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# Innovative Information and Communication Technology in Education and Its Potential for Reducing Poverty in the Asia and Pacific Region: Flyer “**Critical Conditions and Drivers of Effective ICT Integration in Classroom Teaching**” (Financed by the Poverty Reduction Cooperation Fund, Asian Development Bank)

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## Critical Conditions and Drivers of Effective ICT Integration in Classroom Teaching

The Asian Development Bank (ADB) funded an investigation of the effective use of information and communication technology (ICT) in education in rural areas of Bangladesh, Nepal, Mongolia, and Samoa. In these areas, the multidimensional elements of poverty diminish access to and the quality of education for the poorest people. The study assessed the potential for ICT, combined with training, to improve these education factors for people whose educational opportunities are severely limited.

The study—Innovative Information and Communication Technology in Education and Its Potential for Reducing Poverty in the Asia and Pacific Region—was carried out as Regional Technical Assistance. It trained teachers and education leaders on the effective use of ICT-based teaching and learning resources in formal and non-formal learning environments and gathered data on the effects of ICT on learning and the conditions that support its successful integration in classrooms.

The study was conducted by a team of international and national consultants from RTI International and iEARN-USA during April 2006–September 2007.

To identify effects of ICT on teaching and learning, the study compared data on indicators of teaching quality and ICT integration between implementation and control schools in Mongolia, and analyzed information from school technology case studies in Samoa. Countries were chosen based on specific geographic and social aspects to provide country context perspective for the region. In Samoa, this context was its location as an island country with a small population. In Mongolia, context was related to a small population inhabiting a vast and remote land mass. These aspects strongly influence the role and format of ICT use in addressing education and poverty challenges. Research

in both countries and the literature led to the identification of a set of conditions and drivers associated with effective ICT integration at teacher, school, and national levels. Lessons learned on ICT in education have been identified in other projects and study efforts in the region; however, no systematic approach to cataloging drivers of effective ICT integration into classroom teaching had been done before this study. A summary of the study's findings on conditions and drivers is provided below.

### Critical Conditions of Effective Integration of ICT into Schools and Classrooms

- Align ICT initiatives with national and school-level education development objectives
- Generate stakeholder buy-in and local ownership
- Consolidate the ICT environment and related content with education development objectives
- Re-focus professional development on innovating instruction and the relationship between pedagogy, curriculum, and technology
- Enhance access to appropriate ICT equipment, informed by pedagogical objectives
- Model total cost of ICT ownership (short- and longer term financial needs, including funds for training, equipment upgrading, servicing and maintenance, and related labor) at school level
- Consider both financial and institutional sustainability of ICT integration
- Design policies and strategies that nurture effective integration of ICT at school and national levels
- Leverage community access and awareness building to support ICT integration
- Promote system support of innovative schools and teachers
- Engage the private sector to drive ICT development



### Drivers of effective integration of ICT into classroom teaching—Teachers

- Motivation to change and learn
- Advanced methodological skills
- Ability to translate theoretical instructional models into active student-centered teaching practices

*(continued)*

- Encouragement and support for innovation by school management
- Basic computer skills and positive attitude toward ICT
- Confidence to use technology in didactically appropriate ways
- Ongoing access to resources, guidance, and models for instructional ICT integration
- Capacity to develop locally appropriate content
- Flexibility in the allocation of some curriculum hours and topics
- Ongoing pedagogical support from colleagues and school management
- Alignment between student assessment, instructional practice, and teacher evaluation
- Incentives for professional development and innovation
- Integrated, ongoing professional development

### Drivers of effective integration of ICT into classroom teaching—*Schools*

- Electricity during school hours
- Access to functioning equipment appropriate for educational objectives
- Availability of locally appropriate content, suitable and easy to integrate with curriculum and instructional practice
- Policies on teacher ICT competencies and strategies and planning for professional development and follow up
- Incentive structures for teacher innovation and engagement that align with policies and teacher evaluation practices
- School management with experience in whole-school reform
- School management with the ability for strategic planning and financial management
- Participatory planning and decision making for ICT
- Explicit use of ICT to achieve school development goals (organizational and financial integration)
- Opportunities for regular collaboration among teachers
- Opportunities for exchange with other schools
- A critical mass of champion teachers who promote ICT integration and lead exploration of innovative practices
- Pedagogical leadership and follow up by school management

### Drivers of effective integration of ICT into classroom teaching—*Systems*

- Flexible elements in formal education system (e.g., some portion of the curriculum hours)
- Alignment of ICT in education policies with national education development strategies (on all levels)
- Ownership and awareness by regional and national government agencies
- Consultations and forums for teachers and school managers at the regional level
- Certain flexibilities in utilization of school budgets and funds
- System level support, starting at school level, by regional government and national level
- Well documented pilot experiences that provide the anchor for future initiatives
- Information-based decision making regarding the role of ICT in education

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