

ICTs in education  
Moving from 1 Generation to 2  
Generation models  
– a framework for program success

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# ICT Models in Business

First generation computer applications in business -  
Simple areas - salaries and accounting.  
Chief Information Officers designed programs  
Limited benefits

Second generation applications - core business areas –  
production, supply chain management

Driven by business managers to achieve business goals.  
Provided significant benefits to business

# ICT programs in school system

First generation ICT programs in school system – use a 'technological perspective'

Driven largely by technology vendors or “ICT experts”

Of limited benefit / have largely been failures

Second generation ICT programs address educational priorities, based on educational policies

**Designed by people working in core education**

**Teacher Education** has been the primary focus of second generation ICT programs, from this new models of TE are emerging

# Factor 1 - Curriculum

1G Program stops with providing hardware (and pre-packaged software).

Curriculum - basic computer literacy (Windows and MS Office) and pre-packaged content (CD ROMs).

Program stand-alone - **Teachers do not show interest and engagement with such curriculum**

2G program - Curriculum - regular school subjects - Mathematics, Science, Social Science, Languages

**Curriculum encourages teachers to participate in learning resource material creation – text, educational tools and videos**

**Curriculum integrates ICTs with core education**

# Factor 2 - Transaction

1G program *transacted* by computer teachers trained in computer science, not regular school subjects.

Program bypasses teachers and goes directly to students through the computer teacher.

2G program – focus on TE

Curriculum in the ICT program is transacted by regular teachers

Teachers use 3 kinds of *digital methods to create* learning resources

- *educational software applications* like Geogebra, Freemind, Marble
- *web tools* like wiki, translator
- *digital tools* like video camera (with video editing software)
- **Teachers teach/train one another**

# Factor 3 - Public domain

## First generation program

Use of proprietary software and content (owned by vendor)

Cannot be shared (increases program costs), cannot be customised (reduces flexibility), cannot be upgraded (license fees)

Creates a 'minimalist / poor learning environment' and teacher as consumer (behaviorist approach)

## Second generation program

Use of a large variety of *free digital tools/resources (in the public domain)* helps move from a 'scarce (minimalist) proprietary digital environment' to a '**rich/diverse public digital environment**'.

**Digital resources are non-rivalrous (sharing does not reduce availability) and hence promoting public creation/sharing of digital resources most important**

# Its already here

**IT@Schools** (Kerala), **USRN** (Delhi), **Subject Teacher Forum** (Karnataka) are examples of **2G programs** in schools.

High ownership of teachers → use of ICTs in teaching-learning  
Teachers co-create resources using a variety of digital tools  
connect to one another and to teacher educators continuously  
for sharing and learning virtually

TE is need based, self directed, collaborative/peer based,  
mentored and continuous, linking TE institutions to the school

# Some thoughts

See ICTs as an important and integral pedagogical resource, not a standalone subject

National Policy requirements relating to teacher professional development can **only** be met building on second generation ICT programs

Pre-Service – integrate digital tools and methods into curriculum (Karnataka pre-service curriculum revision)

Move to need based/cafeteria models of TE that are self-directed, self paced and require/support a learning community of teachers

Encourage linkages between schools and support institutions, universities and NGOs