The Framework for Program Evaluation: Implementation Strategy of the Intel Education Initiatives

Jon K. Price, Ph. D.
Intel Corporation
Jon.K.Price@intel.com

Martina Roth
Intel Corporation
Martina.Roth@intel.com

Barbara McAllister
Intel Foundation
Barbara.H.McAllister@intel.com

Abstract: Through a review of evaluation data and reports collected from studies of successful ICT use in schools across 50 countries, the contextual factors regarding how schools can effectively evaluate ICT integration is examined. A meta-analysis of multiple evaluation reports and studies collected will describe Intel®’s process of applying a strategic evaluation design and discuss the systemic factors associated with understanding classroom level change. Application of the CDC Framework for Program Evaluation will be presented as a useful model to transform education, utilizing the components of: 1) Engaging stakeholders, 2) Describing the program, 3) Focusing the evaluation design, 4) Gathering credible evidence, 5) Justifying conclusions, and 6) Ensuring use and dissemination of lessons learned. As a result, overcoming the challenges of creating an evaluation strategy for new programs, the challenges of sustaining programs on a global scale, and the challenges of effectively managing ongoing evaluation efforts are confronted through carefully standardized strategies. By referencing the early design components of the Intel® education initiatives for teacher professional development and informal education programs initiated by the Intel Foundation, this paper will illustrate the challenges and learning associated with monitoring and evaluation of its education initiatives through collaborative efforts of over two dozen agencies worldwide, and present policy recommendations. Transforming education systems and supporting national competitiveness are challenging, long-term endeavors and require a holistic multi-stakeholder approach. On-going, embedded evaluation can inform policies, teaching and learning processes as well as the overall reform efforts that support real change. Likewise, awareness of systematic, replicable methods in establishing a common framework that begins with a vision, clear goals and objectives, implementation strategies and local contextual dependencies is necessary to understand impact.

Introduction

Around the world, conversations are taking place about the challenges facing education systems in transforming the classroom into a teaching and learning environment that presents new ways to explore, learn, and share knowledge. These conversations are increasingly turning to the role of technology in education. Inevitably, these same conversations turn to questions regarding the effectiveness of technology integration and what impact technology plays in the quality of teaching and learning in today’s classroom, as well as the monitoring activities such as assessment and evaluation that are aligned to these initiatives.

For those in the private sector who are involved in the many aspects of education and technology, the questions frequently challenge both the motives for their involvement, the efforts associated with understanding the effectiveness of these efforts, the long term commitment to guarantee sustainability. There is rarely agreement on the roles and methods of such private sector involvement, but there is agreement that, as the demand for high-level
subject based skills and higher order 21st Century skills continue to grow within schools and beyond for future employability, the tasks associated with transforming traditional models of schooling to meet these demands are often hidden within the complex political, social, and educational systems in which they are so deeply embedded. Increasingly, the private sector is establishing partnerships with governments, non-governmental organizations, academia, educators, practitioners and industry to address the challenges associated with the numerous education reform efforts. For multinational corporations, their global presence and needs as employers provides a perspective that can inform agencies intent upon transforming learning environments and learning outcomes in local and global ways. Identification of the activities that support a shift from traditional education systems to the desired innovative and personalized learning environment will require exploration beyond the classroom to include the wide-ranging systemic change of programs, practices, and policies based on the application of a clear theory of change.

The goal of this paper is to discuss an effective strategic evaluation design adopted by the Intel® education initiatives and to help address concerns in designing an evaluation strategy involving large scale education transformation initiatives. By referencing established, yet evolving components of its evaluation design and key findings, the Intel® Teach and Intel® Learn evaluation strategies will be presented. In order to understand the larger, systemic factors associated with understanding classroom level change, an overlay of the CDC Framework for Program Evaluation will be presented as a useful model to transform education.

**Background**

Founded in 1989, the Intel® Foundation is a philanthropic organization focused on programs that advance education and improve communities worldwide. By providing funding for national and localized grants, the foundation helps fuel innovation in classrooms, empowers women and underserved youth, and enables Intel employees to serve the needs of their communities. The goals of the Intel Foundation are to increase interest in math and science education, and to help develop a future workforce that represents the diversity around the world.

It was during the introduction of computers in US classrooms in the early 1990’s when the foundation examined the few teacher professional development programs available to help teachers use this new technology in their efforts to improve student learning, (West, 1990; Yost, et al., 2004). The critical issue at the time was if teachers understood how technology contributed to classroom instruction. As a result, the type of teacher professional development—meaning the methods of teacher-training, the length of that training, and the training content—began to shift beyond hardware and software use to emphasize the instructional purpose of the technology and the impact on education (Makrakis, 1991), as well as the need for an improved quality and nature of teacher-training (Hannifan, et al., 1987).

At that time, U.S. Secretary of Education Richard W. Riley stated in a speech at the National Conference on Education Technology, “Teaching and learning that uses technology effectively can lead to greater academic success and make a real difference in the lives of students.” He also added that, [technology] “…is not a substitute for solid teaching and learning - but a tool to help teachers teach and help students learn at the highest levels and helps teachers teach more effectively. Technology is one part of a comprehensive quality learning experience that, at its very core, involves the concept of teaching people to think and to continue to learn throughout their lifetimes so that they can benefit from change” (Riley, 1999).

To address the need for teacher professional development that moves beyond applications, the Intel® Foundation contracted with the non-profit Institute of Computer Technology in March 1998 to collaborate on content development and to create a program designed to train classroom teachers to integrate computers into their existing curriculum. In 2008 the program began to be recognized as the Intel Teach Program, and had trained more than five million teachers in more than 40 countries. To date, the program has trained more than nine million teachers in more than 60 countries to be more effective educators by providing content and instruction in ways to effectively integrate technology into their lessons to promote problem solving, critical thinking and collaboration skills among their students, and is committed to reaching millions more. (Intel, 2011).
In addition to program and infrastructure investments, Intel® has also invested in rigorous program evaluation to establish and sustain continuous improvement of these educational products and activities. The research and evaluation compiled for this purpose has not only enabled the improvements of the program development efforts, but now also comprises a comprehensive body of evidence that demonstrates program impact (Michalchik, Light & Price, 2009). As a result of these efforts, critical evidence has emerged that may inform other evaluation activities designed to measure impact related to ICT in education in terms that extend beyond logistical measures and student assessment.

**The Framework for Program Evaluation**

Stemming from a workshop in 1998 to develop a framework for evaluation in public health practice, a working group consisting of over 90 representatives from throughout the Centers for Disease Control, (CDC) and state and local health officials, began a year-long process. (CDC, 1999) The result, according to the center, is:

“… a practical, non-prescriptive tool, designed to summarize and organize essential elements of program evaluation. The framework comprises steps in program evaluation practice and standards for effective program evaluation. Adhering to the steps and standards of this framework will allow an understanding of each program’s context and will improve how program evaluations are conceived and conducted. Furthermore, the framework encourages an approach to evaluation that is integrated with routine program operations. The emphasis is on practical, ongoing evaluation strategies that involve all program stakeholders, not just evaluation experts. Understanding and applying the elements of this framework can be a driving force for planning effective public health strategies, improving existing programs, and demonstrating the results of resource investments.” (p. 1)

Since that time, the recommended framework has helped guide public health professionals in using program evaluation to help guide program management decision-making and public health action. By aligning evaluation efforts with the Framework for Program Evaluation developed by the Centers for Disease Control, the Intel evaluation strategy can be illustrated in a systemic way to also help address complex education reform concerns.

The framework is comprised of two elements. The first element consists of six steps in establishing an evaluation process. Designed to be interdependent, the steps may be addressed non-sequentially, but earlier steps provide the foundation for subsequent steps and effective progress requires information obtained at each step. As the first element is procedural, the second element of the framework is a set of standards to establish the quality of the evaluation activities. (CDC, 1999) (Figure 1).
Steps in Program Evaluation

Step 1: Engaging Stakeholders

The first set of stakeholders includes those involved in the operations of the program. Within the context of the Intel strategy, this includes program managers and curriculum development teams. At this point, external stakeholders include local training agencies and ministry of education officials.

Viewing stakeholders within the context of a global evaluation strategy, aids in accounting for the cultural, political and language contexts within each individual country. Therefore, it is critical to establish partnerships with experts/agencies at the local level responsible for collaborating on research designs and implementation of the evaluation activities. To ensure a consistent approach across the international programs, the local teams are involved in developing plans that are based upon a framework beginning with conversations that articulate clear goals and objectives. These conversations between the specific program managers, content development teams, corporate evaluation manager and local evaluators define implementation strategies and local contextual dependencies of the project. As a result of these conversations, the evaluation team can begin to identify specifics around the intervention, the theory of change, and the research questions that in turn can provide measureable indicators of success.

Next, it is important to include the recipients, or those who benefit from the program, and those who will be the key audience for the evaluation reports. Key elements of the Intel Teach and the Intel Learn programs include maintaining localized content and administration through a train-the-trainer model where local training agencies recruit and train master teachers or facilitators, who will each train additional classroom teachers or community technology center staff. In addition, Intel partners with governmental entities to address various components of the education system including: policies, professional development, curriculum, assessment, information and communications technology (ICT) use, school organization, and at the higher education level, the development of technical curricula and research programs. It is critical at this point to clearly identify their roles and responsibilities as stakeholders within the various levels of government, as each will have different expectations concerning desired outcomes. Representation across these stakeholders insures these interests will be understood within the larger macro policy levels, meso community levels or micro school levels.
Step 2: Describe the Program

Intel’s involvement in education is intended to help systems move from an approach that emphasizes the acquisition of knowledge to one that emphasizes conceptual understanding and the application of concepts to real-world situations. The idea that information systems enhance the ability to bring facts and relationships to bear in problem-solving is described as a way of thinking in abstractions to design systems, solve problems, and understand human behavior that provides structure (Wing, 2008). All of the programs are designed to improve the effective use of technology to enhance the quality of education, to promote the development of 21st century skills, and to encourage excellence in mathematics, science, and engineering (Light, et al., 2009).

Recognizing that teaching for the twenty-first century is very different from traditional teaching, Intel focuses on educational reform through improving teacher training and knowledge, since the quality of instruction is central to improving academic achievement, (Cohen, Raudenbush, & Ball, 2000). Today, teachers and students play different roles than in classrooms of the past. The teacher is no longer the sole source of information and instruction, and the student need not be a passive recipient. Increasingly, students assume proactive and interactive roles in their education, continually striving to understand the world and to apply what they learn. Personalized and project based learning is becoming the goal. To meet the demands of these evolving roles, teachers need to expand their skills and refine their pedagogical and methodological approaches, become mentors and guides rather than didactical instructors. Students need to be able to access multiple resources within and outside the classroom, work individually and in teams, collaborate with peers, define problems, propose solutions, make decisions, through understood measures of success. A significant key to changing what is taught and learned in the classroom is effective professional development that builds teachers’ capacity and that provides them with new resources to share with students.

Evaluation efforts designed to provide MOEs and program staff insight into how their teachers respond to the curriculum and identify the course elements and content that teachers believe is beneficial or challenging is central, followed by efforts designed to understand changes in classroom practice. Evaluation plans vary depending on country context as well as program maturity. The multiple dimensions of this comprehensive evaluation program utilize a developmental approach based on phases of evaluation in relation to program maturity. Evaluations of programs in early stages of development, or pilot efforts, focus on formative data collection within the areas of localization, adoption, and comprehension. As program evaluation results were compared to the stated goals and objectives of the programs, a set of indicators were identified that address relevant questions about program performance. What follows is exploring evaluation efforts that enable program expansion while maintaining attention to continuous improvement processes and learner impact, or application of new skills within the classroom environment.

Essential to each phase of development is the interaction between stakeholders that provides clarity in the evaluation strategy regarding activities and intended outcomes. Thus, input is needed to articulate clear goals and strategies based on sound theories of change - a theory of change that illustrates the connection between the intervention, consisting of inputs, activities, and outcomes, and the population affected. As a result, a knowledgeable evaluation agency can make use of theory-based evaluation to provide clarification regarding the steps embedded in a logic model of how activities lead to impact (Brest, 2010). Identifying accurate variables and metrics also requires awareness and attention to a program's goals and objectives and its underlying theory of change. Clarification of these is possible through developing a logic model that illustrates each of these components. A logic model is useful to describe the events for bringing about change by identifying the main program elements in a picture that identifies key activities, events and the sequence representing how the program is supposed to work (Rush & Ogbourne, 1991). For example, it is unrealistic to expect an intervention to transform teacher practice if the program design does not include professional development nor directly engage classroom teachers. (Figure 2)
Step 3: Focus the Evaluation Design

Application of the Framework for Program Evaluation allows stakeholders to first clarify, then seek to understand the purpose of the intervention, audience and methods used to determine change within the complex education framework. If evaluation is, as Scrivin (1991) describes, the systematic investigation of the merit, worth, or significance of any “object”, then definition of that object is paramount. Here, the evaluation purpose should be discussed at an early stage among key stakeholders. Clarity of purpose will establish how the findings will be used, how they will be distributed, and who should find them useful. The Framework for Program Evaluation proposes the purpose of the findings fit within four categories to help identify which questions may be the right questions - to gain insight, to change practice, to assess effects, to affect participants (CDC, 1999).

Once one understands the purpose of the evaluation, the methods are then developed. In her 2009 article, *Sharpening Our Focus in Measuring Classroom Instruction*, Karen Douglas states that, “Progress in studying the complexity of classroom instruction on a large scale relies on our ability to pose research questions at the appropriate levels of analysis and to attempt to answer the questions using rigorous methods.” (p.519)

Understanding the complexity of the educational environment implies that for an evaluation to be useful, it needs to be built around an expected outcome, with some prior conception of what that outcome would look like and a set of indicators of success. This stage of the evaluation entails transforming the general goals and objectives of the project into observable and measurable phenomena. The choice of outcomes is closely linked to the level of analysis: the outcome has to correspond to the level of analysis. It is crucial that the definitions of success be realistically based on the context and a serious appraisal of the project design. The evaluation design must consider that schools are full of complex political and social dynamics.

The process of identifying the right questions to ask in an evaluation builds from our past evaluation experiences and our generalized understanding of some of the key issues that need to be investigated in any evaluation of an educational technology project. Previous experiences can be used as a filter, or point of reference, to inform new evaluation efforts. One helpful recommendation is that useful evaluation is produced by researchers who are asking questions about:

- How technology is integrated into educational settings;
- How new electronic resources are interpreted and adapted by their users;
• How best to match technological capacities with students’ learning needs; and
• How technological change can interact with and support changes in other aspects of the educational process, such as assessment, administration, communication, and curriculum development (Palardy, 2008).

As the objectives of the Intel education initiatives are to move beyond the days of digital inclusion, meaning simple access and basic technology skills, and toward effective integration of technology and pedagogy in its offerings, Intel targets two aspects of teacher quality that are core to twenty-first century educational reform:
• How technology is integrated into the adoption of student-centered pedagogical practices; and
• How pedagogically sound uses of ICT are integration into classroom practice.

Exercise caution at this point, as proceeding on to data collection without certainty of understanding and even written agreements on the evaluation design can result in lost time and needless information. Often, when working with agencies around the world, common terms may be misinterpreted and verbal responses may have different meanings across cultures. In addition, if university faculties are used as recipients of evaluation grants, it is often the research interests of the individual faculty members that emerge within the preliminary designs and the foundations are perceived simply as funding agencies to satisfy their interests, not as executors of the process. Sadly, a common belief that research and evaluation are academic disciplines that are too complex to be understood outside the academy feed these practices. As a result, data is often collected that fails to meet its needed purpose.

**Step 4: Gathering Credible Evidence**

To understand effective teaching and learning, we must apply analytic approaches that look at patterns and profiles of skills and practices. To understand what data collection sources and methods should be used, it is important to understand the two main types of evaluation, each serving a different function. Formative evaluation seeks to provide feedback on program implementation and design to improve the overall program, and summative evaluation seeks to understand how and whether a program has affected an outcome. Furthermore, there are two main methods of data collection; both are necessary in order to generate a complete picture of the impact of an intervention in the complex education system. Quantitative methods, like surveys, can indicate that a change in practice or performance may or may not have taken place, but often they provide only a superficial understanding of context of these changes. In turn, qualitative methods, like observations or interviews can provide contextual understanding of why and how these changes have developed, but often lack the systematic constructs to inspire credibility. The debate continues as to which of these methods is more accurate. Therefore, rather than choosing sides, for the purpose of this article, we submit the value is to collect data that can, in principle, establish causation, and determine if the kind of data collected is good enough to provide understanding of valid cause and effect relationships.

Once again, revisiting stakeholder interests is important for determining standards for credibility. When primary stakeholders are immediate, such as local content teams, standards for data collection may favor qualitative observations and interactions with participants. Whereas, when governments and expenses are involved, the standard for credible data often requires more rigorous experimental designs. Regardless, either of the approaches can be improved by using multiple procedures for collecting data. The most common source of data is through the program participants themselves via surveys, interviews, focus groups or observations. However, data is also available through document review. In educational settings, such artifacts may include administrative records and teacher or student products or portfolios.

Related to the earlier need to be attentive to the purpose of the findings, when gathering credible evidence it is important to consider what indicators would be necessary to satisfy the purpose. An indicator is the specific piece of data or information that provides you with answers to earlier evaluation questions. Indicators define important program attributes in ways that can be monitored and provide the basis for collecting evidence that informs decision making (Innes, 1990 & McRae, 1985). In the case of the Intel education programs, relevant indicators illustrate
changes in knowledge, attitudes and behaviors. To focus evaluation on the primary goals of the programs, a cross-program indicator 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. In turn, this framework enables international evaluation teams to utilize tools and protocols that directly address these primary indicators and answer relevant questions about program performance, (Table 1).

<table>
<thead>
<tr>
<th>Pedagogy and practice:</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lesson planning</strong></td>
</tr>
<tr>
<td>1. Teachers develop and use curriculum framing questions to guide learning.</td>
</tr>
<tr>
<td>2. Projects develop over time and learning activities build toward a common learning goal. (they are interconnected)</td>
</tr>
<tr>
<td><strong>Assessment</strong></td>
</tr>
<tr>
<td>1. Teachers use multiple modes of assessment, including online</td>
</tr>
<tr>
<td>2. Teachers assess knowledge beyond information retrieval (i.e. ability to apply knowledge to problems, draw conclusions, analyze relationships)</td>
</tr>
<tr>
<td>3. Assessment criteria are shared with students</td>
</tr>
<tr>
<td><strong>Instructional strategies</strong></td>
</tr>
<tr>
<td>1. Teachers use curriculum framing questions to guide student work and student thinking</td>
</tr>
<tr>
<td>2. Teachers use multiple resources (not only text books)</td>
</tr>
<tr>
<td>3. Teachers support students in creating unique work products that represent their knowledge (about some aspect of the curriculum framing questions)</td>
</tr>
<tr>
<td><strong>Classroom environment:</strong></td>
</tr>
<tr>
<td><strong>Scope/depth of use of resources available</strong></td>
</tr>
<tr>
<td>1. Teachers organize the classroom to enable students to interact directly and frequently with appropriate available resources</td>
</tr>
<tr>
<td>2. Teachers create opportunities for students to save, refer to and revisit resources over time</td>
</tr>
<tr>
<td><strong>Technology use:</strong></td>
</tr>
<tr>
<td><strong>Technical skills</strong></td>
</tr>
<tr>
<td>1. Teachers are able to use the basic features of wordprocessing and presentation software as well as Web 2.0 tools (wikis, blogs, online chat and discussion forums) to support instructional design</td>
</tr>
<tr>
<td><strong>Supporting teachers’ work</strong></td>
</tr>
<tr>
<td>1. Teachers create support materials such as resources lists, class rosters, worksheets using these software tools or similar ones</td>
</tr>
<tr>
<td>2. Teachers use the Internet and Web 2.0 tools (e.g., wikis) to support curriculum development</td>
</tr>
<tr>
<td><strong>Supporting student work</strong></td>
</tr>
<tr>
<td>1. Teachers are able to guide their students’ use of productivity tools and Web 2.0 tools.</td>
</tr>
<tr>
<td>2. Teacher can manage both whole class and rotating use of technology for instructional purposes during class time (dependent on available resources). Teachers can use online discussion forums for instructional purposes.</td>
</tr>
<tr>
<td>3. Teacher assigns technology use to support specific components of a learning activity (research, writing and revision, communication)</td>
</tr>
</tbody>
</table>

| Table 1. Indicator Model of the Intel® Teach program |

### Step 5: Justifying Conclusions

There is a story that describes a manufacturing facility that is no longer able to operate due to equipment failure. In need of assistance, management hires an expert mechanic to troubleshoot the problem. Upon arrival the expert meets with operations personnel to understand the desired outcome, traces the production line to observe failures, and analyzes the equipment to find errors. As the story goes, after a brief period of time the mechanic pulls out the necessary tools, makes a few adjustments, and steps back as production resumes without fail. When management receives the invoice, they respond with disbelief at what they believe to be extreme. “How can you charge such a
high amount after such a small adjustment?” they ask. The expert then replies, “There is no charge for the adjustment; the bill is for knowing what needed adjusting.”

This story illustrates the fact that although each step identified in the framework is important, none are as important as the analysis, findings and recommendations once the data has been collected. Analysis should view the data in relationship to the evaluation questions and indicators with findings that are linked to the original purpose of the evaluation. According to the CDC Framework for Program Evaluation, “Justifying conclusions on the basis of evidence includes standards, analysis and synthesis, interpretation, judgment, and recommendations.” (1999).

Analysis of the data collected from an evaluation effort seeks to identify possible patterns of evidence. These patterns combine with other data as a result of organizing, classifying, and comparing various sources of information to provide meaning. It is this analysis and the synthesis of these findings that provides answers to the evaluation questions. In addition, un-anticipated patterns may also provide guidance for future evaluation efforts, (Patton, 1997 & Henry, 1998)

Findings from independent evaluation resulting from the analysis of program end-of-training evaluation data of the Intel Teach program indicate that after completing the teacher professional development program, teachers feel more prepared to address the challenges involved in making ICTs a part of everyday classroom activity and feel more aware of good instructional practice regarding effective integration of technology in schools (Martin & Shulman, 2006). Additional findings from program evaluations conducted at least six months after trainings have been completed reveal that teachers: 1) use technology much more for their own productivity and professional development, 2) use technology in more varied ways with their students, and 3) use different teaching approaches (e.g., project-based learning and formative assessment) than they did before the training. In addition, a vast majority of teachers reported their students were more “motivated and involved” in their learning and that students’ projects show “more in-depth understanding” as a result of the pedagogical knowledge gained in learning effective technology integration activities (Light, et al., 2006).

Upon program maturity, long-term follow-up evaluations focus on sustained learner-centered teaching, personalized and project based learning, technology use and teaching and learning activities that take place within the classroom environment. It is a result of these follow-up studies that the complexities that influence teacher changes in attitude, knowledge, and behavior begin to emerge, and also reveal important environmental factors that must also be understood, in order to optimize teacher professional development efforts focused on classroom activities. Once again, involving stakeholders in the process may provide some insight about the findings and enable more meaningful interpretation.

Step 6: Ensuring Use and Sharing Lessons Learned

Classroom instruction is a complex enterprise that occurs at the intersection of teachers, students, and texts within the surrounding classroom, school, and community environments. Effective education reform and sustained policy-based (macro) initiatives to enhance equity and excellence must be designed and understood at the classroom (micro) level and secondarily at the school (meso) level, (Scheuermann, et al., 2009 & Price & Roth, 2010). As such, one element identified within the model is the importance of effective dissemination of findings, “to relevant audiences in a timely, unbiased, and consistent fashion” (CDC, 1999).

Ensuring use and sharing the lessons learned is a result of effectively identifying who the principal audience is and what the most efficient means to communicate findings should be. Just as an evaluation design that attempts to understand formative components of an education program is different from a summative design to identify outcomes, sharing lessons learned to an audience of content developers differs from an audience of practitioners. Somewhere in between lies the school leadership, and as noted by Crandall and Loucks (1982), generally, an innovation does not fail because the innovation is flawed, but because of flawed management or support by the school’s administrators. Situated above these are senior level administrators, ministry officials and policy makers.
Even the most comprehensive results may go unnoticed if findings are not presented in a manner best served for these audiences. For example, in one meeting with a ministry official we observed stacks of reports on every available surface. When asked about the vast amount of material received, and ways that would enable the data to be understood, the official confessed that any report that did not contain a concise executive summary with the key findings clearly itemized upfront, was less likely to receive further attention.

Within the Intel education initiatives, it is quite common to find a single study available in multiple formats. Common resource material often includes a one page brief, ten page journal article and full report. In addition, the material may also be available within presentation software again as a brief, or multiple page presentation customized for various audiences that can provide necessary evidence for education reform policies. Awareness of the policy implications are critical, as effective policies depend on data, research, and evaluation in ways that allow results of studies on effective teaching and learning to inform effective policy and practice, and continuous revision and improvement dependence on an effective information management system (Kozma, 2009).

Conclusion

The World Bank (2007) estimates there are approximately 1.5 billion young people between the ages of 12 to 24 years who are passing through the global education systems, with 1.3 billion of those living in developing countries. Reporting that there has never been a better time to invest in these youth due to additional investments in health care and that overall, the age group is better educated than previous generations. The agency also states these youth will join the workforce looking for economic opportunities and increased civic participation. As a result, the global education systems are at a crossroads. The challenges of sustaining programs on a global scale now frequently involve multiple actors with new education strategies.

Focusing on systematic, replicable methods and establishing a common framework that begins with a vision, clear goals and objectives, implementation strategies and local contextual dependencies, these new actors can more effectively improve implementation strategies and understand impact. By offering a historical and developmental perspective regarding the role of evaluation within the Intel global educational environment, the Intel Foundation has developed a culture of transparency and accountability for its efforts in attempting to shift common educational practice away from traditional models of transmission & delivery to student centered, constructivist goals of a 21st century education.

Intel has consistently sought out ways to focus on the pedagogical impacts that it claims are the goals of its programming and ways to substantiate those impacts. Illustrated through the Framework for Program Evaluation, a clear systemic approach has been identified that enables all stakeholders means to seek evidence across multiple levels and collect comparative data that has been useful to benchmark impacts on teaching practice and learning outcomes. Evaluation, as we have shown, has great power to not only describe results of educational programs, but also to inform their development and implementation such as qualitative case studies that examine the actual experiences teachers, students, administrators and other stakeholders to illustrate changes in knowledge, attitudes and behaviors aligned to the programmatic theory of change.
About the authors

Dr. Jon K. Price: Intel® Corporate Affairs Group Program Manager for Research and Evaluation has been managing the education technology program evaluation efforts for Intel’s global K-12 education initiatives since 2003. In 2008 his responsibilities expanded to include additional research and evaluation into how effective integration of technology into multiple levels of education can impact teaching, learning, education reform, and economic growth. Jon is a graduate of The University of New Mexico, the Harvard Graduate School of Education and received his PhD in Education from the Texas A&M University College of Education. Jon currently lives in Albuquerque, New Mexico, USA with his wife and three children.

Dr. Martina A. Roth: Director of Global Strategy, Research and Policy at Intel® Corporate Affairs Group is responsible for global strategy, research & related policies, Intel® engagement with strategic alliance partners like the Global Education Initiative of the World Economic Forum, UNESCO, OECD, IEA, EUN, ATC21S. She is Board member of various Education Initiatives, the Austrian Research Studios, the ESTABLISH Advisory Board. Prior to her global role she has served as Director of the Intel® Education Group for Europe, Middle East and Africa region responsible for the development and implementation of education programs covering approximately 50 countries on three continents. Dr. Roth holds a M.A. in Pedagogy and a Ph.D. in Philology from the University of Jena, Germany.

Barbara H. McAllister: Program Officer, Intel Foundation has worked in various roles including Corporate Real Estate, Mergers and Acquisitions and IT. She is currently the Intel Foundation Program Officer focused on programs that advance education and improve communities worldwide. In her role within the Intel Foundation she performs a number of duties, including: performance coaching, facilitation and helping individuals and organizational development. Barbara has a B.S. in Electrical Engineering and a Masters in Business Administration (MBA). In her spare time, she loves to spend time with her family, write creative pieces, and travel.
References


