Contrasting and Diverse Global E-Learning Initiatives:
An Examination of the African Virtual University, the National University System, and Vietnam's TOPICA Project

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Abstract

This paper identifies and examines three examples of new and innovative approaches to global e-learning. The first example is the National University System, headquartered in Southern California, USA, acknowledged as a leader in e-learning who has combined an outreach approach with a willingness to customize their sophisticated e-learning programs to meet the articulated needs of specific global markets. The next example is the TOPICA project in the Socialist Republic of Vietnam that was initially "seeded" with a World Bank *info*Dev grant in 2004 and which has used venture capital funding, external funding and resources from international corporations to develop a nation-wide e-learning system that includes the establishment of e-learning centres in each of Vietnam's sixty-four provinces. The third example is the multi-nation program of the African Virtual University (AVU) that was launched by the World Bank in 1997 with the goal of increasing access to education throughout the African continent.

I. INTRODUCTION

Institutions of higher education in industrial countries such as Canada, Europe, Sweden, and the United States, which had the benefit of economic conditions that were compatible to internet usage and high-tech learning, represented the first phase of global e-learning (IBM Learning Solutions White Paper, 2004). The World Bank Information for Development program (*info*Dev) during 2001-2003 became a major funder of e-readiness assessment grants to developing countries (bridges.org report, 2005) and provided the impetus for the next phase of global e-learning. "E-readiness" is a measure of a country's ability to use information and communication technologies (ICT) to develop their economy and to foster their welfare. The World Bank *info*Dev grants were intended to assist developing countries in customizing ICT methodologies to meet their own unique needs and to put in place a firm foundation for long-term e-development plans. The ICT-based strategies and ICT action plans developed through the *info*Dev grants helped form the necessary infrastructure within developing countries needed to develop e-learning programs to serve populations that traditionally had very limited access to higher education programs. Entrepreneurial initiatives and local governmental sponsored efforts have also contributed to new, innovative, and diverse approaches to global e-learning programs. While most American universities have been slow in transitioning from a primary focus on onsite academic offerings to the development of online learning systems some became early leaders in e-learning and they have now begun to impact upon the global e-learning market.

Badrul Khan (2003) noted that with the advent of e-learning methodologies and technologies, many educational institutions were beginning to view the world as their market and he raised the question of what it took to provide the best open, flexible, and distributed e-learning environments

for diverse learners across the globe. He suggested that a successful e-learning system was one in which learning is actively fostered and supported and which was meaningful to all stakeholder groups such as students, instructors, support services staff, and the academic institution as a whole. According to Khan (2003), the foundation of such a successful e-learning system required a systematic process of planning, design, development, evaluation, and implementation in order to be easily accessible, well-designed, learner-centered, affordable, efficient, flexible, and have a facilitated learning environment. A successful e-learning system is meaningful for instructors when learners have a high level of participation and are successful in meeting course goals and objectives and it becomes meaningful to institutions when it has a sound return-on-investment as well as learner satisfaction with both the quality of instruction and provided support services Khan (2003).

Brown, Anderson, and Murray (2007) examined the development of e-learning policy in Australia, Canada, Finland, Iceland, Korea, Japan, Sweden, United Kingdom, and the United States of America between 2000 and 2005. They concluded that a three-stage pattern could be discerned in the development of national and international e-learning policies. In the first stage, governmental institutions are said to act to make e-learning possible and then in the second stage they effectively mainstream e-learning by working to integrate e-learning into educational systems. In the third and final stage, they suggest that a transformation role for e-learning is observed through changes to how learning is viewed and through changes to the nature and operation of post-secondary educational systems and institutions.

While high expectations have surrounded e-learning initiatives in companies, universities, and schools during the last several years, as Ert, Winkler, & Mandle (2007) have noted, this optimism has often given way to disillusionment. They advanced three central proposals to help counteract what they termed the "process of disillusionment" and the problems that were encountered during the initial phase of e-learning. They suggest that the new technology be applied to learning only when its use reflects a "new culture of learning". Secondly, academic and training programs must integrate e-learning into their existing training culture. Their third proposal is important and is suggestive of the point that Khan (2003) made about the need of e-learning systems to be learner-centered: Ert, Winkler, & Mandle (2007) stressed that implementation of e-learning programs should focus on the learner rather than on the technology and it is suggested that to the extent that they fail to do so may explain the degree of disillusionment noted.

II. THE NATIONAL UNIVERSITY SYSTEM

National University (NU), the second largest private university in California and acknowledged as one of the top e-learning providers in the U.S., began a distance learning program in September, 1996. It should be noted that unlike most other U.S. institutions of higher education which operate on a semester or quarter schedule, NU offers students a single course per month. These month-long courses are rigorous and intensely focused. Their first attempt at distance learning consisted of lectures recorded on CDs which were mailed, along with textbooks, to 51 U.S. and international students. In April 1998, after signing a contract with eCollege, NU offered their first two e-learning courses with a total enrollment of 39 students and by December, 2001 they were averaging 100 e-learning courses every month to more than 1,500 students. By 2007 more than 24,000 students were enrolled in nearly 3,000 online courses each month, and almost ninety percent of NU's active students took at least one of their courses online while more than two thirds of students enrolled online for a majority of their courses (National University Office of Institutional Research). Within a span of less than ten years, National University's entire academic programs and learning delivery systems evolved from an exclusively on-site learning setting to a majority e-learning paradigm.

The growth of the NU's e-learning program was a result of careful planning and continual assessment of both online course formats and content as well as technical delivery systems

paralleling Khan's (2003) suggestion that the foundation of a successful e-learning system required a systematic process of planning, design, development, evaluation, and implementation. A NU President's Commission on Online Education was tasked in 2004 with examining the state of the art in online education and then providing guidelines for creating a framework that would support the goal of continuing NU's role as a leader in online education. Spectrum Pacific Learning (SPL) was established within the National University System to develop and administer the E-Learning system and there began a total restructuring of course content, formats, and delivery systems through a collaborative effort of SPL and Academic Program Areas (colleges) under the auspices of the Premier E-Learning Project (PEP).

NU's PEP approach drew in part from Gagné's Nine Events of Instruction (1965) which attempted to identify the mental conditions for learning, which were said to be based on the information processing model that occurs when adults are presented with various stimuli. Gagné created a nine-step process which correlate to, and address, the conditions of learning consisting of: (1) Gaining the learner's attention; (2) Informing learners of objectives; (3) Stimulate learner recall of prior learning; (4) Presenting learners with selective content; (5) Provide "learning guidance"; (6) Elicit learner performance by practice activities; (7) Provide learners with feedback which provides positive reinforcement of correct performance; (8) Assess learner performance through a final evaluation providing retrieval and reinforcement of content provided; and, (9) Enhance retention, retrieval, and generalization of learned skills to new situations. NU's SPL developed a parallel philosophy to implementation of PEP which was the Effective e-Learning Model dubbed "e2L" that is consistent with Khan's (2003) need of e-learning systems to be learner-centered and Ert, Winkler, & Mandle's (2007) stress that implementation of e-learning programs should focus on the learner rather than on the technology. The e2l model focuses on online learning and directs that course content must target all types of learners: visual, auditory and kinesthetic, meaning that every concept, theory and application in a course should be demonstrated via a strategic mix of presentation mediums ensuring that all learners are engaged in active and retainable learning and can better apply what they've learned. Since it is believed that the full integration of e2L is central to creating a premier online course, a Premier or PEP, course should be one that is applicable, memorable, and engaging to the learners who participate in it.

Hezel & Mitchell (2006) cited two major factors as the reason for the expansion of U.S. institutions of higher education into global markets. First, U.S. population growth has slowed due to decreased birth rates and only immigration is said to provide noted increases in population. According to the U.S. Census and the U.S. Department of Education (NCES projections 2020) enrollment of collage age students (age 18-22) are projected to decline by three percent between 2007-08 and 2020-21 with decreases primarily seen in the Northeast and Midwest with possible slight increases noted in the West and Southwest. In order to maintain current enrollment levels, U.S. institutions of higher education will have to develop greater cross-border (global) enrollments. According to Hezel & Mitchell (2006), the second factor cited for the expansion of U.S. institutions of higher education into global markets is the increased demand for higher education in China and Pacific Rim countries. While China has increased the number of higher education institutions, their enrollment demands far exceeds domestic capacity. Six percent of China's higher education age population sought enrollment in higher education programs in 1999 but that figure doubled to twelve percent by 2002 (Hezel & Mitchell, 2006). Global Industry Analysts (2007) reported that E-Learning in Asia was expected to reach a compound annual growth rate of twenty-five to thirty percent through 2010 and that the worldwide rate will be between fifteen and thirty percent for the same period. Currently, U.S. higher education institutions account for sixty percent of cross-border (global) enrollments with Australia, Europe and Japan providing most of the remaining cross-border enrollments. While Global Industry Analysts (2007) note that the current rate of cross-border E-Learning enrollments is due to increased program offerings and services, they also warn about the impact of interoperability standards which have the potential to stifle the growth of cross-border E-Learning. The dominant role of U.S. higher education institutions in global learning has been due in

part to the perception that an American education remains the standard by which all other education programs are measured, however, that perception is being challenged notably by emerging programs in India and South Korea.

NU is now entering the global e-learning market with the establishment of National University International (NUI) an affiliate of the National University System (NUS). While NUI does not directly offer academic programs or courses, it represents NUS by providing information about their academic programs and establishing directed dialogue between countries and international students with existing NUS academic program administrators to modify and develop programs to provide learning opportunities to address specific localized needs. This is a sustained effort with the majority of NUI's operations utilizing representation in Europe, the Middle East, the Pacific Rim region, South America and South-East Asia. An advising center is scheduled to open in Bangkok, Thailand in April, 2012 that will focus on advising and assisting students recruited from the South-East Asia region. Enhancing NUS's global efforts is the recent Online Education Database (OEDb) 2011 report that ranked NU's online programs as being first in the United States of America and selection by APQC, a non-profit organization specializing in benchmarking, knowledge management, measurement, and process improvement, to participate as a best-practice partner in a consortium benchmarking study. Following a recent meeting with NUI administrative staff and contract representatives from China, NU's School of Education has begun development of a proposed Masters of Art (MA) program in International Education which will integrate educational philosophy, theory and practice with collaborative projects and field activities allowing cross-border students to observe teaching and learning strategies applicable in classrooms and K-12 learning environments. Instruction and learning activities in the MA – International Education program are designed to include global perspectives and develop global competencies.

III. VIET NAM'S TOPICA PROJECT

As noted earlier, the World Bank Information for Development program (*info*Dev) became a major funder of e-readiness assessment grants to developing countries which provided the impetus for the next phase of global e-learning. A World Bank *info*Dev grant initially provided "seed" funds that helped Viet Nam create a rather unique nation-wide online system. Viet Nam's TOPICA education group project collaboratively utilizes both internal and external educational resources and continues to operate through the cooperative coordinated efforts of Vietnamese higher education institutions who maintain their own individual programs and identities while participating in the development and growth of a nationwide e-learning system serving students from Viet Nam and surrounding countries. CRC-TOPIC, initially "seeded" with a World Bank *info*Dev grant in 2004, started programs designed to accelerate the successful development of entrepreneurial companies— business incubation—through creation of the Vietnam Young Entrepreneur Association and the establishment of e-learning centres in each of Vietnam's sixty-four provinces. Since 2005 approximately 87,000 students have completed vocational ICT training at the sixty-four e-learning centers and nearly 1,000 entrepreneur lecturers successfully delivered professional skills training for more than 10,000 students at 35 universities and colleges through e-learning programs in combination with the Viet Nam Young Entrepreneur Association and Thanh Giong.vn components.

Additional external funding and resources were provided by the Microsoft, Qualcomm, and Hewlett-Packard corporations and the USAID program in April 2006 for the development of e-learning systems and the establishment of vocational training and the newly expanded program became the TOPICA64 project. Following a systematic process of planning, design, and development such as Khan (2003) advocated, Bachelor degree programs in Business, Accounting, and Information Communication Technology (ICT) were developed in 2008 through a combination of venture capital funding and a grant from the Vietnam Foundation and the project's name was changed to TOPICA. Later, a Bachelor degree program for Banking was developed as well as the TOPICA Amazing English program which is an online English-language learning social network for

children ages 6 to 14 years of age that utilizes a multi-player game format like that described by Hawkins in 2004. TOPICA utilized the combination of venture capital and grant funding to create the infrastructure necessary for implementation of online program systems which has alleviated the need for Vietnamese universities to develop their own separate costly online infrastructures. Essentially, TOPICA provides the infrastructure for online courses and recruits student enrolments for programs taught by the participating universities and tuition is shared between TOPICA and the universities. The implementation of the nation-wide online system allows for the enrolment of students from regional areas not served by existing university onsite programs and, unlike some university systems in the U.S. which find increases in online enrolments coming at the expense of their onsite programs, the overwhelming majority of TOPICA enrolments represent new student populations. These new students either come from geographic areas within Viet Nam that existing university onsite programs were unable to serve or consist of young working adults who, for a variety of reasons, are unable to attend a scheduled series of onsite course sessions.

Three of the four Vietnamese universities comprising the TOPICA project's current Bachelor's degree e-learning efforts—Hanoi Open University, Duy Tan University and Nguyen Trai University—have their own separate onsite Masters and Doctorate degree programs which affords the potential for future development of graduate level e-learning programs. An additional five Vietnamese universities are currently under negotiation to join the TOPICA project. Currently the TOPICA education group e-learning program includes:
- Bachelor degree programs at training centers in the north, middle, and southern regions of Vietnam;
- TOPICA Pro Banker program which provides professional skill training for the banking industry;
- TOPICA Accelerator program which fosters successful development of entrepreneurial companies; and,
- TOPICA Amazing English language social network program for children.

Enrollment in the four Bachelor degree program areas at the beginning of 2011 was in excess of 4,000 students and was expected to exceed 7,000 by the end of calendar year 2011. TOPICA had their first Bachelor degree graduating class in 2011, comprised of 39 students, who originally enrolled in in the program in March, 2009. These students report having successfully found career placements in their professional fields of study and this is significant since a U.S. State Department report (June, 2011) noted that the per-capita income for Viet Nam in 2010 was $1,168. While TOPICA's impact upon Viet Nam's economy in the short term is beginning to be felt, over the long-term it will prove to be significant.

Of special interest is the methodology employed for the e-learning Bachelor degree programs. The TOPICA project currently has 200 full-time faculty members, 100 part-time faculty, and over 500 industry instructors drawn from middle and upper management levels positions in Vietnamese companies and enterprises. Current students, ranging in age from 20 to 52, are enrolled in two or three parallel courses during a two-month term which includes one or two multi-day onsite sessions; essentially a hybrid approach. An earlier study (Castle & McGuire, 2010) found that while students are drawn to online courses for convenience, they still report that they learn best in an onsite setting, or in a Hybrid setting consisting of both online and onsite experiences where they are able to have some degree of real-time interaction with the course instructor and fellow students. TOPICA's onsite sessions are conducted in an open classroom setting which emphasizes student-instructor and student-student interactions in discussions, review of case studies, and educational game experiences—all of which are consistent with the global educational trends advanced by Hawkins (2011) in the World Bank edutech blog. As the TOPICA project looks to the future, plans are to expand the network of participating universities and to focus on the development of a rigorous assessment system to insure that students achieve articulated program and course learning outcome

goals. Viet Nam is rapidly developing a professional industrial and technological base and the TOPICA project has assumed a leadership role in that development.

IV. THE AFRICAN VIRTUAL UNIVERSTIY

The World Bank was also responsible for the development of the African Virtual University (AVU) which currently is comprised of fifty-three partner institutions in twenty-seven of the fifty-four countries in Africa. The stated mission of the AVU is "to facilitate the use of effective open distance and e-learning methodologies in African postsecondary education institutions". A 1995 study by the World Bank noted that higher education in Sub-Saharan Africa faced obstacles unique to its geographical context which included student lack of access to programs, quality of programs offered, inadequate facilities, internal and external inefficiency, declining budgets, and recurring power outages. Initially begun by the World Bank in Washington, D.C. in 1997 with the goal of increasing access to education throughout the African continent, the AVU looked to develop alternative modes of delivering educational programs that would complement efforts of existing higher learning institutions in Sub-Saharan Africa. The VAU project was transferred to Nairobi, Kenya in 2002 and five African Governments – Kenya, Senegal, Mauritania, Mali and Cote d'Ivoire – signed a charter establishing the AVU as an Inter-Governmental Organization with diplomatic status in participating countries. Currently, headquarters of the AVU are in Nairobi, Kenya with a Regional Office in Dakar, Senegal established to serve partner institutions in West Africa.

The AVU developed an open distance and e-learning (ODeL) model called the AVU Learning Architecture that includes both low and high-end delivery technologies. Initially the AVU focused on delivering content in science and technology to African students through the establishment of learning centres intended to bridge the digital gap between developed and developing nations, however, this model proved to be too expensive and rigid as many African countries had limited information and communication technology infrastructures (ICT) and lacked sufficiently trained technical personnel. Additional problems posed by frequent power outages, digital illiteracy, some regions lacking internet, telephone, and computer access, and unfavourable regional ICT policies forced the AVU to refocus their strategy to be able to work more effectively throughout the African continent.

The refocused AVU Learning Architecture includes the use of mixed modes of delivery including CDs, video and audio cassettes, printed materials and mobile learning units in addition to video conferencing and use of the internet in areas that can support it. In order to enhance the online capacities of African education institutions, by 2007 the AVU had installed more than 53 distance learning programs in 27 countries. Distance learning centres, intended to act as physical hubs for the creation, organization and sharing of knowledge, have been established at AVU partner institutions in Ethiopia, Kenya, Madagascar, Mozambique, Senegal, Somalia, Tanzania, Uganda, Zambia and Zimbabwe. Similar to the partnership and financial arrangements observed in Viet Nam's TOPICA project, the AVU provides for equipment, internet access and training to use it while partner institutions provide the facilities to conduct online courses, day-to-day operations, and provide equipment maintenance. Funding for the establishment of the distance learning centres was provided by the African Development Bank and the United Nations Development Program (UNDP). A typical AVU remote class consists of 25 to 50 students who meet at the different learning centres where they either work online with computers or view a lecture on a large screen. Students interact with instructors, tutors, and other students through a combination of WebCT, email, and telephones.

Since its establishment in 1997, the AVU has focused heavily on e-learning, managing a digital library and building a consortium of African educational institutions reaching across political boundaries to serve students in French, English and Portuguese languages. Funded in part by the African Government Bank, the AVU recently instituted the Multinational e-Learning Project whose goal is to develop teacher education programs in math and science that could be disseminated through e-learning at the established distance learning centers in the ten different African countries

earlier noted. The AVU developed the local technological infrastructure and then trained local partner university faculty members to use the e-learning system and develop content for it in their regional language. Through a cooperative effort of international experts, governmental and university leaders from all ten countries, the AVU designed a bachelor's degree program in education that could train teachers through the new e-learning platforms. The goal of the program which began enrollment in the fall of 2010 is to improve education at all levels - not just higher education – throughout Africa by strengthening the teacher pool. In addition to the degree program, the AVU also developed two certificate programs for existing teachers which address basic computing skills and trains teachers to integrate information and communication technologies into classrooms. The two certificate programs have already had more than three hundred graduates.

In conjunction with the Multinational e-Learning Project, the AVU began what they termed the "Open Education Resources (OER) Project" consisting of seventy-three (73) modules that make up a teacher education program. In an extraordinary move, the AVU and its partner institutions decided to release all of the 73 modules of the teacher education program in three different languages and to make the fully developed courses available for free to students who couldn't afford to enroll in a formal AVU degree program. The intent of AVU's OER project was to extend the availability of teacher training programs throughout Africa, however, early analysis has shown that most of the students accessing the OER resources are from other parts of the world and of the top ten countries accessing the material in the OER online site, only one – Kenya – is in Africa. The AVU also recently began a Capacity Enhancement Program (CEP) to build the capacity of African postsecondary institutions to increase access to higher education through e-learning. As of 2009, training has been provided to more than 132 university staff from 24 universities in 17 countries. Various initiatives have also been undertaken by the AVU in Somalia which are intended to enhance the competencies and knowledge of the Somali labor force, provide scholarships for Somali women, and assist United Nations Development Fund (UNDF) led Somali institutional development programs. The UNDF institutional development programs, assisted by the AVU, have graduated more than 4,000 students, 30% of which are female graduates .

V. SUMMARY

Global e-learning no longer can be described in terms of institutions of higher education in industrial countries such as Canada, Europe, Sweden, and the United States accepting students from other countries into their academic programs. The focus has shifted to meeting localized needs, many times through the development of information and communication technology (ICT) infrastructures and postsecondary programs in countries previously lacking such resources. Institutions of higher education in industrial countries have noted lowered levels of student enrollments from developing countries and in some notable instances have begun to develop a secondary level of academic offerings intended to meet the localized needs of these students within their own countries. This paper attempted to describe three examples of the new face of global e-learning beginning with a description of an American higher educational institution's global outreach efforts. The second example focused on the development of a nation-wide online system consisting of K-12, vocational, and postsecondary programs developed through a partnership between existing local academic institutions and a corporate structure initially seeded with World Bank Development funds and then developed and sustained through capital venture funding and resources and funding from major international corporations. The third example of the new face of global learning described a multi-nation effort to create a virtual university to meet the diverse needs of countries on the African continent and their attempt to create ICT infrastructure, specialized programs, and an e-learning model consisting of both low and high-end delivery technologies. Two recurring themes are noted in the new wave of global e-learning program development: (a) the increasing desire and determination of developing countries to engender their own postsecondary institutions and academic programs to meet their localized needs; and (b) the significant role that the World Bank Development *info*Dev program, the United Nations Development Program (UNDP), and local national banks such as the

African Development Bank have had in fostering the development and growth of ICT strategies and action plans in the developing countries.

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