Evidence of Impact

Strategic Indicators

Outcomes-Based Evaluation of the Intel® Education Programs

To focus evaluation on the primary goals of the Intel® Education programs, a cross-program indicators model was developed from established program goals as well as outcomes discovered through evaluation efforts. As a result, the model currently illustrates primary outcomes in a way that enables these outcomes to be measured or observed. This framework enables international evaluation teams to utilize tools and protocols that directly address these primary indicators and answer relevant questions about program performance.

Which program effects are primary indicators, and why is focusing on primary indicators crucial to the usefulness of the results? The two most important goals of focusing program evaluation are to:

- Optimize available evaluation resources
- Ensure that claims about program effects are reflective of the collected data and not beyond what the data can demonstrate

For example, given unlimited resources, it would be possible to carry out rigorous experimentation to capture whether and how a single teacher professional development program actually affected student scores on standardized tests in all subjects.

One might imagine such an experimental design including control groups of students who differ from the experimental groups only in the fact that their teachers did not have the benefit of the training. Such a design might ensure that the many other variables in the school environment, many of which would have much more direct effects on student test achievement than the professional development program, would not confound the results. However, the required investments in staff, time, and money in addition to a variety of logistical factors encountered in school environments result in significant challenges in gathering such rigorous evidence.

Therefore, the focus on primary indicators enables the international evaluation teams to target the key outcomes using effective quasi-experimental designs, taking into account reasonable logistical limitations. These designs, which actually represent a significant investment as well as a commitment to evaluation standards, include such tools and methods as participant surveys, site observations, interviews, case studies, focus groups, and reviews of student work when applicable.

Read the evaluation standards that the international Intel evaluation teams follow to ensure quality in their research efforts.

The Strategic Indicators Model

As you review the strategic indicators model provided below, which at present includes only the Intel® Learn Program and the Intel® Teach Essentials Course, notice that the primary indicators are identified.

Currently, work is being done to identify the secondary indicators. For example, in the Intel Teach Essentials Course, individual students whose teachers have taken the Essentials Course are not tracked or studied, however, the participating teachers report changing practices in the classroom as a result of the program. This must mean that their students are exposed to a greater degree of project-based activities and collaborative work. In addition, the inclusion of secondary indicators acknowledges that in teaching the Intel Learn program, teachers are often influenced to adopt some of the 21st century pedagogical strategies modeled in the curriculum.

Cross-Program Strategic Indicators

	Intel® Learn	Intel® Teach Essentials Course
Pedagogy and Planning		
Lesson Planning		Primary
Assessment		Primary
Instructional Strategies		Primary
Classroom Environment		
Implementation of Program Curriculum	Primary	
Scope and Depth of Use of Resources Available	Primary	Primary
Technology Use		
Technical Skills		Primary
Supporting Teachers' Work		Primary
Supporting Student Work	Primary	Primary
Higher-Order Thinking Skills		
Access and Manage Information	Primary	
Pose and Solve Problems	Primary	
Analyze and Interpret Evidence	Primary	
Activities		
Sustained Activity Toward Larger Goals and Questions	Primary	
Working Collaboratively	Primary	
Communicating Ideas and Knowledge	Primary	
Motivated Participation	Primary	
Technology Use		
Technical Skills	Primary	
Matching Technology Tools to Needs	Primary	

Intel® Teach Program – Essentials Course: Lesson Planning

Identifying Characteristics:

- Teachers frame learning around driving questions.
- Projects develop over time and learning activities build toward a common learning goal. (They are interconnected.)

BACK TO INDICATORS MODEL

Intel® Teach Program – Essentials Course:
Assessment

Identifying Characteristics:

- Teachers use holistic assessment strategies.
- Teachers assess knowledge beyond *information retrieval* (such as the ability to apply knowledge to problems, draw conclusions, and analyze relationships).
- Assessment criteria are shared with students.

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BACK TO INDICATORS MODEL

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Intel® Teach Program – Essentials Course:
Instructional Strategies

Identifying Characteristics:

- Teachers use questions to guide student work and student thinking.
- Teachers use multiple resources (not only textbooks).
- Teachers use grouping strategies.
- Teachers engage students in working cooperatively.
- Students make decisions about topics/resources.

**BACK TO
INDICATORS MODEL**

Intel® Teach Program – Essentials Course:
Scope and Depth of Use of Available Resources

Identifying Characteristics:

- The environment is as rich as is locally possible, and students are given the opportunity to make active use of available resources.

**BACK TO
INDICATORS MODEL**

Intel® Teach Program – Essentials Course:
Technical Skills

Identifying Characteristics:

- Teachers are able to use the basic features of Microsoft Word*, Microsoft Excel*, Microsoft Publisher*, and Microsoft PowerPoint* as well as an Internet browser.

**BACK TO
INDICATORS MODEL**

Intel® Teach Program – Essentials Course:
Supporting Teachers' Work

Identifying Characteristics:

- Teachers create support materials, such as resources lists, class rosters, and worksheets using software tools.
- Teachers use the Internet to support curriculum development.

BACK TO INDICATORS MODEL

Intel® Teach Program – Essentials Course:
Supporting Student Work

Identifying Characteristics:

- Teachers are able to guide their students' use of productivity tools.
- Teachers can manage both whole class and rotating use of computers during class time (depending on available resources).
- Teachers assign technology use to support specific components of a learning activity (such as research, writing and revision, or communication).

BACK TO INDICATORS MODEL

Intel® Learn Program:
Instructional Strategies

Identifying Characteristics:

Teachers:

- Provide students time to explore new tools and find answers, encouraging hands-on learning.
- Minimize didactic presentation of material.
- Encourage students to make choices and develop their own ideas.
- Ensure that students use a plan, do, review, and share strategy in developing their work.
- Allow for talk and movement in the classroom.
- Ensure that students collaborate on activities, sharing resources.

BACK TO INDICATORS MODEL

Intel® Learn Program:
Implementation of Program Curriculum

Identifying Characteristics:

Teachers:

- Provide students the opportunity to undertake the activities and processes specified in the curriculum.

- Create an environment where students can ask one another questions and share goals, strategies, and ideas while they work.

- Help students ensure that all members of the group are active participants in group activities.

- Use the curriculum to its fullest, taking advantage of the ideas, activities, and guidelines it provides.

**BACK TO
INDICATORS MODEL**

Intel® Learn Program:
Scope and Depth of Use of Resources Available

Identifying Characteristics:

Teachers:

- Make learning relevant by presenting local examples of pertinent artifacts and other materials.
- Help students draw connections between their work and the particulars of their community (that is, help students see applications to local problems).
- Otherwise adapt the curriculum to their educational circumstances (such as technological and other material resources).

**BACK TO
INDICATORS MODEL**

Intel® Learn Program:
Supporting Student Work

Identifying Characteristics:

Teachers:

- Facilitate students' exploration of new technology tools.
- Support students' use of varied resources (such as peers and the Help Guide) to learn new skills.
- Encourage students in trying new skills for each activity.
- Help students complete a variety of activities in each technology or profession area.

BACK TO INDICATORS MODEL

Intel® Learn Program:
Access and Manage Information

Identifying Characteristics:

Students:

- Access information and ideas in the form of text and graphics relevant to the activities and projects in Intel Learn.

- Present information and ideas in the form of text and graphics relevant to the activities and projects in Intel Learn.

- Demonstrate an understanding of the relevance of the information to the types of artifacts being created.

BACK TO
INDICATORS MODEL

Intel® Learn Program:
Pose and Solve Problems

Identifying Characteristics:

Students:

- Create artifacts that demonstrate an understanding of the purpose the genre of artifacts can serve in the community.
- Create final projects that show an understanding of the problem posed, specify and elaborate a particular problem in relation to the assignment, and present a solution for the problem.

BACK TO
INDICATORS MODEL

Intel® Learn Program:
Analyze and Interpret Evidence

Identifying Characteristics:

- This indicator is evaluated in relation to all the indicators listed above.

**BACK TO
INDICATORS MODEL**

Intel® Learn Program:
Sustained Activity Toward Larger Goals and Questions

Identifying Characteristics:

Students:

- Plan, do, review, and share work in a cycle of revisions.
- Complete a project over multiple sessions.
- Develop questions and extend ideas in the process of reviewing their own work and work of peers.

**BACK TO
INDICATORS MODEL**

Intel® Learn Program:
Working Collaboratively

Identifying Characteristics:

Students:

- Actively participants in group activities.

- Share goals, strategies, and ideas.

- Ask one another questions and help one another as they work on their products.

- Review the work of their group and the work of other groups, giving constructive feedback for improvements and further development.

- Resolve problems or disagreements as they arise.

BACK TO INDICATORS MODEL

Intel® Learn Program:
Communicating Ideas and Knowledge

Identifying Characteristics:

Students:

- Design products to communicate clear messages (ideas and knowledge) for particular purposes in community life.
- Share their ideas and knowledge with their group members as they work on the group products.
- Communicate the ideas and knowledge of their group to the larger class during showcase sessions.

BACK TO INDICATORS MODEL

Intel® Learn Program:
Motivated Participation

Identifying Characteristics:

Students:

- Demonstrate sustained engagement in Intel Learn activities.
- Make connections between Intel Learn activities and other aspects of their lives and communities.

BACK TO
INDICATORS MODEL

Intel® Learn Program:
Technical Skills

Identifying Characteristics:

Students:

- Develop skills in each technology area.
- Use a variety of skills in developing their products.

**BACK TO
INDICATORS MODEL**

Intel® Learn Program:
Matching Technology Tools to Needs

Identifying Characteristics:

Students:

- Identify appropriate technology tools as they work on activities and projects.
- Use technology tools in appropriate and creative ways.

BACK TO
INDICATORS MODEL

Intel® Learn Program:
Use of Multiple Resources

Identifying Characteristics:

- Students combine the use of multiple resources—including technological and physical resources—in appropriate and creative ways to develop their products and presentations.

BACK TO INDICATORS MODEL

Evaluation Standards

Intel's international program evaluation teams adhere to a set of evaluation standards to ensure consistent quality and integrity in their research designs. These standards state that effective evaluation efforts must:

I. Recognize and follow established ethical protocols.

II. Have systematic data collection processes to identify the extent and quality of participant implementation of new techniques in the classroom.

III. Provide concrete analysis of programs to enable the detailed investigation of the effectiveness and impact of the program on:
   - Participants' classroom motivation, engagement, and application
   - Technology skills, higher-order thinking skills, and critical thinking
   - Testing of new roles/interactions in an environment that encourages risk-taking and rewards competence

IV. Provide data to learn how to improve the effectiveness of the program.

V. Include analysis, synthesis, and reports that communicate effectiveness and therefore encourage participating teachers to continue learning and implementing new techniques and encourage nonparticipating teachers to participate.

VI. Provide data that may be used as evidence for an effective curriculum, pedagogy, and processes of classroom interaction that directly influence learning.

VII. Include key stakeholders in planning and identification of desired outcomes.

VIII. Integrate systematic formative and summative evaluation that include adequate research base and quality assurance.

IX. Be understood and supported as an integral element in the project life cycle.

X. Include skilled guidance and collaboration essential to the success of the design, synthesis, and communication of findings.

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