ICT Policy as a Lever for Education Transformation

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AMFIE Keynote Presentation
The Rhetoric for ICT in Education

Many countries justify the use of ICT in schools by saying it will help create an information economy or knowledge society:

- Singapore’s The third Masterplan “continues the vision of the first and second Materplans to enrich and transform the learning environments of our students and equip them with the critical competencies and dispositions to succeed in a knowledge economy.”

- Jordan’s ICT-based reform effort was to make the education sector “responsive to employment market demands in key industries and develop critical ‘Knowledge Economy skills’ at all levels of the education system”

- Tech/NA, Namibia’s education ICT initiative, states that “Arising from the overall capacity building investments, Namibia will be transformed into a knowledge-based society.”

- Rwanda’s ICT in Education Strategic Plan envisions that all Rwandans will “reach their individual potential to become well-rounded critically thinking citizens of an innovative, knowledge-based economy.”
But how can ICT transform education?
How is everything else being transformed?
Beyond a Manufacturing Economy

- Mass production
- Standardized products
- Manual labor or rote cognitive tasks
- Hierarchical command and control
- Highly integrated organizations
Toward an Information Economy

- Services are the largest sector of 25 largest economies
- Information products and services show the most growth
- Innovation and new knowledge are a major engine of economic growth
and a Knowledge Society

• High level of education.
• High penetration of ICT in the home.
• Large majorities of people use the internet for email.
• Large majorities use it as a primary information source
• Large percentages of young people use it to connect with groups, create and share digital materials.
Transformed Business Practices

- Self-managed teams
- Regular employee meetings
- Flexible work arrangements
- Use of computers in front-line positions
Transformed Organizational Structures

- Organizational flattening
- Decentralized decision making
- Disaggregation
- Out sourcing/off shoring
- Cross-organizational collaboration
Transformed Jobs

- Less demand for manual skills and routine cognitive tasks
- More demand for problem-solving, communications skills and team skills.
- ICT substitutes for low-skilled workers
- ICT augments high-skilled workers
Transformations Enabled by ICT

- To connect distributed teams of employees
- To coordinate with partners and suppliers
- To collect and share information
- To provide products and services to customers
But ...

The mere introduction of ICT into businesses did not lead to higher productivity. Significant increases may take 5-7 years to be realized. Increased productivity occurred only when ICT is integrated into a set of complementary changes that transform the organization.
Transformed Schools?

• Schools structured as enclosed groups and physical spaces
• Curriculum is in silos tied to disciplines
• Teacher lectures
• Students study independently
• Standardized exams test recall and application of simple procedures
• Technology used as a supplement
What will it take?

Is the introduction of computers enough?

What role can policy play?

What other factors are involved?
Why do most ICT policies go nowhere?

- Not a policy but projects—policy in bits and pieces
- Current policies are replaced by the new government
- The policy focuses only on ICT
- The policy provides a short-term strategy without a sense of where this will go in the long-term
- The policy is organizationally isolated
- The policy does not specify measurable goals
Studies of Best Education Policy Practices

OECD and McKinsey looked at high performing school systems around the world.

Each was a unique response to local context. But there were commonalities:

- Commitment to success for all students
- High quality teachers
- Systemic change
- Policy alignment over sustained periods
- Strategic investments
Lessons Learned from UNESCO ICT Cases

Singapore: Coordinate with economic policy, plan a trajectory, train teachers and principals, provide resources and autonomy, implement and revise

Jordan: Political support is important, coordinate with economic policy, focus on teacher training, coordinate with curriculum change

Uruguay: Political support is important, focus on equity of access, teacher training, technical support

Namibia: Focus on teacher development, coordinate with curriculum reform

Rwanda: Political support is important but so are trained teachers and resources
Transformative ICT Policy

- Formulate a vision
- Create a long-term trajectory and 5-year plan
- Build alignment
  - Between policies and programs
  - Within agencies
  - Across agencies
- ICT as a lever for complementary, systemic changes in:
  - Teacher professional development
  - Curriculum and assessment
  - School organization
- Provide resources
- Team with partners
- Evaluate and revise
The Knowledge Ladder

Conceptual framework for policy planning

Transformational:

- Addresses all components
- Policy alignment
- Complementary systemic changes

Connected to economic and social development

- Addresses a range of current conditions
- Advances build on current resources and experiences
- Moves toward a knowledge economy
The Knowledge Ladder

Each model has different implications for:

• Policy Goals
• Teaching and Learning
• Curriculum and Assessment
• Social Structure
• ICT Use
The Knowledge Ladder

Policy Goals: Increase primary attendance, workforce participation, basic health and welfare
Teaching and Learning: Minimally trained teachers lecture to large classes
Curriculum and Assessment: Basic literacy and numeracy measured by standardized tests
Social Structure: Hierarchical structure, no local autonomy, age-based classrooms, standardized delivery
ICT Use: Supplement, information delivery and training of teachers
The Knowledge Ladder

Policy Goals: Increase secondary attendance, prepare for a productive manufacturing economy
Teaching and Learning: Increase teacher subject knowledge, lecture, individual student seat work
Curriculum and Assessment: Coverage of facts and simple principles, ICT as a subject, increase standardized test scores
Social Structure: Hierarchical structure, increased accountability, standard delivery
ICT Use: Drill and tutorial software, computer labs, networks for management
The Knowledge Ladder

Policy Goals: Create a high-knowledge citizenry that applies school learning to the real world and adds value to the economy

Teaching and Learning: Teachers have subject and pedagogical knowledge, students work in teams on real world problems

Curriculum and Assessment: Deep understanding of key concepts applied to real world and assessed by complex tasks

Social Structure: Collaborative teaching and learning and breaking disciplinary and physical boundaries

ICT Use: Simulations and multimedia to understand key concepts and connect to real world, ICT in the classroom, networks for collaboration
The Knowledge Ladder

Policy Goals: Develop creative, lifelong learners for a knowledge-driven society and economy
Teaching and Learning: Teachers as innovators and model learners, students collaborate to create new knowledge
Curriculum and Assessment: Knowledge creation and 21st C skills are part of the curriculum, products assessed by users
Social Structure: Anywhere, anytime, lifelong learning in knowledge communities
ICT Use: Digital devices everywhere, networks and social environments for community
The Example of Singapore

Master Plan 1: Connecting schools, computer labs, basic ICT training for teachers

Master Plan 2: Connecting classrooms, computers in classes, integrating ICT into the curriculum

Master Plan 3: Self-directed and collaborative learning, teacher innovation, innovative school leaders, anywhere/anytime ICT
The Example of Singapore
Educational Transformation

What kind of change needs to take place in education?

- Complementary changes across the system

What role can ICT play?

- A Lever for Systemic Change

ICT alone will not transform education
UNESCO ICT Teacher Competency Framework
Intel Policy Development Framework

Each stage impacts all others.

Continuous process of improvement.

Develop Master Plan

Envision the Future

Implement Initiatives

Evaluate & Adapt

Each stage happens in parallel.
ICT Policy Resource Links

UNESCO:
http://unesdoc.unesco.org/images/0021/002118/211842e.pdf

Intel: