

SECTION 11

EVALUATION OF ICT-SUPPORTED TEACHER PROFESSIONAL DEVELOPMENT

GUIDING QUESTIONS

- Which ICT-supported initiatives include teacher professional development? How can their evaluation be enhanced to build understanding of teachers' needs, barriers to success, and effective approaches?
- Which initiatives have plans in place for impact evaluation? How can these plans be leveraged to strengthen capacity for project evaluation?
- What will be done with the results of these evaluations?

IN THIS SECTION

- Key Concepts in Project Evaluation
- Monitoring and Evaluation Defined
- Evaluation Concepts
- Evaluation as Part of a TPD Plan
- Creating and Conducting Evaluations
- Formative Evaluation and IRI
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SUMMARY

Many TPD projects achieve limited impact because specific barriers to success—including factors influencing teachers' day-to-day activities—are never identified. Many pilot projects do not lead to larger implementations because impact cannot be demonstrated. Therefore, evaluations of project impact are critical so that errors in project implementation and design can be identified and fixed, successes replicated, and progress demonstrated to funding agencies and other stakeholders.

Both *formative* and *summative* evaluations contribute to successful projects. Evaluation designs typically combine *quantitative* and *qualitative* methodologies according to experimental models that help to eliminate “confounding effects,” such as bias in school selection.

Every phase of a project, from planning to implementation, should include an evaluation component. When integrated in this way, evaluation increases the effectiveness of all project phases, from goal setting to outcomes.

KEY CONCEPTS IN PROJECT EVALUATION

The impact of ICT-enabled teacher professional development (TPD) projects is often unknown. Evaluations add expense to project costs. They may be seen as unnecessary or regarded with suspicion, or organizations may lack personnel with evaluation expertise. In many instances, evaluation is limited to post-workshop surveys of teachers or post-tests of student performance.

However, monitoring and evaluation (sometimes known as “M & E”) are critical to success. Monitoring and evaluation processes allow project staff to find and correct errors in implementation, to gauge impact, and to identify factors that lead to success.

Monitoring and Evaluation Defined

Monitoring encompasses supervising and observing activities and reporting on them to responsible individuals. In essence, monitoring answers the question, “What is happening here?”

Evaluation is a method of determining the overall value of an activity. Evaluation answers the question, “Is what is supposed to be happening really happening?” and assesses impact based on pre-defined criteria (outcomes, benefits, cost effectiveness, utility, etc.).

The processes of monitoring and evaluation enable:

- Project staff to review and “diagnose” the project on an ongoing basis (*formative* or *continuous* evaluation)
- Stakeholders and others to judge the project’s overall success (*summative* evaluation)

The distinction between formative and summative evaluation may be understood in relation to cooking. A cook will taste the soup while it is being prepared, perhaps adding salt or another ingredient as a result of that tasting. The cook performs a formative evaluation and makes an adjustment to improve the outcome. When the soup is served, the customer may taste the soup and offer a summative assessment of the cook’s efforts—“Excellent soup!” or “A bit too salty, thank you.”

Formative and summative evaluation processes strengthen projects, enhance TPD outcomes, and help organizations build on their successes to achieve progress.

EVALUATION AS PART OF A TPD PLAN

An evaluation plan should be included *within any professional development plan*, and should enable project planners, implementers and other stakeholders to:

- Establish goals for TPD and align them with standards and measurable classroom-based outcomes
- Determine how outcomes will be measured
- Create activities that are aligned to goals and outcomes
- Select the type of technology that supports TPD goals
- Identify supports to make sure TPD goals are implemented in schools
- Allocate funding to specific project components
- Identify design, organizational, infrastructural and other influences on project sustainability
- Measure the effectiveness of project interventions
- Enable school leaders and teachers to determine whether they are achieving their goals and help them adjust practices to meet those goals

EVALUATION CONCEPTS

An **evaluation design** is the structure that organizes all of the major parts of the evaluation—data, samples, data-collection procedures, data analysis techniques—to answer evaluation questions. Evaluation designs can be experimental or quasi-experimental.

Quantitative methodology uses numerical data and typically answers the question, “How much?” or “How often?” It employs data analysis that relies on statistical procedures. Quantitative methodologies are good for gathering broad information on large-scale projects.

Qualitative methodology uses narrative, non-numerical data, such as observations, interviews, and discursive information. A qualitative approach holds that meaning is situated within particular situations and contexts. Qualitative methodologies are good for gathering in-depth information on smaller-scale projects.

An **experimental design** is one in which participants are randomly assigned to treatment and control groups. Experimental designs are considered most rigorous because they can minimize confounding effects of other variables through random selection.

A **quasi-experimental design** uses many, though not all, of the characteristics of an experimental design. For example, quasi-experimental designs use comparison groups versus randomized groups.

CREATING AND CONDUCTING EVALUATIONS

Evaluation should be developed and conducted by specialists in project evaluation who understand the technologies involved and the educational context in which the project takes place, including factors such as teacher capacities, curricula and student demographics. Evaluators should also understand factors arising from economic, cultural, infrastructural, and other conditions.

Quantitative methods involve collecting numerical data that can be compiled arithmetically and analyzed by statistical processes. Instruments used to collect quantitative data include:

- **Pre-and post-tests**
Tests administered to teachers or students before and after an intervention to determine differences in knowledge and skills
- **Surveys**
Series of questions that generate information or opinions to be analyzed
- **Classroom observations**
Quantitatively focused observations that involve “scoring” or coding classroom interactions
- **Exams**
Scores on national or standards-based exams aligned to TPD outcomes
- **Cost-benefit measures**
Analyses of cost-benefit relationships, cost per teacher trained, input-output relationships, program audits, etc.
- **Performance-based assessments**
Measures of student or teacher competency through performance of particular tasks as opposed to a test or exam
- **Other data**
Student completion rates, teacher retention rates, demographic data, etc.

Qualitative methods involve gathering data from interviews, writing samples, and other sources that require analysis through interpretation and inference. Examples of instruments used to collect qualitative data include:

- **Interviews**
Structured questioning, typically with one person
- **Focus groups**
Group interviews or guided discussions
- **Case studies**
In-depth studies of an individual example—a teacher, a school, a project—that enable rich analysis and description of a particular situation
- **Authentic and performance-based assessments**
Portfolios of student work, teacher lesson plans, etc.
- **Other data**
Observations, holistic examinations of student work, classroom walkthroughs, etc.

FORMATIVE EVALUATION AND IRI

IRI owes much of its success to the practice of continual formative evaluation. IRI programs are evaluated throughout the life cycle of the IRI project to gauge student interest, participation levels, and skills development. Evaluation occurs in part through the process of audience research during piloting phases, and through periodic interviews, observations and surveys after the program is launched. Where problems are found, they are corrected. Evaluation of IRI makes the programs responsive to student and teacher needs.

KEY STEPS IN EVALUATING PROJECTS

Many steps in the evaluation process are essential if evaluation is to meet internationally recognized standards and generate usable results. These steps include:

- Identify the goals and intended outcomes of the TPD project

- Identify the purpose of the evaluation
- Identify resources (including cost, personnel, materials and a timeline)
- Formulate evaluation questions and prioritize them
- Determine the evaluation methodology, design, and instruments that will provide answers to these questions
- Select evaluation treatment samples (e.g., schools or teachers that will participate in the project) and control samples (e.g., other schools or teachers)
- Field test the evaluation instruments
- Establish baseline data (e.g., information about conditions before the project starts)
- Collect data
- Compile and analyze data (data should be “cleaned” to be sure all responses are complete and clear)
- Document and report findings
- Make project adjustments based on evaluation results
- Continue to monitor, evaluate, analyze, document, report and adjust

ADDITIONAL SUGGESTIONS

- Evaluation should take place over time, and may extend beyond the life of a specific project. Some effects are *proximal* and can be measured soon after TPD (e.g., teacher use of radio for instruction). Some effects are *distal*—indirect effects that cannot be measured in the short term (e.g., teachers’ sense of pride or happiness as a result of being able to create a web page). Behavioral and attitudinal changes, in particular, can take years to accomplish and are even harder to evaluate. Alternatively, initial impact can be superficial and short lived. Depending on project goals, evaluation should be planned to capture all relevant outcomes.
- Design is critical to evaluation. Too often evaluations rely on information collected after an intervention has occurred. When an evaluation strives to show causality, experimental design, including randomization of samples, should be used. Consider establishing system-wide standards for evaluations (e.g., desired designs, reporting mechanisms, costs for evaluation, criteria for hiring evaluators and optimal skills sets for evaluators).
- Proving a direct link between variables can be difficult because of *confounding* relationships. For example, linking improved teacher performance to Internet access could be impossible if all teachers included in the evaluation have also participated in TPD. To *control* for the confounding effect of TPD in this instance, researchers might include three groups of teachers: those with Internet access who have not participated in TPD, those who have participated in TPD without Internet access, and those who have had both TPD and Internet access.
- Triangulate methodologies. Where appropriate, use mixtures of quantitative and qualitative design. This approach gives a clearer picture of what is really happening and what it means.
- Evaluation must be governed by impeccable ethics. Evaluation should never be considered as part of public relations or funding development. Evaluators should be competent, knowledgeable, and have no vested interest in a project’s success. Evaluators should be allowed to operate without political interference. The whole process of evaluation must be transparent.

WEB RESOURCES

- *Monitoring and Evaluation of ICT in Education Projects: A Handbook for Developing Countries*
This short handbook from *infoDev* provides guidance for policymakers struggling with two key issues: What is the impact on student achievement of introducing ICTs in educational settings in developing countries? How should this impact be measured, and what are the related issues, especially as they relate to Education For All and other Millennium Development Goals?
<http://www.infodev.org/en/Publication.9.html>
- *Handbook on Monitoring and Evaluation for results (UNDP)*
This free monitoring and evaluation handbook from the United Nations Development Program is

available in French, Spanish and English.

<http://stone.undp.org/undpweb/eo/evalnet/docstore3/yellowbook/>

■ *ELDIS Participatory Monitoring and Evaluation*

This resource guide on participatory monitoring and evaluation promotes the involvement of a wide range of stakeholders, employing methods that allow a more equal opportunity for the expression of views and sharing of lessons.

<http://www.eldis.org/participation/pme/>