

SECTION 1 OVERVIEW

Information and Communications Technologies (ICTs) will not make a bad teacher professional development program better. The use of technology can, in fact, make TPD programs worse. When refurbished computers cannot run required software applications, or poor telephone lines don't support Internet connections, teachers and students waste time, grow frustrated, and abandon new practices to return to familiar ones. When an educational television program demonstrates new teaching methods without showing how they can work in one-teacher schools, teachers in those schools watch the program but tune out the message.

That said, ICTs have had tremendous impact on TPD in countries around the world. Successful projects, in combination with decades of education research on student learning, teacher development, and school change, have generated a body of relevant knowledge and best practices. Success can be achieved—but only by untangling the complex set of critical factors, and by leveraging previous successes to minimize risk and strengthen project designs.

This handbook is intended to help decision makers in developing-country governments and donor agencies in their efforts to combine ICT and TPD. To the extent possible in a brief work, the handbook combines a global perspective—including information about best practices and successful projects—with attention to the challenges faced by education policymakers, teachers, and students in Less Developed Countries (LDCs) and countries attempting to meet the goals of Education for All (EFA).

This handbook will help decision makers improve their abilities to:

- Understand the complex relationships between ICT use, professional learning, types of TPD and classroom implementation so as to aid the development of requests for proposals (RFPs)
- Recognize best practices and essential supports in the use of ICTs for TPD in order to evaluate proposals of national, regional, and local scale
- Propose ways of using ICTs to support TPD that can achieve specific objectives in relation to educational improvement
- Identify cost considerations, potential partnerships, evaluation requirements and other factors essential to the planning of effective ICT-enabled TPD
- Communicate effectively with researchers, representatives of NGOs, policymakers, donor-agency personnel, and others about the roles played by TPD and ICT in educational reform

To make effective decisions in regard to TPD, policymakers must be aware of relevant issues; know the characteristics of effective professional development; and understand how ICT can support those characteristics. In LDCs, policymakers must also understand the potential benefits and challenges of ICT-supported TPD in the context of schools that lack adequate classrooms, textbooks, and electricity, and in which teachers face fundamental challenges. When a teacher lacks mastery of the language of instruction, how can ICT help? If a teacher's development of new skills competes with or undermines her role as a mother, or a farmer, how can TPD be effective?

LITERATURE REVIEW, CASE STUDIES AND THE DELPHI PROCESS

The development of this handbook has drawn on several rich sources of information:

The first source of information is an extensive literature review of such topics as TPD and the use of ICT for TPD programs in developing and developed nations, and effective uses of ICT for school improvement. These resources are assembled in the References section of this handbook.

The second source is field-based case-study research specifically focused on the uses of ICT in relation to TPD, conducted in Guinea and Namibia. The focus in Namibia is on comprehensive efforts to integrate computers and the Internet, while the focus in Guinea is on development of educational radio programs for primary students and teachers.

Additional information is based on the authors' own expertise in the areas of international development, education, ICT planning and evaluation, TPD, and curriculum development; and their experience as teachers and trainers using ICT, within such developing country contexts as Uganda, Rwanda, Mexico, Tajikistan, and other countries.

Finally, the handbook draws on the experiences of 26 internationally renowned experts in TPD, ICTs, and development education, who participated in a Delphi process¹ through which they assessed the current state of ICT use in relation to TPD and developed a rough consensus as to future challenges and opportunities. These Delphi participants offered responses to questions, critiqued statements of other Delphi participants, and ranked various predictions regarding program design, implementation, and technologies.

THREE APPROACHES TO ICTS AND TPD

The combination of ICTs and TPD has given rise to a wide range of approaches—from radio programming that “walks” teachers through lessons alongside their students, to the use of computer-aided instruction to improve teachers' math skills, to teachers videotaping each other in action in their classrooms.

The many uses of technology in relation to TPD can be grouped in three categories:

- **A delivery system** providing teachers with information to improve pedagogy and content mastery
- **A focus of study** that develops teachers' abilities to use specific tools, such as computers
- **A catalyst for new forms of teaching and learning**, such as inquiry-based learning, collaborative learning, and other forms of learner-centered pedagogy

This handbook presents information about these approaches with the expectation that decision makers will choose “points of entry” appropriate to the capacities, resources, and weaknesses of their school systems. Concrete examples from LDCs and other developing countries, along with research-derived best practices, are presented with the hope that policymakers will choose goals that ensure that the transformation of learning in the poorest schools will become a source of opportunity for the children in their countries.

HOW TO USE THIS HANDBOOK

Using Technology to Train Teachers is a reference tool and guide for decision makers with *existing* ICT-supported projects in education and for those decision makers who are *planning* new projects.

¹ For additional information about the history and characteristics of the Delphi process, refer to *The Delphi Method: Techniques and applications*, edited by Harold Linstone and Murray Turoff (2002, New Jersey Institute of Technology, <http://www.is.njit.edu/pubs/delphibook/>), originally published in 1975.

The handbook includes the following sections:

- **Section 1: Overview**
Goals and objectives of the handbook; overview of sections; key points in the use of ICTs for TPD; schematic of ICT for TPD planning process; best practices in TPD
- **Section 2: ICTs for Teacher Professional Development at a Glance**
Roles of ICT in TPD and education; strengths, limitations, and cost considerations for key technologies used to support TPD
- **Section 3: Models and Best Practices in Teacher Professional Development**
Major models of TPD—standardized, site-based, and self-directed
- **Section 4: Technologies for Teacher Professional Development—Computers and the Internet**
Strengths, limitations, and costs; profiles of successful programs; planning for large-scale implementations
- **Section 5: Technologies for Teacher Professional Development—Radio**
Strengths, limitations and costs; profiles of successful programs
- **Section 6: Technologies for Teacher Professional Development—Television**
Strengths, limitations and costs; profiles of projects in Mexico and Brazil
- **Section 7: Technologies for Teacher Professional Development—Video Recording and Playback**
Strengths, limitations and costs of using audio and video recording tools in schools; ideas for implementation
- **Section 8: Online Distance Learning for Teacher Professional Development**
Strengths, limitations, and costs; online learning vs. face-to-face learning; profiles of successful programs
- **Section 9: Implementing ICT-supported Teacher Professional Development**
Supporting TPD and ICT use in schools, including teacher scheduling, incentives and school leadership
- **Section 10: Effective Partnerships for ICT-supported Teacher Professional Development**
Ways in which governmental, civil-society, and private-sector organizations can ensure the success of TPD projects
- **Section 11: Evaluation of ICT-supported Teacher Professional Development**
Essential terms and concepts in monitoring and evaluation; checklist for evaluation planning
- **Postscript: Making ICT Projects Work**
Eight guidelines to increase the likelihood of success for all ICT projects in education
- **Glossary**

Readers should adopt different approaches to the information in this handbook based on whether their goals are to improve existing projects or to plan new ones.

To improve existing ICT projects in education:

- Read *Section 3: Models and Best Practices in TPD* to learn how to improve TPD initiatives and how to use TPD to strengthen educational outcomes.
- Refer to the sections addressing tools that are used in your project (radio, television, video, computers and the Internet, online TPD).
- Read *Section 9: Implementing ICT-supported TPD*, *Section 10: Effective Partnerships for ICT-supported TPD*, and *Section 11: Evaluation of ICT-supported TPD* to identify ways to increase support for your TPD project.

To plan new ICT-supported TPD Projects:

- Review the tables and other information in *Section 2: ICTs for TPD at a Glance* to determine which technologies are likely to offer effective support.
- Read *Section 3: Models and Best Practices in TPD* to determine the TPD methods that are most appropriate for your needs, objectives, and educational context
- Refer to *Section 9: Implementing ICT-supported TPD*, *Section 10: Effective Partnerships for ICT-supported TPD*, and *Section 11: Evaluation of ICT-supported TPD* at appropriate points in your planning process.

Note that the tables in *Section 2: ICTs for TPD at a Glance* are reproduced at the end of the sections addressing specific technologies. For example, the table on radio in *Section 2* also appears at the end of *Section 5: Technologies for Teacher Professional Development—Radio*.

Section Features

As appropriate, sections include the following aids to reading, planning, and decision-making:

- *Guiding Questions* to be considered throughout your reading.
- *Section Summaries* identifying key points
- *Questions for Further Discussion* that address planning and policy issues raised during profiles of specific projects.
- *Consider Using [Specific Technology] to Support TPD When...*
Suggested pre-conditions for deployment, including TPD objectives, infrastructure, teachers' capacities, and other criteria.
- *Web Resources* are provided where possible, to help policymakers obtain additional information on the topic discussed

Implementation Briefs

- A set of practical detailed information are presented in a series of *Implementation Briefs* to help practitioners successfully implement ICT-embedded teacher professional development programs

Basic, Intermediate and Advanced Teaching Skills

Throughout this handbook, discussion of appropriate TPD models and supporting technologies distinguishes between teachers with *basic*, *intermediate*, and *advanced* skills as educators.

Teachers with **basic skills** are able to:

- Speak, read, write, and teach with fluency in the national language
- Perform basic arithmetic
- Teach basic language and arithmetic skills using traditional lectures and testing

Teachers with **intermediate skills** have basic skills, and are also able to:

- Understand and teach their subject matter at a basic level in the national language
- Plan their courses to meet national or local standards
- Understand the basics of how children learn
- Adopt teaching methods appropriate to their students' abilities and learning styles

Teachers with **advanced skills** have intermediate skills, and are also able to:

- Teach their subject matter with ease and make relevant connections to other subjects and to daily life
- Develop course outlines, lectures, and instructional materials
- Identify resources to update their knowledge of the subjects they teach
- Build on students' prior knowledge and experience
- Teach students how to analyze and solve problems
- Teach their subject using multiple tools and resources
- Understand and use a variety of instructional strategies, including traditional lectures, project-based learning, inquiry-based learning, and collaborative activities
- Use ongoing assessment to identify and address student weaknesses

TPD program goals must be based in part on teachers' needs and capacities. Choosing models and technologies for TPD must also reflect these conditions. Refer to these guidelines as necessary to categorize the skill levels of specific groups of teachers.