



White Paper

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Helping Teachers in Developing Countries Create Enriching Classroom Learning Environments

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Countries around the world are attempting to reshape their education systems. A recent study looked at successful schools from the Intel® Teach Essentials Course in Chile, India, and Turkey to explore how schools and teachers in such diverse contexts have been able to integrate ICT and the pedagogical approaches from the Essentials Course into their classrooms. Although each country confronts a unique set of strengths and challenges as they strive to make change, the findings suggest that, in each case, the teachers found points of engagement between the Essentials Course model of ICT use and teaching and the possibilities and limits of their context. The research was built around in-depth case studies in two exemplary schools in each country. Even when teachers were integrating different types of activities, the research found common themes emerging across all six of the study sites:

- Change in teacher beliefs in the value of student-centered practices and increased teacher knowledge of those practices;
- Change in the ways in which students engage with content;
- Change in relationships among students, teachers, and the community;
- Increased use of ICT for student learning.

Education reform is a long and complex process that must be supported with multiple strategies; the Essentials Course was not the only source of support for the practices identified in the study, but the findings suggest that it can be an important piece of the puzzle.

Changing Teacher Knowledge, Beliefs, and Attitudes

The literature on education reform highlights the importance of teachers' beliefs and attitudes in creating long-term, sustainable transformation. As classroom teachers in this study spoke about what they had learned from the Essentials Course, they clearly referred to changes in three key areas: They had discovered new teaching strategies; they'd seen that students can learn through exploration; and they'd learned to use ICT as learning tools.

Many of the interviews and teachers' stories recounted what they did "before" and "after Intel." For example, a Turkish teacher reported, "Before Intel, [my] students did not do teamwork ... In Turkey, kids want to learn from teachers. Now they have to do research on their own and can learn more deeply. Otherwise, students aren't motivated to learn." A Chilean history teacher commented on the change from their traditional approach of having students memorize information, saying, "By following a question, the students acquire a lot of content through research." One school in India already had been experimenting with project-based approaches, but Essentials gave them a solid template a set of strategies to employ. In addition, half the schools the EDC visited used the Essentials Course as an opportunity for teachers to develop a bank of project-based units that were shared throughout the school.

Changing the Ways in Which Students Engage With Content

In the site visits, teachers and students spoke of three new types of learning activities: learning through projects, conducting Internet research, and making community connections. All the Essentials-trained teachers spoke of using one of the key strategies offered in the course—student projects. These gave students the chance to work collaboratively, to take on new roles and responsibilities, and to coordinate their efforts. All of the projects involved some degree of research, and Internet research was a constant theme among the teachers, students, and parents. All of the teachers who were interviewed integrated Internet research into many student assignments.

As the students and teachers described their activities, it became clear that many projects were connecting students' schoolwork to their home life and to the community more broadly. For instance, in the village school in India, teachers used the Essentials Course to design projects around various community problems. Two of these focused on clean water and public-health issues, and resulted in a village water-purification system and communal efforts to keep the village streets clean.

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Changing Relationships Among Students, Teachers, and the Community

Teachers, students, and parents reported changes in three sets of relationships that grew out of these new ways of learning: among the students, between students and teachers, and between the school and parents/community. Students' peer relationships changed as they began to collaborate in groups to build projects. As students took on more responsibility for their learning and acquired more autonomy in class, the teachers had a growing respect for their abilities. Parents, too, noticed the changes in what and how the students were learning, which appeared to create an opportunity for the schools to deepen their relationship with the community.

Increasing Use of ICT for Student Learning

A core aim of the Essentials Course, and a central objective for the Ministries of Education in Chile, Turkey, and India, is to encourage the use of ICT as a learning aid for students. The research on educational technology and reform suggests this is a complicated task in many countries. In these six schools, to the extent permitted by resources, space, and time, students were using ICT for learning activities—primarily by creating presentations and by doing Internet research.

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