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Challenges of ICT & Teacher Education Curriculum

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Abstract – Globalization and technological change-processes that have accelerated in tandem over the past fifteen years-have created a new global economy "powered by technology, fuelled by information and driven by knowledge." The emergence of this new global economy has serious implications for the nature and purpose of teacher educational institutions. As the half-life of information continues to shrink and access to information continues to grow exponentially, these institutions cannot remain mere venues for the transmission of a prescribed set of information from teacher educators to pupil- student over a fixed period of time. Rather, these must promote Ïlearning to teach" : i.e., the acquisition of knowledge and skills that make possible continuous learning over the lifetime. "The illiterate of the 21 St Centuries," according to futurist Alvin Toffler, "will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn."

Every teacher has to know how to use technology, pedagogy and content effectively in their daily classroom teaching. Good teaching is not simply adding technology to the existing teaching and content domain. Rather, the introduction of technology causes the representation of new concepts and requires developing sensitivity to the dynamic & transactional relationship reflected in the curriculum designing of TEP.

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There are many concerns over educational relevance and quality that coexist with the imperative ICT of expanding educational opportunities to those made most vulnerable by globalization-teachers. As global changes also put pressure on all groups of teachers-pre-service & in-service, both .to constantly acquire and apply new skills. The International Labour Organization defines the requirements for teacher education and training in the new global economy simply as "Basic Education for All", "Core Work Skills for All" and "Lifelong Learning for All."

Information and communication technologies (ICTs)-which include radio and television, as well as newer digital technologies such as computers and the Internet-have been touted as potentially powerful enabling tools for educational change and reform.

The effective integration of ICTs into the (curriculum) teacher education programs is a complex, multifaceted process that involves not just technology-indeed, given enough initial capital, getting the technology is the easiest part!-but also pedagogy, institutional readiness, teacher competencies, and long-term financing, among others.

GLOBAL VALUE OF ICT IN THE CURRICULUM OF TEACHER EDUCATION:

Modern professional development programs for preparing future teachers are required to provide more technology enriched experiences through ICT oriented training programs evolving standards and resources. Global trends demands that teachers must

(1) know basic hardware and software operations, as well as productivity applications software, a web browser, communications software, presentation software and management applications.

(2) aware of policies and be able to specify how classroom practices correspond to and support policy.

(3) Deep knowledge of their subject and the ability to apply it flexibly in a variety of situations & to create complex problems as a measure of students' understanding.

(4) understand the intentions of national policies and be able to contribute to the discussion of education reform policies and

participate in the design, implementation and revision of programs intended to implement these policies

ICTs TRANSFORM THE LEARNING ENVIRONMENT OF TEI:

(i) Active learning **(ii)** Collaborative learning **(iii)** Creative Learning **(iv)** Integrative learning **(v)** Evaluative learning **(vi)** Presentation, demonstration, and the manipulation of data using productivity tools **(vii)** Use of curriculum-specific applications types such as educational games, drill and practice, simulations, tutorials, virtual laboratories, visualizations and graphical representations of abstract concepts, musical composition, and expert systems **(viii)** Use of information and resources on CD-ROM or online such as encyclopaedia, interactive maps and atlases, electronic journals and other references.

EMERGING CHANGES IN CURRICULUM OF TEACHER EDUCATION:

The curriculum of teacher education should help in achieving the goal of teacher education in preparing teacher as a perfect professional who is a facilitator, communicator, content and language expert.

IMMEDIATE REQUISITE OF PROVISION FOR ICT MATERIALS /COURSES:

For example;

(1) Since 2002, the UNESCO has been running a project for training teachers to.The main goal of the project is the development of the ICT in education teacher training materials and online platform. This process will involve undertaking activities under the following components.

(2) Updating of the Regional Guidelines on Teacher Development for ICT-Pedagogy Integration and conducting literature review on the status and quality of female teachers with a specific focus on their ICT competency.

(3) Gathering of key materials and resources arising from UNESCO-facilitated National Training Workshops for Teacher Educators and developing them as modules of the online training materials.

(4) Reproducing the e-learning capacity building modules on ICT in Education: Module 1- ICT in Education Essentials; Module 2 - ICT in Education Decision Making.

(5) Developing a series of tools for teachers and teacher educators.

(6) Establishing and maintaining an online platform of ICT in Education Teacher Training in the Asia-Pacific region. The platform would also open an on-line forum for teacher educators on issues of using ICT to their daily practices.

(7) Promotion of the online platform as well as reproduction and distribution of the training tools and materials to the network of TEIs in the Asia-Pacific region.

Integrating ICT as a Core Course at the B.Ed. level in M. S. University, Baroda :

Realizing the importance of ICT in Education, a two credit compulsory course, namely, Information and Communication technology (ICT) was designed, developed and implemented in the B.Ed. programme offered by the Department of Education (CASE), faculty of Education and Psychology. The findings of the study conducted on the performance and need of the course shows that "the experience of institutionalization of ICT in education as acompulsory core course at the B.Ed. level (2002-2003) in the M. S. University of Baroda has been quite encouraging but challenging.

MAJOR CHALLENGES RELATED TO QUALITY CONCERNS IN TEC:

The effectiveness of ICTs in TEIs depends on how they are used and for what purpose. And like any other educational tool or mode of educational delivery, ICTs do not work for everyone, everywhere in the same way.

(1) **Capacity-Building:** Teacher Professional Development as the Cornerstone of Educational ICT Use, education administrators, technical support specialists & content developers. Content development is a critical area that is too often overlooked. There is a need to develop original educational content (e.g., radio programs, interactive multimedia learning materials on CD-ROM or DVD, Web-based courses, etc.), adapt existing content, and convert print-based content to digital media. These are tasks for which content development specialists such as instructional designers, scriptwriters, audio and video production specialists, programmers, multimedia course authors and web-developers are needed. Many universities with distance education programs, and those who otherwise make use of ICTs, have dedicated technical support and content development units.

(2) **Areas of language and content:** An estimated 80% of online content is in English. large proportion of the educational

software produced in the world market is in English. For our country where English language proficiency is not high, especially outside metropolitan areas, this represents a serious barrier to maximizing the educational benefits of the World Wide Web. One encouraging trend has been the emergence of national and regional school networks, or School Nets, that facilitate the sharing of content and information-curriculum guides, teaching and learning resources, tele-collaborative project registries, school and teacher directories, training curricula and materials, research and policy papers, technology management guides, and start-up toolkits, among others. Countries like Australia, France, Finland, Japan, Canada, Thailand, Ghana, South Africa, and Zimbabwe; to name a few, all have national School Nets. The Enlaces programme in Latin America has linked schools from Spanish-speaking countries like Chile, Paraguay, Costa Rica, Colombia, and Peru. In Southeast Asia, efforts are currently underway to pilot School Nets in the Philippines, Indonesia, Cambodia, Laos, Myanmar and Vietnam, and to link these to existing national School Nets to create a region-wide ASEAN School Net.

In Web-based learning, technical standardization of content has also become a pressing issue. Specifications in content, structure, and test formats are proposed so that interoperability may exist between different management systems, resulting in some cost-efficiencies. Worth mentioning are initiatives conducted by the Instructional Management System (IMS), the Advanced Distributed Learning /Shareable Courseware Object Reference Model (ADL/SCORM) initiative, the Aviation Industry Computer Based Training Committee (AICC), and the European ARIADNE project, since some of the standards they have proposed are already being widely applied

The ease by which Web-based educational content can be stored, transmitted, duplicated, and modified has also raised concerns about the protection of intellectual property rights. For instance, are intellectual, property rights violated when lectures broadcast over the television or on the Web incorporate pre-existing materials, or when students record educational broadcast on tape for later viewing? For teacher- educators and pupil-teachers, each of whom are potential publishers of multimedia materials that incorporate the works of others, information and training about the ethical use of intellectual property should be an important component of ICT-based teacher education programs.

(3) Financing the cost of ICT use in TEC: One of the greatest challenges in ICT use in teacher education is balancing educational goals with economic realities. ICTs in education programs require large capital investments and developing countries need to be prudent in making decisions about what models of ICT use will be introduced and to be conscious of maintaining economies of scale.

SUGGESTIONS:

The following potential sources of money and resources for ICT use in Teacher Education programs:

(1) Grants

(2) Public subsidies

(3) Private donations, fund-raising events

(4) In-kind support (e.g., equipment, volunteers)

(5) Community support (e.g. rent-free building)

(6) Membership fees

(7) Revenues earned from core business:

(8) Connectivity (phone, fax, Internet, web pages)

(9) Direct computer access to users

(10) Office services (photocopying, scanning, audiovisual aids.

(11) Revenues earned from ancillary activities:

(12) Business services

(13) Educational services

(14) Community services

(15) Telework and consulting

(16) Specialized activities

(17) Sales

Other Challenges:

(1) Enhancing access.

(2) Raising quality.

(3) Equity of access to ICTs in TEPs.

(4) Economic sustainability (the ability of a school and community to finance an ICT-

enabled teacher education programme over the long term),Social sustainability (functions of community involvement).

(5) Political sustainability (issues of policy and leadership).

(6) Technological sustainability (choosing technology that will be effective over the long term).

(7) Infrastructure-related challenges of ICT in TEC.

COST:

Fixed costs:

(1) Retrofitting of physical facilities.

(2) Hardware and networking.

(3) Software.

(4) Upgrades and replacement (in about five years).

Variable Costs:

(1) Professional development.

(2) Connectivity, including Internet access and telephone time.

(3) Maintenance and support, including utilities and supplies.

At last I would like to sum up that technology should not drive education; rather, educational goals and needs and careful policy makers, must address drive technology use while drafting the courses of teacher education. Prudence requires careful consideration of the interacting issues that underpin ICT use in the institutions Ûpolicy and politics, infrastructure development, human capacity, language and content, culture, equity, cost, and not least, curriculum and pedagogy.

Even small thing make a difference.

Even if you cannot change people,

You could make people aware of changes.

Let us all come together and get ready to take up this challenge as awakened teacher educators.

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