

New models in Teacher Education through ICTs

Gurumurthy K
IT for Change, Bangalore

MHRD
December 2011

Moving from first to second generation models – ICTs for Teacher education

Challenges of TE

- Traditional model of TE
 - Centralised design, hub and spoke model
 - “Delivery” of training / teacher as receiver (deficit model)
 - No clear plan for TPD for individual teachers
 - Budgetary norms rigid (one-size-fits all)
 - Quality of TE curricular resources needs improvement and contextualisation
 - Does not create community of learners (community requires continuity of interactions)
 - Workshop based (point of time)
 - Inadequate monitoring and on-site support
 - Inadequate linkage between theory/research and practice
 - Isolation of teacher and school

Moving from first to second generation models – ICTs for Teacher education

Need for a new model

Create a learning community – social constructivism

Providing opportunities for peer learning and mentoring

Providing continuous support beyond workshops to teachers to address issues from practice as well as receive feedback and learnings from experiences

Space for individual and collective reflection

Move teachers to co-constructors of learning

Individual need based

Self directed / self paced

Peer support and sharing/learning

Co-creation of learning resources on a large scale and contextual

Possible only with '**second generation**' ICT programs in education, which are designed by educationists, based on education philosophy/policy and contexts to meet aims of education

Moving from first to second generation models – ICTs for Teacher education

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

Limited benefit to business. Gave way to second generation programs

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 to achieve business goals.

Provided significant benefits to business

Moving from first to second generation models – ICTs for Teacher education

ICT programs in school system

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

Driven by technology vendors or “ICT experts”

Of limited benefit / have largely been failures

Second generation ICT programs in school system – based on 'educational perspectives'

Address educational priorities and based on educational philosophies/policies

Designed by people working in core education

Provide significant benefits

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

Moving from first to second generation models – ICTs for Teacher education

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**

Teachers do not show interest and engagement with such curriculum

Program stand-alone with little ownership of schools/teachers

Second generation program

Curriculum pertains to regular school subjects - Mathematics, Science, Social Science, Languages and is **able to engage the teacher**

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

Curriculum integrates ICTs with core education

Moving from first to second generation models – ICTs for Teacher education

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 – focus on TE

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, translator
- *digital tools* like video camera (with video editing software)
- **Teachers teach/train one another**

Moving from first to second generation models – ICTs for Teacher education

Public domain essential

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

Moving from first to second generation models – ICTs for Teacher education

Public domain essential

The real power of ICTs is in creating this environment supporting

'**constructionism**' (enabling teachers to co-create curricular resources)

and

social constructivism (connecting teachers into a learning community)

Promoting the 'digital public' is essential to create an environment of sharing and co-construction, moving teachers from being consumers of TE to collaborators

Impact/Outcome

New TE model which has high ownership and engagement, where TE is need based, self directed, collaborative/peer based, mentored and continuous, linking TE institutions to the school site

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

Its already here

IT@Schools Kerala

USRN (Delhi),

Subject Teacher Forum DSERT/RMSA (Karnataka)

are examples of **Second generation programs** in schools.

Teachers co-create resources using a variety of digital tools

Teachers connect to one another and to teacher educators on a continuous basis for sharing and learning on virtual networks (that complement physical networks)

Two related ideas

TE Management

Use of ICTs to record individual learning needs

To record in a structured manner, training needs, trainings participated in, a structure of training possibilities/needs

Is very possible to do (has been done in corporates for decades now)

Support cafeteria models of TE

Teachers seek training than supply based models

Teacher at centre of the training process, not a end-receiver

Institutional Development (DIET)

Institutional memory (learning and evolution requires memory and its development/use)

Institutional planning and monitoring

Enable complementing approaches of teacher development and institutional development

Moving from first to second generation models – ICTs for Teacher education

Way forward

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

NCF TE and RTE requirements relating to teacher professional development can **only** be met building on second generation ICT programs

Integrate the ICT@Schools program for TE

Nation wide program to leverage investments in ICT programs in school education to address key issues in TE

In-service program on lines of 'Subject Teacher Forum'

Pre-Service – integrate digital tools and methods into curriculum

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

Moving from first to second generation models – ICTs for Teacher education

Way forward

To look at DIETs have computers, but use is sporadic and lab as such is dysfunctional

12 Finance Commission – 20 computer lab in each DIET and CTE

Need a lab attendant to manage infrastructure

Digital infrastructure fragile, needs maintenance budgets (10 - 15% of investment)

Use lab regularly for TE programs (link regular TE programs to digital support)

Also need to look at computer+internet as a basic learning device for every teacher

Interest free loans/advances

Inexpensive net-books (1 Kg, 12-15K, power backup upto 11 hours)

Public software (Linux is virus free and will reduce maintenance efforts)

Real challenge – demonstrate pedagogical/professional development value to teachers for ownership and use

(Kerala has done this last year)

Moving from first to second generation models – ICTs for Teacher education

- Thank You
- Gurumurthy Kasinathan
- 9845437730
- Public Software Centre (www.Public-Software.in)
 - IT for Change (www.ITforChange.net)
 -
 - Teachers Portals
 - [Http://RMSA.KarnatakaEducation.org.in](http://RMSA.KarnatakaEducation.org.in)
 - Www.KarnatakaEducation.org.in
 - [Http://Bangalore.KarnatakaEducation.org.in](http://Bangalore.KarnatakaEducation.org.in)
 - Www.ElEdu.net
 - Www.ITschool@gov.in

Moving from first to second generation models – ICTs for Teacher education