

Evaluation of ICT programs in schools

Some perspectives

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First Generation ICT Models in Business

First generation computer applications in business -

Simple areas like payroll and financial accounting.

Chief Information Officers (CIOs) designed these programs, due to low awareness amongst business managers about ICT

Second generation applications pertained to the core business areas – production, supply chain management including inventory management, computer aided design and manufacturing etc,

They were driven by business (line) managers.

ICT programs in school system

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

Second generation ICT programs in school system – based on 'pedagogical perspectives' – 'techno-pedagogy'

Curriculum

First generation Program usually stops with providing hardware (and pre-packaged software).

Curriculum pertains to basic computer literacy (Windows and MS Office) or consists of pre-packaged content (CD ROMs). Operating system and Office are pedagogically not relevant.

Using only pre-packaged content can reinforce existing “behaviourist learning” approaches, making teaching-learning passive.

Second generation program

Curriculum pertains to regular school subjects and issues of education

Mathematics, Science, Social Science, Languages

Curriculum encourages teachers to participate in creating resource material creation

Transaction

First generation program is *transacted* by computer teachers – who are trained in computer science and not in regular school subjects.

Program is seen as a standalone experiment not connected to the regular teaching-learning processes in the school.

Program bypasses teachers and goes directly to students through the computer teacher. *No curricular process bypassing teachers can scale or sustain.*

Second generation program

Curriculum in the ICT program is transacted by regular teachers

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

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

Moving from first to second generation models – ICTs in education

Public domain curricular resources

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'

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

Impact/Outcome

First generation program

Teachers do not feel ownership over program and hence are not committed, causing widespread failures (hardware museums) once the novelty of ICTs wears off.

Second generation program

ICTs no longer seen as an isolated 'subject' but as an integral curricular resource, creating a new discipline 'techno-pedagogy'

High level of ownership and commitment of teachers and institutions leading to breadth and depth of use of ICTs by teachers in teaching-learning with beneficial impact on educational processes and outcomes

Focus on continuous *capability building* - essential since the world of ICTs is fast changing.

Way forward

Significant money / time spent on first generation programs with little benefit.

It is time now to move from first to second generation ICT programs in school education

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

RTE requirements relating to teacher professional development can only be met through second generation ICT programs

USRN (Delhi) and TCOL (Bangalore), STF RMSA (Karnataka) and [IT@Schools Kerala](#) are examples of [Second generation programs](#) in schools. These have higher ownership of teachers who integrate ICTs into their own teaching-learning processes and outcomes

Gujarat, Tamil Nadu, Assam amongst states focusing on computer integration into school education

- Thank You
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