to acquire the new skills required for new jobs; and
- a cadre of highly trained scientific, technological, and processing personnel, including some with sophisticated research skills, who can understand fully material, scientific, technological, managerial, and social developments, and who can take the lead in their assessment, adaptation, and local application.

But the process never ends. The economic and social challenges require a system that provides opportunities for lifelong learning to help individuals, families, work-places and communities to adapt to economic and societal changes. There are compelling reasons for this:

- Rapid technological change and growth in knowledge and information will require constant learning;
- As society evolves, we are unlikely to continue the present "life-cycle" pattern of prolonged education at the beginning of life, and an extended retirement period at the end; and
- Lifelong learning provides opportunities for those who are unemployed to re-enter the workforce;

As a result, tertiary education institutions have to practice a balancing act:
- Disciplinary versus multidisciplinary approaches
- Academic excellence versus social action
- Dissemination versus generation of knowledge
- More education for more people versus specialized education for fewer people
- Local relevance versus international standards

2.2 Moving from Certification to Learning Acquisition

The link between education and development is not the certificate or the degree; it is actual learning. In addition, the question is not limited anymore to *what to teach and learn but extends to how to teach and learn;* how to problem-solve and synthesize the old with the new.   To have these results, education must be engaging and authentic. Engaging in the sense that student are involved in the learning process, and not viewed simply a "receptacle" for knowledge; authentic in the sense that what the students are learning has meaning to them as an individuals, members of society, and workers in the market place.

The value of certification may be diminishing. Certification of individuals has been very important in the public sector which cannot tolerate discretion in evaluating candidates for employment. As the private sector becomes the prime employer in the economies of the future, what university graduates have in terms of knowledge, skills and cognitive/social competences will have more value than a mere certificate.

2.3 Changing the Tertiary Education Landscape

Tertiary education institutions will not enjoy anymore the protection and exclusivity which they were provided by the state. Moreover, the traditional campus-based model of delivery is proving to be unsustainable. Institutions of tertiary education are now in an environment of competition. The players are: conventional state universities, conventional private universities, conventional state community colleges and institutes, private non-university tertiary institutions, open universities, virtual universities, web-based non-formal programs, etc. Despite all the wishful thinking, these institutions will not reach a deliberate agreement on a division of labor. The name of the game is competition in which the determining elements are:
- Quality
- Efficiency
- Cost-effectiveness
- Relevance
- Convenience
- Prestige

The relative value of these factors varies by individuals, markets and countries.

2.4 Exploiting the Potential of ICTs

2.4.1 The Potential of ICTs

The world is experiencing a real revolution in the dissemination of knowledge and in the enhancement of instruction, through the advancement of information and communication technologies (ICTs). This is the third revolution in learning, the first being the invention of the written language and the second being the development of moveable type and books. ICTs make both the content of learning and the interactions of high-quality (and other) instruction affordable and available anytime, anywhere.

Many providers are now trying to exploit the potential of ICTs for education, inspired by the success of ICTs in revolutionizing commerce, business and entertainment. There are now virtual universities and virtual programs provided by campus-based universities. About 60% of U.S. universities provide virtual education programs. In addition, open universities expand opportunities to populations that traditionally have been excluded from education due to geographic, cultural, and social barriers.

Virtual education provides a significant supplement to the existing campus institutions by broadening learning opportunities and offering more flexible options. It can also meet the need for individual enrichment, skill upgrading, and lifelong education. There are at least three institutional models to explore: (1) dual-mode, which offers both classroom instruction and virtual education programs; (2) single-mode, which is a wholly dedicated virtual learning institution; and (3) international partnership mode, under which an external provider of virtual education programs enters into partnership with local tertiary institutions to offer these programs on a joint basis.

Virtual education can serve many purposes:
- It provides opportunities to students who are unable to attend regular institutions because of a wide range of reasons including travel, medical conditions, or careers. It also offers opportunities to students who need remedial work.
- A virtual program can also provide courses that small rural or urban institutions cannot offer to their students for lack of staff or resources. Such courses utilize already developed multimedia materials and share one "teacher" among several institutions. Alternatively, retired or part-time teachers who live hundreds of miles away can be used to teach the online course.

2.4.2 Are Virtual Programs a Substitute for Educational Institutions?

Two different questions are at issue here. One is the issue of expanding reach, where virtual education programs try to serve a clientele whose needs are difficult or impossible to meet through on-site learning. The other is whether virtual education can be a substitute for on-site, campus-based institutions. On-site institutions that are vibrant with research, exploration, and intellectual discourse are irreplaceable. The personal contact with peers and with teachers in a good on-site institution is incomparable in its richness. Libraries, possibly obsolete in a not-too distant future, still serve as an unmatched resource for investigation and learning. Virtual learning, on the other hand, provides opportunities for those who could not attend courses on campus because of cost and time constraints. Virtual learning increasingly provides rapid and personal interaction; it can provide more reliable learning materials than inferior institutions; it is generally far lower in terms of cost to the student, and often offers more for lower capital and recurrent costs.

On the other hand, virtual education should not be a poor replica of conventional education. With the potential of technology it could be a prototype of a more exciting and effective model. Classrooms are constrained environments, and conventional instructional materials are static. If virtual education programs are taped classrooms, digital texts, and PowerPoint transparencies, then we are missing out on the tremendous potential of technologies that can animate, simulate, capture reality, add movement to static concepts, and extend our touch to the whole universe. The challenge, therefore, is to align learning technologies with sound pedagogy and instructional design and to try to do with virtual systems of delivery what could not be done with conventional modes.

2.4.3 Are Virtual Programs a Poor Version of Education?

Virtual learning multimedia packages are excellent instructional aides to engage students in the learning process. They make use of the best specialists and experts who develop them and make them available to learners anywhere, anytime. They provide opportunities for independent pursuit of knowledge - on demand. They can connect learners with other learners to exchange information and perform collaborative programs. They may be the most cost-effective (and in some cases the only) means of bringing the wide world into the realm of the learner.

2.5 Evolution of a New Paradigm

The demands and concerns facing tertiary education and the institutional responses in terms of changes in the objectives, landscape, focus, and modes of delivery are creating new realities and dynamics. They seem to be leading to new experiments, modalities and structures in tertiary education, with different degrees of innovation and break with the past. We may be heading towards a multidimensional landscape of tertiary education institutions – each serving a different clientele and a different purpose. The components of the conventional model are slowly evolving into a new paradigm, which may be depicted as follows (Table 1):

Table 1 Evolution of the New Paradigm

From	*To*
A campus	A knowledge infrastructure (buildings, labs, radio, television, Internet, museums…)
Classrooms	Individual learners
A teacher (as provider of knowledge)	A teacher (as a tutor and facilitator)
A set of textbooks and some audiovisual aids	Multimedia materials (print, audio, video, digital...)

In this paradigm tertiary education will not be a location anymore, but an activity: a teaching/learning activity that can take place in different contexts, locations and times for different objectives, clienteles and occasions. Imagine a highly interactive, synchronous and asynchronous, multimedia learning experience between distant locations over vast national and international networks, allowing learners to obtain on-site as well as simultaneous distance learning services from their geographically dispersed organizations, schools, and other colleagues. In this new paradigm, new technologies will not be a substitute for schooling; they will constitute one integral element of this education model—supplementing and enriching traditional institutions, delivery systems, and instructional materials.

3 GLOBAL CONSTRAINTS

The evolving tertiary education environment with its new realities, dynamics and innovations and its ambitious global agendas, is inhibited in many countries and institutions by countervailing constraints. A summary of the major constraints follow:

3.1 Momentum of Tradition

Most tertiary education institutions and systems are conservative. They also cherish their independence and value their intrinsic wisdom. Many of them are supply driven and are not well attuned to the challenges, demands and transformations occurring outside their walls. They are governed by the momentum of past objectives, approaches and modalities and are passive vis-à-vis the global agendas of the present and future. These institutions and systems will find themselves outdated in a changing world and defeated in a competitive environment.

3.2   Capacity to Respond to Challenges and Opportunities

3.2.1 Human capacity

Many countries and institutions lack the expertise to identify issues, formulate and evaluate policy options, generate plans, and implement measures. Even when such expertise is available, the connection with global trends, agendas and experiences is ad hoc and weak. Such capacity needs to be built and connected with international networks for access to and exchange of knowledge, experience, and expertise.

3.2.2 Technological Capacity

ICTs are a major component of the globalized knowledge-based economy and a significant element in the global agendas. Despite dramatic increase in availability of ICTs, there are still many groups that do not have access to these technologies. Until recently, most ICTs depended on electric power and telephone lines. Other sources of energy (e.g. solar) and technologies (wireless, radio, and satellite) offer new opportunities for access bypassing the traditional technologies. Cost is another constraint, and many groups have developed intermediate, simple and inexpensive technologies such as community radio (suitcase) transmitters, wind-up radios, solar powered instruments, and low-cost internet connectivity such as Vita-connect and VSAT satellite dishes.

Providing hardware and connectivity is necessary but not sufficient. What is lacking and needed is contentware that is curriculum-related, well designed, user-friendly and inexpensive. If this contentware is not available, collaborative schemes among institutions to develop such multimedia materials will lower cost and pool expertise.

3.3 Financial Resources

The demand for more and different tertiary education is increasing, yet the financial resources are not increasing in the same proportion. Part of this constraint is self-inflicted because the conventional model for tertiary education is not sustainable.

Some mechanisms to deal with the financial constraint are:
- Mobilization of funds from diverse sources
- Experimenting with and developing sustainable tertiary education models, including collaborative schemes
- Extensive use of ICTs and multimedia materials to achieve efficiencies and realize economies of scale and expertise.

4 CONCLUSION

Tertiary education systems and institutions are operating in an exciting and challenging time, at the intersection of high global and local demands, high hope derived from the technological and pedagogical revolutions, and constraining human, technological and financial capacities. What happens next depends on attitude and action:
- Global trends can be denied, or faced solo, or confronted collectively
- Global agendas can be ignored or taken seriously through examination, dialogue, experimentation and collaboration
- Global constraints can be a source of despair and self-pity or an incentive for creativity, innovation and action.

The trends, the agendas and the constraints are global but the choice is local and individual.