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Issues and Choices

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One of the conclusions of the 1999 COL report on the status of virtual education development was that it was more rhetorical than real. Now, two years later, it appears to be both more rhetorical *and* more real. And the gap is closing between the reality and the rhetoric! However that depends on where you live. If you reside in a developing country, for example, the vision you have for virtual education may not be much different from a colleague's in North America or Australia, but the possibility of being able to implement it is considerably more limited. The reality is that the developing countries of the world are largely being bypassed by the surging developments in virtual education. The Study Team hopes that this analysis of macro developments in virtual education will provide the basis for strategies that will help to address this situation.

The Concept of Virtual Education

The need to improve access to educational opportunities, at all levels, led to the innovation of correspondence courses in the latter part of the 19th century. Over time this delivery model incorporated the use of study centres and telephone networks for tutorial purposes and became known as "distance education" to connote education at

off-campus locations. As real-time technologies were applied, such as radio, television and videoconferencing, a variety of additional labels emerged such as "open learning," "flexible learning," "tele-learning" and "distributed learning."

As online delivery models have become possible with their capacity to enable asynchronous interactivity, the terms "virtual education," "online learning," and "e-learning" have emerged. They are being used, often interchangeably, with all of the earlier labels to describe almost any educational activity that makes even minimal use of information and communication technology (ICT).

This is confusing to those who are unfamiliar with the history of "distance education," and it is also dysfunctional in terms of the development of an inclusive view of educational systems and the use of ICT. It serves to maintain a conceptual dichotomy between the traditional classroom-based delivery model and all others when, in fact, the most significant effect of the use of these technologies is to bring about a convergence between traditional education models and what is most frequently called "distance education."

A much more integrated vision of learning venues and opportunities is needed in a world that requires educational systems to respond to education needs throughout life. Such a vision needs to accommodate the reality that learning

occurs in a variety of venues — the classroom, the home, community learning centres and the work place. It also needs to portray the use of technology in terms of how it can facilitate the provision of educational opportunities, wherever they are occurring, by making them more accessible and of higher quality, and by enhancing the effectiveness and efficiency of their methods of delivery.

However, this integrated vision includes several different learning modes, and the terms used to describe these modes in this report need to be made clear:

- The term “flexible learning” is used to describe learning opportunities that can be accessed “any place and any time.” The term relates more to the scheduling of activities rather to any particular delivery mode. For example, a flexible learning environment can be provided in any of the venues described above.
- “Distance education,” on the other hand, connotes a physical separation between the learner and the teacher with a variety of mediating processes used to convey content, provide tutoring and conduct assessment of knowledge and attitudes. “Distance education,” therefore, should not be applied to on-campus learning venues.
- “Open learning” refers to the policies of the educational system in which the learning activity is occurring. Policies that permit open entry to learning, liberal transfer of credits and recognition of prior learning would be indicators of an open learning system. Such policies are often not part of a distance education system, yet the two labels are often used together and interchangeably. This can be very misleading.
- The labels “virtual education,” “online learning” and “e-learning” have emerged to describe the application of ICT to enhance distance education, implement open learning

policies, make learning activities more flexible and enable these learning activities to be distributed among many learning venues. We have chosen to use the term “virtual education” because “online learning” tends to connote a greater emphasis on the use of computers and the Web and “e-learning” tends to be used more often in the context of business operations and ICT-enabled staff training. In other words, we are regarding “online learning” and “e-learning” as specific subsets of the larger concept of virtual education. Our reason for doing this is that we believe that the macro developments will enable more diversity among educational models rather than ones that are more exclusively “online.”

This clarification of terminology is not trivial — for several reasons. First of all, the issues involved in the evolution of virtual education models need to be debated in a context in which all parties have a clear understanding of what different labels mean and imply. The second reason is that, as time advances, ICT will be increasingly used to enhance all forms of learning, at all educational levels, making it even more important that the nature of the ICT application not be misconstrued because of the label used.

An Emerging Vision

Taken together, the macro developments described in this report suggest the possibility that educational systems will be marked by some or all of the following characteristics:

- Future models of virtual education will be more “Web-centric” in that they will be ICT enabled and will make increasing use of the Web. But these systems will not be exclusively online or used only to serve learners “at a distance.” They will be as much concerned with enhancing classroom-based learning, at all levels of education, as they are

with learning that occurs in “off-campus” venues.

- Systems will be more “learner centred” or “customer-aware,” in the sense that they will:
 - Enable learners to interact with content, teachers, administrative and service resources in ways that fit their circumstances.
 - Provide learners and teachers with access to online resources such as text, video and audio learning resources, lesson plans and assessment strategies that are qualitatively equivalent or superior to those available in the traditional learning environment. This will enable models of “resource-based learning” to become more prevalent.
 - Give learners increased choice in the mode of delivery of their learning experience. This will enable them to tailor the learning experience to their needs.
- Learners will be able to access educational programmes from anywhere, thus saving substantially on relocation costs.
- Learners can have existing skills and knowledge assessed and credited towards future programme credentials and, if required competency standards are demonstrated, they will be able to obtain credentials from a variety of accredited institutions that have developed specialised assessment and credit-banking services.
- Indigenous expertise and knowledge can be incorporated to add value to learning resources acquired from elsewhere.
- Learners will be able to choose to meet their educational needs from a “quality-assured” list of providing institutions.
- Greater “dis-intermediation” of the teaching/learning process will be possible in the sense that:

- Individual learners will be able to go directly to learning object databases and interact with the content as they wish.

- Peer-to-peer interactions will enable learners to establish their own learning groups focused on content they have created.

- Programme planners and instructional designers can aggregate and sequence content according to the needs of particular groups of learners by selecting learning objects from large content databases and selecting the appropriate mode of delivery.

The foregoing is an illustrative list of implications that the macro developments discussed in this report have for educational systems of the future. Others will emerge as these macro developments evolve. Not all of them will prove to be desirable or appropriate in all circumstances. Indeed, members of the Study Team engaged in some vigorous debate during their time together in the three-day workshop. At the core of the debate was the argument that these macro developments will enable learners to have more choice in terms of being able to tailor their learning to suit their needs. The counter argument was that these developments may make the achievement of some learning outcomes more difficult, such as the development of shared values and a shared sense of “community.” A subset of this argument was that these developments may reinforce a vision of education as purely a business arrangement between customers and suppliers.

The discussions continued following the workshop via the project listserv. They were stimulated by references to a collection of essays entitled *Peer-to-Peer: Harnessing the Power of Disruptive Technologies*, (Oram et al., 2001), an article that argues that extensible markup language (XML) is going to revolutionise the Internet (Bosak and Bray, 1999), and another that discusses

the implications of peer-to-peer interactions in online learning (Pinaroc, 2001).

In the end, team members concurred that the debate should not be cast in an “either/or” context. While the above risks are real, the reality is that the institution still maintains a key authority, and that is the credential. The institution can still set the requirements for obtaining any of its credentials, and those requirements can reflect the shared values of the faculty of the institution. Those requirements might vary from institution to institution to reflect the varying values on which the institutions stand. Furthermore, as new organisations introduce new credentials, those credentials will reflect the values of the new organisations. Those values may be quite different from those that have historically obtained in institutions of higher education.

Driving and Constraining Forces

The forces acting on the evolution of virtual education, while essentially the same as those identified in the 1999 COL report, are now operating in an environment that has changed and is much more dynamic. Thus, their relative importance in any given context is even more variable than it was at the time of the earlier report.

DRIVING FORCES

- The perception that the application of ICT to the delivery of educational opportunities will reduce costs and lead to an increase in market share.
- The need to respond to criticisms about the quality of the traditional “distance education” learning experience by using ICT in ways that enable more access to learning resources and enhance interactivity and collaboration between and among learners and teachers.
- The escalating demand for access to life-long learning opportunities, particularly

those related to upgrading and staff training, are causing both institutions and corporations to adopt ICT applications to reduce the cost of travel.

- The ability to “unbundle” or “disaggregate” functions that have traditionally been solely provided by a single institution through its administrative systems and its individual classroom-based teachers.
- The adoption of ICT by educational organisations allows them to proclaim their involvement in virtual education. Such involvement allows them to be seen to be “with it” and to overcome their fear that if they don’t find a way to be involved in some virtual education venture, they may face a doubtful future.
- The increasing capacity of ICT to facilitate educational processes makes the application more appealing to educators, and the reducing costs of both hardware and bandwidth make adoption more affordable.

CONSTRAINING FORCES

- The lack of access to ICT appliances and connectivity, what has come to be called the “digital divide,” remains as a severe constraint, particularly in developing countries.
- The front-end costs associated with the development of ICT infrastructure and ICT-based instructional materials are difficult for organisations to finance without a substantial reallocation of current resources. Within most institutions that is a difficult decision to get support for!
- Teachers and faculty remain concerned about the quality of education that is delivered through the use of virtual models. They are also finding that it adds to their workload without commensurate rewards or clarity about intellectual property issues.

- Experience to date with virtual education is proving the necessity for extensive training and support for both faculty as well as learners. This too is costly.
- Learner support systems are still not providing the level of service that is available to the “on-campus” learner.
- The lack of agreed-upon standards such as those described by Porter (Chapter 4) for initiatives such as the development of learning objects databases restricts the ability of institutions to collaborate in terms of sharing costs and resources. The lack of shared standards is manifest in other areas as well. For example, the lack of measurable, shared standards for academic quality restricts the portability of skills and knowledge from one institution to another.
- There is mounting evidence that the size and profitability of the international market for online learning and e-education is more limited, and much more competitive, than originally perceived.

General Observations

The discussions of the Study Team generated a great deal of debate about the nature and likely impacts of the macro developments and the issues they present for learners, institutions, teachers, leaders and policy-makers. The following observations are a synthesis of the discussions.

Firstly, the role of virtual education in society is almost exclusively thought of in the context of “distance education.” This tends to limit thinking about how ICT might enhance and enable education in a more general way because it excludes the educational activities that occur in schools and on campuses that typically involves some face-to-face teaching. As several of the authors remind us, decisions about applications of technology are better made when the total

context of the learners is kept in mind — their goals, their learning venue, their learning skills and experience, their learning styles and their level of motivation.

The virtual education agenda has changed as well. It is no longer solely, or even primarily, about technology. The focus now is about whether or not it is appropriate to the institutional vision and values, what operational issues it will create for the organisation and how the costs can be managed. This changing agenda is partly due to the fact that there is generally more experience with results of ICT use in education. However, it also reflects the fact that the debate has become of more concern to the mainstream decision-making process within institutions, rather than being isolated to a specific, and more peripheral, part of the organisation such as the “distance education” unit.

The reasons for the increasing interest in virtual education distill down to the achievement of one or more of three basic objectives. They are:

- To increase access to learning opportunities by enhancing the flexibility of delivery modes or by eliminating geographic barriers to participation.
- To enhance the quality of the learning experience in terms of content or pedagogy.
- To enhance institutional efficiency by reducing costs, increasing productivity or increasing market share.

The debate about how, or whether, institutions should go about achieving these goals is what constitutes the new agenda.

The macro developments and the forces acting on them are highly interactive in terms of cause and effect. For example, the increased attention being given to quality monitoring and learner support services reflects the realisation that these concerns must be addressed if virtual education models are to continue to grow and be effective. The growth of learning centres is occurring because of the lack of access to ICT

appliances and connectivity. The development of new organisation models is due not only to the fact that new technologies enable functions to be disaggregated, but also to the need to bypass traditional models of cumbersome management as well as the need to share costs and risks among several partners. The emergence of learning objects databases is enabled by the evolving technologies, but it also creates new issues related to cost, quality, intellectual property ownership and the potential fragmentation of the learning process.

The macro developments discussed in the chapters of this report enable a comprehensive disaggregation of educational processes. For example:

- The development of learning centres in communities and the work place allows for more decentralisation of the venues where learning opportunities can be organised.
- The applications of ICT enable the unbundling of many functions that historically have been carried out within individual institutions. This enables new organisational arrangements to emerge which spread the responsibility for some educational processes across several organisations rather than one.
- The emerging ability to access large content databases consisting of learning objects will enable not only separation between content and the format of its delivery, but also the selection and sequencing of content to suit particular learner profiles.

As the ability to ensure the educational quality of the programmes and services of these new organisational models improves, we can expect the pace of this unbundling or disaggregation of institutional functions to increase.

However, there is nothing inherently good about the disaggregation of institutional functions. The fact that it can enable new forms of inter-institutional collaboration simply provides more choice for educational leaders. For example, they can select ICT applications solely on the

basis of their ability to add value to the “on-campus” learning environment. Or, they can create a new virtual organisation, with functions distributed among several partners, with technologies selected to provide learning opportunities and support services to learners in a variety of learning venues spread over large geographical areas. In other words, decisions about the elements that should make up a virtual learning environment in the future will need, more than ever, to be based on the vision an organisation has for its mandate and for the learners it intends to serve.

The costs related to establishing a virtual learning initiative are already high. The development of learning objects databases and more online services will likely drive costs even higher. As a result, it is becoming more difficult for individual institutions to “go it alone.” In this context, partnerships and joint venturing become more attractive as a means of sharing investment costs and in-kind resources.

The 1999 COL Report described several models of virtual education. One did not involve institutions, but rather peer-to-peer interactions in which individuals were posting content on the Web for use by any other interested persons. The Study Team stated that this development was becoming commonplace on the Web and, therefore, should be recognised as a growing resource for learners. As Porter has indicated, this phenomenon is growing and is of increasing importance in a resource-based learning environment (see Chapter 4).

It is clear from Dirr’s comprehensive review of new organisational arrangements that these are occurring primarily in the developed world (see Chapter 6). Not much seems to be happening in developing countries by way of partnerships, consortia or private/public sector alliances. Institutions in developing countries seem more inclined to act separately. However, because of the costs and expertise required to develop virtual education systems, there may be significant

advantages to using some of these new organisation models.

The respective roles of the public and private sectors in the development of virtual education are converging in an unprecedented way in the context of virtual education. There are several reasons for this:

- The private sector is becoming more involved in core educational functions such as the development and delivery of content, tuition and assessment, awarding of credentials and the provision of the ICT infrastructure through which virtual education is enabled.
- The globalisation of infrastructure makes it more difficult to manage communications policy at the level of the nation state.
- The increasing ability for institutions to unbundle functions and distribute them among several partners. The policy issue this raises is that of deciding what aspects of distance education can and should be under the purview of the public sector.

A variety of socio-political realities will determine the roles of the public and private sectors. However, what we see emerging is a perception that virtual education is part of the broader e-commerce revolution. This encourages the view that virtual education activities are synonymous with a business model in that they are expected to be self-sustaining, if not profit-making! But, more importantly, it implies that virtual education is still an add-on to mainstream public sector education models. As a result, virtual education is, by and large, not getting the attention it should be from policy-makers.

The view that virtual education is essentially a “business operation” may result in the adoption of more business-like management practices and lead to better management of public sector institutions. However, from a programme marketing perspective, it is also resulting in the phenomenon of “picking the low-hanging fruit.” For

example, the types of programmes most frequently developed for delivery by virtual education methods are the ones most likely to generate a profit, such as those related to business processes and technology. This tends to leave the non-cost recovery programmes to the public sector, without the ability to cross-subsidise them from profits resulting from the higher demand programmes. Another concern with the “business” view of virtual education, is that it may lead to processes that reflect business operations rather than those that enable the types of social interactions so important to the learning process.

It is clear that the prospect of significant revenue generation potential that is driving much of the excitement about virtual education is causing the environment to become increasingly competitive. Many of the initiatives underway are all after that same “low-hanging fruit”!

Whether or not the assumptions being made about the profitability of virtual education are valid remains to be seen. However, it is worth noting that the early successes are in the content areas of business and technology and mostly aimed at the staff training and development market.

The growth of virtual education is tending to erode the historic distinctions that have existed within education systems. Distinctions such as training and education, credit and non-credit, and formal and non-formal are much more difficult to sustain in an environment in which content is no longer linked to pre-defined programmes and courses or to any particular mode of delivery. These distinctions are being further eroded by the development of competency-based assessment models, the assessment and accreditation of prior learning and the development of credit banking organisations with the authority to award credentials.

Perhaps the most important observation arising from the analysis and discussion of these macro developments is the application that has begun to occur at the K–12 level. Virtual education applications have, up to this point, primarily

been occurring at the post-secondary level and in the context of continuing professional education and corporate training. However, as several of the chapters in this report make clear, it is beginning to happen across all levels of educational endeavour.

Implementing the Vision: Essential Actions

Bates, in his chapter on emerging technologies (see Chapter 3), puts forward the concept of a “readiness threshold” for the introduction of virtual education. He argues that the following criteria need to be met in order for the initiative to be successful:

- The target group(s) of learners must be described, with learning needs clearly identified and a vision developed for meeting these needs through the use of virtual education.
- There must be access to electricity, even if it is only from small-scale sources.
- There must be access to connectivity.
- There must be a skilled labour pool in such areas as instructional design and technical support, or there must be available training opportunities to develop it.

Clearly, a decision to implement virtual education strategies is not a trivial one. In addition to the size of the financial investment, there are other hard choices that involve teacher/faculty roles, ownership of intellectual property, quality assurance, inter-institutional collaboration, potential for private/public sector partnerships and joint ventures, to name a few. The list of following actions, while not exhaustive, illustrate what the Study Team feels deserves particular attention in decisions about implementing virtual education:

- The above choices need to be addressed within the context of a systematic planning process that begins with a vision of “what could be,” rooted in an analysis of learners’

needs. This requires an analysis of the current reality to identify the gap between “what is” and the vision for what is desired. Strategies for closing the gap that are appropriate to education needs and are practically achievable in a given context can then be identified. This last point is critical. Plans and strategies imported from elsewhere are seldom applicable in a different milieu.

- The planning process must be comprehensive. All aspects of an education system need to be examined to determine if there are aspects of virtual education that can add value to current practices and processes. This will avoid the pervasive view that virtual education is synonymous with distance education and, therefore, of no relevance to classroom-based education. As is pointed out several times in this report, virtual education is a concept that is relevant across educational sectors and learning venues. It captures the reality of convergence between distance and classroom-based education.
- The foregoing point underlines the importance of paying attention to the terminology used in a planning process. The labels used conjure up pictures in the minds of stakeholders, and it is essential that all concerned be as clear as possible about what is being discussed. As we have already pointed out, distance education, virtual education and open learning are not the same thing.
- No vision for virtual education can be successfully implemented without an enabling infrastructure in place. Teachers and learners must have access to the necessary technical appliances, connectivity, software and appropriate learning venues. Institutions need a plan for what this infrastructure will look like, the timelines for its implementation and the fiscal plan for carrying it out. Governments need to commit to policies that reduce

Internet access costs as part of a general investment strategy for the development of virtual education. The Study Team supports the view expressed by Butcher that —

if additional investments in using distance education methods are to make a meaningful and sustainable impact, they will have to be made as part of a broader process of shifting patterns of expenditure on education, with a view to ensuring that these changes contribute more broadly to changing patterns of behaviour within educational systems as a whole (Butcher, 2000).

- Just as expenditure patterns need to be reviewed, the policies and core business processes of institutions need to be reviewed and re-engineered to ensure that they enable and support the development of virtual education. For example:
 - The support requirements of learners in a virtual education model cannot be adequately provided for through policies and procedures designed for learners in a traditional classroom-based model. Virtual education learners will need help to develop skills such as managing and evaluating information, being more self directed in their learning behaviours and in using the learning technologies.
 - If teachers and faculty are to embrace the implementation of the vision, they will need training in the use of the learning technologies and be supported in adjusting to changes in their roles. They will also need to be supported by policies that motivate and reward their participation. For example, policies regarding promotion and ownership of intellectual property need to align with the vision.
- The ability for learners to be able to access the courses and programmes being planned is an obvious need. Meeting it may require partnerships with other institutions in order to provide access points, inform potential learners of the availability and ensure that cost will not limit access.

In other words, applying a technological veneer to practices and policies that were designed to serve a traditional educational environment, will not optimise the achievement of a new vision for virtual education.

- The importance of fully costing all of the actions contained in a plan to implement virtual education cannot be over stressed. A fiscal plan that reflects both direct and indirect costs, and how the resources will be provided, is essential to the development of a plan that will be sustainable.
- Content and technical standards need to be adopted that will optimise interoperability with other institutions and organisations in areas such as the creation of learning objects databases, information databases such as libraries, administrative systems and learner support strategies as well as the facilitation of interactions among learners and teachers.
- Decisions about potential alliances and partnerships need to be undertaken with a full understanding of the likely consequences. Collaboration with other institutions and organisations usually means giving up some autonomy in order to achieve benefits. This decision process will require that institutions give careful thought to the core functions that they must retain direct responsibility for, as opposed to those that could be provided more effectively and efficiently by partner organisations. As both Durr (Chapter 6) and Hope (Chapter 7) point out, the issue of

quality assurance is an example of a core function that institutions cannot afford to take risks with.

- Strategies for implementing the changes outlined in plans for a move to implement virtual education need to be tailored to the situation:
 - If plans have been developed through a process that has garnered the support of the affected parties, implementation can likely proceed as quickly as resources allow. The strategies in this situation can be focused on the acquisition of the resources.
 - Another strategy is to attempt to fast track the implementation of virtual education. However, attempts to do this in education organisations are often met with resistance. In some cases this has been strong enough to nullify the vision entirely. Indeed, this reason, plus the cumbersome decision-making process in most educational organisations, are why many institutions choose to bypass the parent organisation and set up a separate organisation, often in partnership with others, with its own governance structure.
 - The more typical process for introducing virtual education is through a process of incremental change. This allows change to be undertaken in small “projects” that enable the institution to gain experience and to make adjustments as they proceed.
- Evaluation and research about the effects of virtual education on improving access, enhancing quality and increasing efficiency and revenue need to be an essential part of a plan for implementing virtual education strategies. The data collected will inform decision-makers and

allow adjustments as the implementation proceeds. This process will ensure accountability to the stakeholders and, most importantly, it will enable the organisation to measure its performance against the objectives it has for implementing virtual education.

Myths, Opportunities and Risks

MYTHS

Decisions to introduce innovations in organisations are often influenced by myths, unquestioned assumptions and general hype. The Study Team believes it is vitally important for educational leaders to be aware of some of these myths as they pertain to virtual education:

- The development of virtual education is primarily a technical decision involving the delivery of courses. Not true! The changes required to all other aspects of an educational system dwarf the technology decisions and will be more costly to implement.
- Virtual education can be “added on” to the existing core business practices of an institution. Not true! There will be a “knock-on” effect from the introduction of virtual education that will affect all other administrative and academic practices.
- Virtual education is about providing learning opportunities and services to people who cannot attend schools and campuses. It is about that — and more! Decisions about the use of virtual education need to be taken from a holistic perspective that looks at the costs and benefits that learners and teachers will obtain whatever the learning venue.
- The adoption of virtual education will reduce costs. It might! But only if there is a clear plan that defines how that will occur.

For example, many organisations have effected major cost reductions in the area of staff training through the use of virtual education because it has reduced the travel budget. Without such a plan, it is likely that cost will increase!

- There is no future for an institution that chooses not to adopt virtual education. Wrong! It is difficult to imagine an institution that will not be able to improve on one or more of the goals of increasing access, enhancing quality or improving efficiency through ICT applications. However that doesn't necessitate abandoning serving students in a traditional campus-based setting.

OPPORTUNITIES

Just as there should be no assumptions that virtual education is appropriate for all jurisdictions and institutions, neither should there be an assumption that this phenomenon can be ignored. The opportunity for “adding value” to one or more of the goals of improving access, enhancing quality or improving efficiencies through the use of some aspect of virtual education is very real. These opportunities will only be enhanced by the macro developments described in this report.

- A much more “learner-centred” model of education will be possible than has ever been the case in the past. At the elementary level, teachers will be able to enrich curricula and to be more creative in their pedagogy. As learners move towards higher education, choices and options concerning both content and learning mode become wider and, more easily tailored to suit individual learning styles and circumstances.
- The potential to share costs, distribute risk, derive revenue and re-focus institutional mandates is increased remarkably through the new organisational models that are emerging. Collaboration through partnerships, consortia

and joint venture arrangements offer solutions to problems of financing the adoption of virtual education, especially for many smaller institutions and, perhaps, for institutions in developing countries.

- The opportunities for collaboration on the development and delivery of programmes, particularly in developing countries, is likely to be found most easily in content areas such as professional upgrading, teacher training, small business development and management, science and technical programmes, elementary and secondary school curricula enhancement and literacy and basic education.

RISKS

From a global perspective, there are some “macro risks” that the Study Team believes are associated with the macro developments. For example, there is the potential to create even more educational disenfranchisement if the growth of virtual education continues in such an uneven manner between developed and developing countries. This risk is also present within nations. The “digital divide” has several faces that are present in all jurisdictions regardless of the stage of economic development. This underlines the need for policies that address equalisation of access to ICT appliances and connectivity, and that enable institutions to take advantage of such access.

Further, the differences between developed and developing countries in their capacity to develop content in the new forms that are emerging, create the potential for a form of “content imperialism” in which the developing world becomes the consumer of learning resources developed elsewhere. Some measures to avoid this could include:

- Arrangements in developing countries that ensure common standards for interoperability among institutions to enable them to share content databases and administrative systems.

- Allow institutions in developing countries to “cherry pick” learning objects from content databases and modify them with metadata, such as learning resources, that are appropriate in the local cultural context.
- Encourage the creation of regional partnerships among institutions in developing countries to undertake joint development of learning objects databases and to share the necessary technical infrastructure required to do that.

The experience to date with the development of distance education suggests there are several pitfalls that should be avoided. For example:

- Allowing decisions to be driven by the technology.
- Jumping on the “everybody is doing it” bandwagon.
- Overlooking existing educational and ICT systems.
- Underestimating the front-end and ongoing funding requirements.
- Unclear statements of objectives to be achieved.
- Raising unrealistic expectations.
- Failing to keep stakeholders briefed and involved in the decision process.

Epilogue

In spite of the tremendous increase in the use of ICT in education over the last few years, there are still very few examples, globally, of what one might call “pure” virtual learning. In other words, there are few examples in which

all facets of the teaching/learning process are carried out through some type of ICT interface. Furthermore, most of the activity is still occurring around the edges of institutions, particularly the public sector institutions. As these situations continue to evolve and change, the Study Team believes they will be profoundly influenced by the macro developments that have been the focus of this report.

However, we disagree with the collective wisdom that is often associated with virtual education. This would have one believe that contact teaching, face-to-face interactions among learners, and the physical structures within which they occur, will become obsolete. On the contrary, our conclusion is that these macro developments are leading to greater diversity of educational models that will be more attentive to the needs of individual learners. In the process, they will help to address the needs of the many millions of people who currently have no access to any kind of educational opportunity.

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