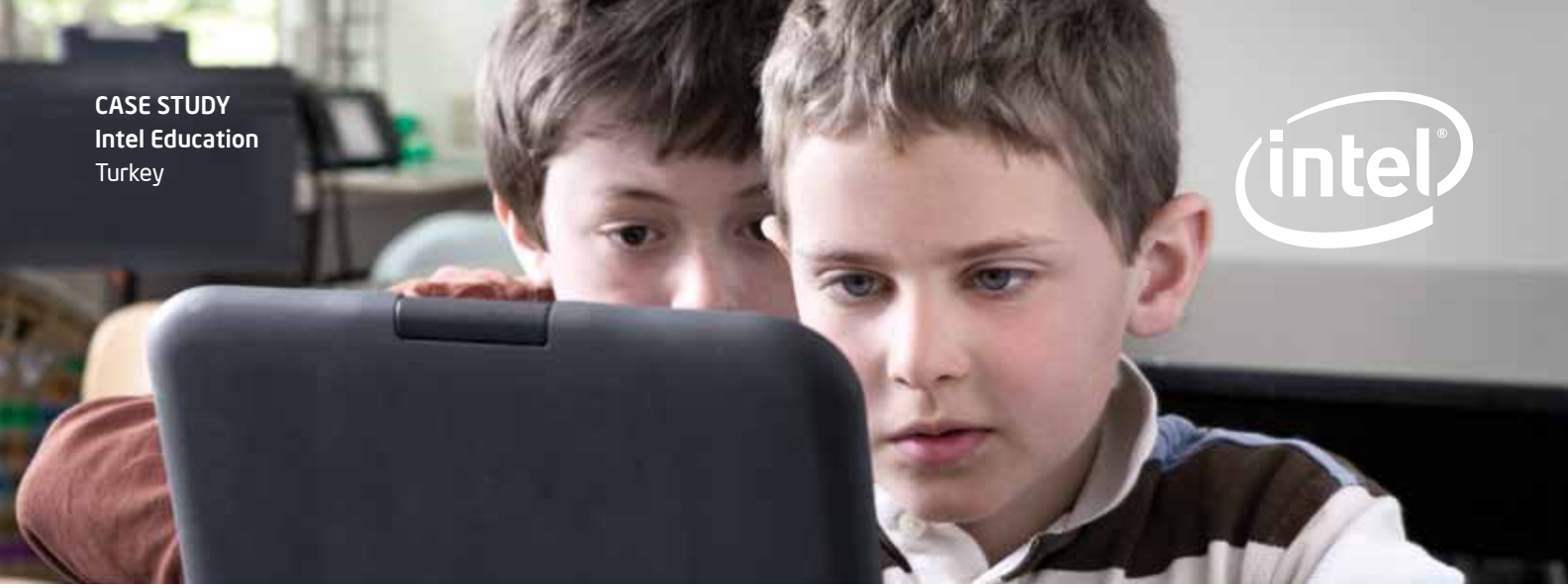


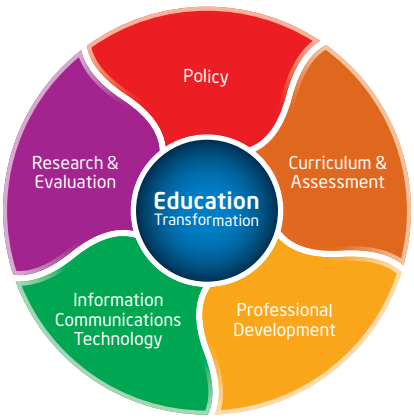
CASE STUDY
Intel Education
Turkey

Provincial 1:1 eLearning Program Sets Example for Rest of Turkey

Province of Kocaeli, Turkey, boosts ICT literacy with 1:1 technology integration program.

Based on original data collection and analysis by researchers at Anadolu University in Eskişehir, Turkey, in collaboration with SRI International and Intel

Intel Education Integration Research is conducted in regions around the world to understand the successes, challenges, and policy implications of a variety of eLearning programs, and compare them to other programs worldwide. The information in this report is based on original data collection and analysis by researchers at Anadolu University in Eskişehir, Turkey, in collaboration with SRI International and Intel.



Introduction

The metropolitan province of Kocaeli, Turkey, is among the most industrialized and wealthy in the country. To sustain the region's economic growth and eventually become the "Silicon Valley of Turkey," the local government recently invested in a successful 1:1 technology integration program.

Kocaeli's integration program began in 2009 with an initial pilot rollout of about 27,000 Intel-powered classmate PCs to sixth-grade students across the province. Another 27,000 devices were distributed in the fall of 2010. The plan is to continue distributing 27,000 devices a year through 2013, for a total of 130,000 PCs. The computers are provided free to the students and their homeroom teachers, with customized software pre-loaded on each PC.

The success of the province's 1:1 technology integration program is in large part due to the leadership of the local government, involvement of key stakeholders, and the continued integration of professional development efforts for teachers. For other cities and provinces in Turkey and around the world, the project serves as an example of how local initiatives can improve education and build a better future for communities.

The Vision: Transforming From Industrial to Innovation Economy

In Kocaeli, the local government supports educational ICT policies as part of the province's long-term vision to become a center of technological innovation and thereby establish a high standard of living for its citizens, as measured by the United Nations Development Programme's (UNDP's) Human Development Index (HDI).[1]

The primary goal of the 1:1 technology integration program is to transform the region from an industrial powerhouse to an ICT hub—the "Silicon Valley of Turkey." The project is led by the metropolitan municipality, which is the seat of government for the province, and is funded by general tax revenues.

Supporting ICT skill development and literacy is a core requirement of the government's mission. Some students involved in the program are expected to become ICT professionals, while others will likely pursue alternative careers that require a high level of ICT literacy. On a broad level, promoting ICT literacy among all students is expected to enrich the community and lead to other positive changes for the area's social and economic culture.

The initiative also sets an example for similar deployments in Turkey. Already, after contacting the mayor's office and learning about Kocaeli's deployment, Turkish Telekom—the country's largest Internet service provider—decided to offer its ADSL subscribers low-cost notebooks for small monthly payments. In addition, other cities have approached Kocaeli to learn about the program. The city of Bolu has started a pilot program of its own, and recently Turkey's prime minister announced plans to distribute tablet-like devices to students in other regions of the country.

CHALLENGES

- Transform from an industrial economy to an ICT-based innovation economy
- Increase ICT access and proficiency
- Create a new generation of hardware and software professionals

SOLUTIONS

- Municipality purchases Intel-powered classmate PCs with tax revenues
- PCs distributed each year at no cost to students across the province

RESULTS

- 54,000 Intel-powered classmate PCs distributed in 2009 and 2010 to sixth-grade students and their homeroom teachers
- Total of 130,000 PCs to be distributed by 2013

Planning: The Initial Stages of Education Transformation

Following an earlier pilot project in Ankara, Turkey, the mayor of Kocaeli announced that his office would begin a larger 1:1 eLearning project, which began in 2009. The program, which has been directed at sixth-grade students and their homeroom teachers, is expected to continue to expand through at least 2013.

The mayor and his administrative staff have led the Kocaeli initiative, but other stakeholders were involved during program planning. Before program deployment, the mayor's office discussed its plans with the top local Ministry of Education (MoE) authority and the Educational Technology Department.

During the planning phase, Intel provided guidance in selecting hardware and software specifications. Some schools were provided wireless access points and technological infrastructure as part of the deployment. Because municipal authorities and Intel staff felt that breakdowns regarding safe Internet use could affect the success of the project, parental control software was installed on all computers before deployment. Additional built-in protections include computer lock software that can prevent computers from being stolen.

Representatives from Intel and the mayor's office have also needed to combat the perception that simply buying computers and handing them over to students is sufficient. Using its networks at the mayor's office and at the MoE, Intel encouraged stakeholders to plan for the instructional elements of the project. The Intel® Teach professional development program has already been implemented in the region,

and a new program to help teachers integrate the 1:1 devices into the classroom will be implemented soon.

Implementation: Students Respond Positively to ICT Integration

Implementation began in 2009 with an initial pilot rollout of about 27,000 Intel-powered classmate PCs, followed by another 27,000 devices in 2010. The mayor's office plans to continue distributing 27,000 devices a year through 2013, for a total of 130,000 PCs.

The computers are provided free to sixth-grade students and their homeroom teachers, with customized software pre-loaded on each PC. Limited professional training was provided to teachers, although additional training is expected in future stages of the program.

Students have been overwhelmingly positive about the program. The mayor has received many messages from students thanking the office for its work, and students in other grades have written to request an expansion of the program to their grades. Students have indicated that they are pleased that the computers are theirs to use and that they thus do not interfere with the computer needs of other family members.

Research and Evaluation: Identifying Areas for Improvement

The initiative has not yet been evaluated in any formal way; however, initial feedback to the program has led to changes. For instance, as a result of teacher feedback, PCs will soon be delivered to subject-area teachers, in addition to those distributed to homeroom advisers. Additional professional development efforts are also expected to begin in the near future.

Stakeholder interviews indicate a clear need for the mayor's office to set short- and long-term success criteria, and to develop an evaluation plan to assess how the program is achieving those criteria. Additionally, the anticipated economic impacts of the program will not be measurable for perhaps 10 years, so shorter-term metrics such as potential changes in test scores may not reflect the full value of the program. Positive changes in the quality of pedagogy in schools may be one of the most important observable outcomes in the short term, once teacher buy-in and training have been established.

Teachers have emphasized the level of administrative support as a particularly significant indicator, noting that skilled school administrators would be able to motivate their colleagues to use computers in the classroom. Other factors that may indicate the success of the program are degree of accessibility and development of 1:1 content.

Conclusion

In 10 years, thousands of students across Kocaeli who received their first computer through the 1:1 technology integration program will enter the workforce. Some will pursue ICT-related careers, while others will depend on their ICT literacy to educate their own children and to live better, more connected lives. In this way, an entire region can gradually be transformed to become a leader in ICT usage and innovation.

Other municipalities and countries can improve their educational systems with eLearning programs similar to those now being deployed in Kocaeli. By working with Intel and other public and private partners, it is possible to create sustainable, cost-effective technology integration programs that will provide social and economic opportunities for years to come.

FIVE KEY ELEMENTS OF EDUCATION TRANSFORMATION

The following five elements have proven essential to support Kocaeli's education transformation and similar efforts in more than 70 other countries that Intel works with around the world.

1. POLICY[2]:

- Educational ICT policies receive support as part of the city's long-term dual vision to become a center of technological innovation and establish a high standard of living for its citizens
- The Ministry of Industry and Trade recently announced that Kocaeli will be the center of the Informatics Valley of Turkey, where ICT, bio-tech, and nano-tech sectors will be given priority
- Funded by general revenues from the metropolitan municipality, which is the seat of government for the province

2. CURRICULUM AND ASSESSMENT:

- The current curriculum promotes activity-based learning that facilitates implementation of 1:1 learning
- The new national technology integration project, entitled Fatih, revises the curriculum to help teachers integrate technology into their teaching by providing exemplary activities that teachers can use in their classrooms

3. PROFESSIONAL DEVELOPMENT:

- After having received the Master Teacher (MT) training designed and conducted by Intel, 20 MTs conducted eight-hour training sessions for the approximately 900 participant teachers from November 2010 to February 2011
- Intel and other technology solution partners provide technical support to teachers 24 hours a day, seven days a week, via various means including a call center

4. INFORMATION AND COMMUNICATIONS TECHNOLOGY (ICT):

- 54,000 Intel-powered classmate PCs were distributed in 2009 and 2010 to sixth-grade students and their homeroom teachers
- Built-in protections include parental control software installed on all computers and computer lock software that can prevent computers from being stolen

5. RESEARCH AND EVALUATION:

- Need to establish a process for conducting and summarizing external evaluations
- MoE and the Mayor agreed on forming a monitoring team to assess the project's effectiveness, efficiency and appeal to be able to see the scalability of the project trough out the country and possibility of its integration into the larger national technology integration project, entitled as Fatih

THREE BEST PRACTICES

The ongoing success of the education transformation in Kocaeli, Turkey, depends on several best practices that other municipalities and countries can follow to achieve similar success.

BEST PRACTICE 1: Strong, sustained local leadership

The success of Kocaeli's 1:1 technology integration program is heavily dependent upon the leadership of the local government. It has been essential that the mayor's office views ICT policies in education as part of a broader vision of becoming an ICT hub and achieving the region's economic, social, and educational goals. As such, the mayor's office has made a sustained commitment of time and resources that has been integral to the program's success.

BEST PRACTICE 2: Extensive stakeholder support

Kocaeli's technology integration efforts have been endorsed at the national level, and the local government is working to establish a stronger collaborative relationship with the MoE. In addition, the mayor's office has worked closely with Intel and other companies (partners) to design and deploy the program. Such ongoing cooperation is essential to both short-term and long-term success.

BEST PRACTICE 3: Integrate professional development into planning efforts

Kocaeli's program included a limited amount of teacher training on ICT usage. Early feedback on the program has indicated that further professional development efforts will be essential to the continued success of the program. This is a common challenge in both regional and national deployments, and Intel has strong expertise in this area that will be relied upon as the Kocaeli program continues.

Achieve Your Vision

What's your vision of the world ahead? Intel's model of education transformation can help governments improve the quality of the education system, leading to greater economic and social opportunities. Contact your local Intel representative to discuss how you can implement a sustainable, technology-based education program in your country.

Intel has helped to implement more than 200 education programs in over 70 countries, and has invested more than USD 1 billion in the last decade to improve teaching and learning environments.

Working with governments, policy makers and local vendors, Intel helps to implement eLearning solutions that provide professional development to teachers; support student achievement and development of 21st-century skills; and enable access to relevant, localized digital content.

Intel Learning Series, based on years of ethnographic research, is designed specifically to support 21st century student learning. It is a package of hardware, software, services, and support—delivered by local vendors to meet local needs—designed to work reliably together. At the heart of the Learning Series is the Intel-powered classmate PC—a purpose-built netbook with full PC functionality. Built to advance education, the Learning Series enables more personalized and comprehensive eLearning solutions for students K-8.

Learn more about:

- Intel Education programs, including the Intel Guide to Monitoring eLearning Programs and Education Transformation Research Reports at: **www.intel.com/education**
- The Intel Learning Series at: **www.intellearningseries.com**

Or contact: **educationresearch@intel.com**

[1] The UNDP's HDI, a metric drawn from data on life expectancy, education, and per-capita GDP, serves as a standard of living indicator.

[2] For more information, see the Policy for Education Transformation: An Educational Policy Brief.

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