

Social Capital and the Network Effect: Implications of China's eLearning & Rural ICT Initiatives

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The “C” in ICT

- Put equal emphasis on the I and the C in ICT
- Recognize the historical, conceptual and operational affinities between information technology/science and communication science.
- Offer computer science, information systems and development communication programs under one Faculty
- Specialize in ICT4D
- Research focus: social capital, critical mass formation through networking

Social Capital

- Distinguished from financial capital, resource capital and intellectual capital
- Capacity of groups to work together for the common good (Montgomery, 1998)
- Ability to draw on relationships with others especially on the basis of trust and reciprocity (HDR, 1998)
- Sociological. Trust, reciprocity and mutuality that are inherent in social relationships (Cox, 1996)
- Economic. Institutional dimension of transactions, markets and contracts (Robinson & Hanson, 1995)
- Communicational. The value obtained in social and institutional networking

The economies of networking are gradually replacing the economies of scale.

- Meheroo Jussawala, 1989

The Network Effect

- Otherwise known as Metcalfe's Law, after the head of the Ethernet development team
- Total value of a network where each node can reach every other node grows with the square of the number of nodes.
- Hypothetical Scenario
 - Your office has 5 Pentium IV PCs not networked
 - Once you install a LAN, Network Value (NV) of your resources increases exponentially, i.e.,
 - $NV = V^2NV = 5^2, NV = 25$ units

Reed's Law

- David Reed applied Metcalf's Law to social networks and arrived at similar conclusions.
- Social capital increases exponentially through Internet connectivity
 - Allows individuals to cross easily between social networks
 - Provides “doors” between online community infrastructures
- Team of 5 project officers individually generate development assistance projects worth \$10,000 each:
 - Total Project Portfolio (V) \$50,000
 - When linked via LAN, Network Value (NV) of projects that can be developed by team increases exponentially, i.e., $NV = V^2$, $NV = 50,000^2$
 - $NV = \$2.5B$

Questions:

What are the conditions for sustained collective action for the public good?

When does a development intervention assume a life of its own?

Answer:

When its exponents reach a critical mass.

Question:

When is a critical mass reached?

Critical Mass Theory

- In physics, critical mass is that amount of radioactive material necessary to produce nuclear fission
- Developed by Oliver, Marwell & Teixeira (1985)
- Applied to Interactive Media by Markus (1987)
- Sustained collective action is achieved when a core of members (10 to 15 %) within a group engages in mutually reinforcing reciprocal behavior for the public good.

Asian Examples of Critical Mass Formation

- Spread of Mobile phones
- Popular Culture
 - F4 Phenomenon
 - “Cool” replacing “Hao” in China
 - Korean “Winter Sonata” Soap Opera
- Shift to digital teaching by CABTS Instructional Staff



China

- The world's biggest nation
- Asia's most powerful country
- Population 1.25 B
- Rural dwellers account for 78 % of population



Chinese Agriculture

- Main source of livelihood in the rural areas
- Accounts for a substantive portion of the GNP
- Diverse and technology driven
- Has reached less than half of its potential because of poor education (FAO, 2001)



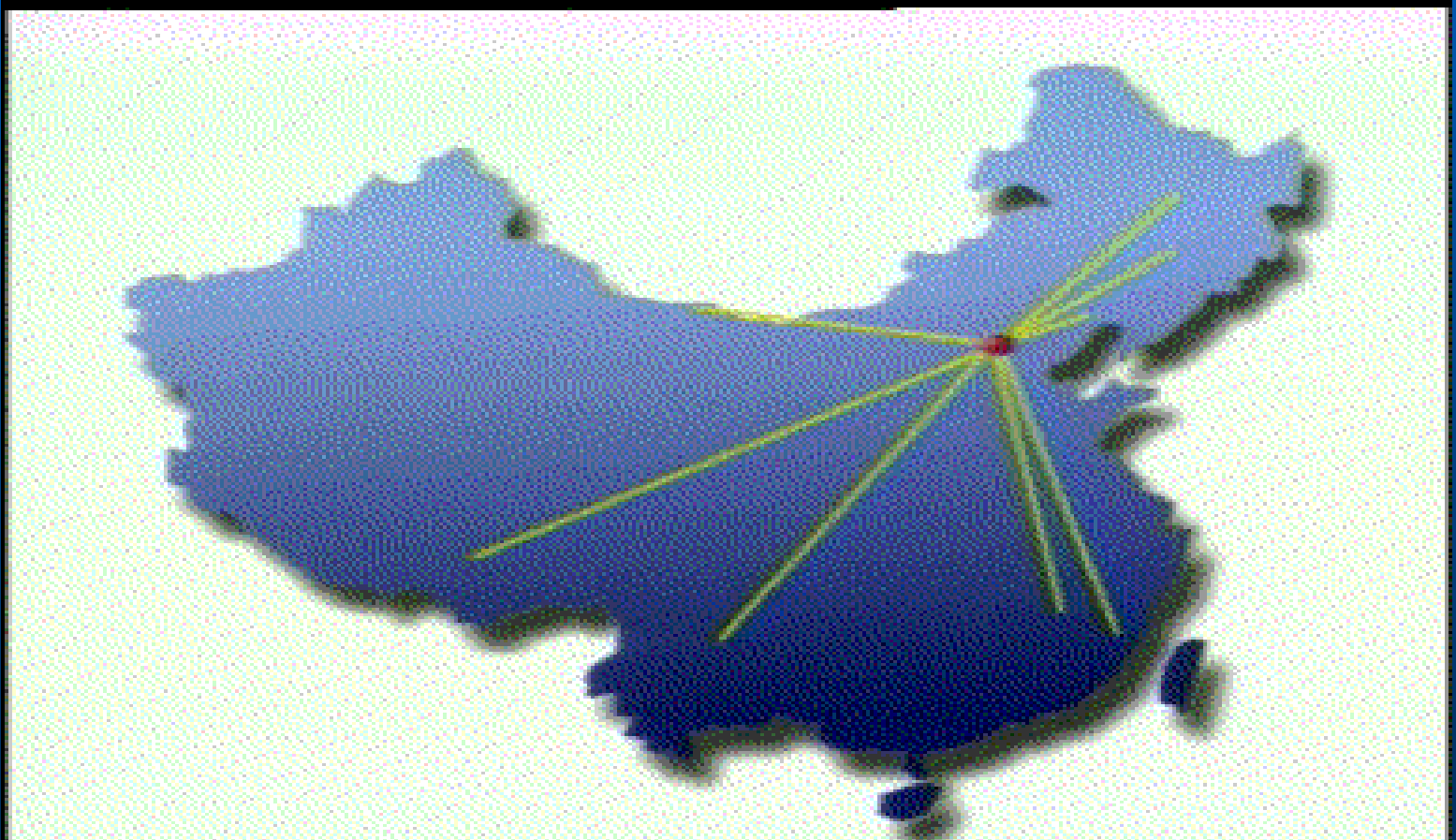
Central Agricultural Broadcasting and Television School in China

- Established in 1980
- Mandated to provide education and training to enhance agricultural production
- Target audiences are farmers, rural youth, rural women, leaders of rural communities and agricultural extensionists
- Called the “cradle of competent farmers”
- Now the **world's largest** educational establishment for agriculture and development

CABTS Network

- Central Agriculture Broadcasting and Television School (1)
- Provincial Schools (38)
- Prefecture Schools (330)
- County Schools (2408)
- Township Training Centers (23,000)
- Virtual Classrooms (50)
- Administrators (2,750)
- Staff (45,107)
- Students (900,000/ yr)

CABTS Network



CABTS Network

- **Red Hub:** Central Agriculture Broadcasting and Television School (1)
- **Blue Hubs:** Provincial Schools (38)
- **Green Hubs:** Prefecture Schools (330)
- **Orange Hubs:** County Schools (2408)
- **Yellow Nodes:** Township Training Centers (23,000)

Developments

- CABTS is migrating from traditional educational broadcasting to online teaching and learning
 - multimedia & video conferencing over IP
 - bulletin board and discussion groups
- CABTS takes advantage of telecoms and computing infrastructure for institutions in rural China
 - employs broadband and wireless technologies
 - makes use of noncommercial Internet backbone
 - increase virtual classrooms from 50 to 2000
- In a position to tap the social potential of interconnectivity
- Can serve as a model for social capital formation and learner mobilization through distance instruction.

Ideal Conditions for Social Capital and Critical Mass Formation

- China's history of collective action
- Strong centralized social structures and norms supporting these structures
- CABTS Network
- CABTS Online Learning Network
- Migration to online learning
- Appropriate subject matter
- The numbers and (soon) the critical mass

ISSUES

- Connectivity
- Content
- Service Package
- Sustainability
 - Technical Sustainability
 - Institutional/Organizational Sustainability
 - Financial Sustainability
 - Socio-Cultural Acceptability

If Reed is right, then...

- Social capital among farmers' groups in China would increase exponentially
- A critical mass of farmer-learners will be formed to spearhead productivity not only in China but for the rest of Asia
- China's agricultural productivity would increase dramatically
- Social capital formation becomes a legitimate preoccupation for nonformal elearning programs