Training Teachers across a Diversity of Contexts: An Analysis of International Evaluation Data on the Intel® Teach Essentials Course, 2006

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Executive Summary

Intel® Education Initiative has set two broad goals. The Intel Education Initiative seeks to form a trusted partnership with ministries of education in countries across the world to support educational reform by integrating technology into project-based learning environments. As part of the partnership, Intel also offers a portfolio of teacher professional development programs. The core offering is the Essentials Course, which has trained over 3.5 million teachers in more than 30 countries.

The Intel Education Initiative has consistently invested in the evaluation of the Essentials Course worldwide, both to inform the continuous improvement of the program and its implementation model, and to document and demonstrate the impact of the program on its teacher participants. This report on the global evaluation of the Essentials Course draws on data from both quantitative evaluations done in many countries and qualitative reports that are often part of the local evaluation.

Bringing the Essentials Course to teachers in so many different countries has required worldwide, regional, and country-level program staff to maintain a constant balance between investing in localization of the program and a constant commitment to and focus on the core themes and goals of the program. Although many ministries share similar goals for creating education systems that meet the challenges of the 21st Century, the process is uniquely shaped by the current education system, traditional educational practices, and the level of economic development and ICT infrastructure of each country.

The multi-national reach of the Essentials Program means that the global report like this one can only identify broad trends and patterns about the success and challenges of this program. A more detailed country level analysis would be contained in the separate evaluations, where available.

Education Development Center's Center for Children and Technology (EDC) has been coordinating the worldwide evaluation of the Intel Teach Essentials Course since March 2003. EDC's role with the Essentials Course evaluation has been twofold: 1) designing and coordinating the implementation of two global surveys (the end of training survey and the international impact survey); and 2) supporting and local evaluators in designing country-specific evaluations. This global evaluation report of the Essentials Course draws on the impact survey data that was submitted by 20 countries from 2005 to 2006. This quantitative data is complemented by qualitative reports submitted by local evaluators in five countries.

Overall, the survey data indicates that the program provides teachers with very positive experiences, which in turn help them rethink their practice, take the first steps towards reforming their practice, and eventually integrate technology into their teaching. The key findings of this paper are given below.

Key Findings

The Essentials Course is successfully impacting teachers from all regions.
Significant number of teachers report change in teaching practices across all regions, indicating that the Essentials Course is having an impact on teachers from all regions. Some regional variation was seen in teaching practices involving the use of technology such as unit plan implementation, use of technology for lesson planning and preparation and integrating new technology activities with students.

The Essentials Course can be successful for countries at different levels of economic development.
This year's data indicate a new phenomenon. Previous year's data have suggested that teachers from high income countries are more likely to be able to integrate new technology activities. This no longer appears to be the case. High percentages of teachers at different income levels are increasingly able to integrate ICT. As the Essentials program matures in many countries and as the policy and educational environment in those countries improves, many of the past challenges are being reduced. Previous discrepancies between teachers in high income countries and teachers at other income levels were attributed to lower levels of prior familiarity with project-based teaching approaches and less technology access; both of which make it more difficult for teachers from low and medium low income countries to initiate or sustain implementation of new technology-rich activities after the training. For a richer discussion of the influence on educational policy and the Essentials Course, see *Preparing Teachers for the 21st Century Classroom* (Light, et al., 2006).

The program is supporting teachers in integrating new student technology activities.
Overall, the data suggest that the Essentials Course is successful at encouraging teachers to use technology in new ways at all levels of computer resources. Teacher integration of new activities with technology is moderated by availability of technology resources, suggesting that the flexibility of having access to computing resources in multiple places supports teachers' efforts to integrate technology into their students' learning activities. However, even respondents who report having no availability of computing resources in their schools indicate they are using other access strategies, such as community technology centers, to integrate technology into their students' learning in new ways.

Teachers are increasing their use of technology for lesson planning and preparation.
Overall, the data suggest that the Essentials Course is successful at helping teachers increase their use of technology for planning and preparation. This is moderated to some degree by availability of computing resources as a higher percentage of teachers with multiple access points to computing resources indicate increased use of technology for lesson planning and preparation. Survey results also indicate that the program is effective at encouraging teachers with no school-based access to increase their use of technology for lesson planning and preparation, as evidenced by the fact that even the group of teachers with no in-school technology access report increased use of computers for their administrative work.

The program is helping teachers with differing levels of familiarity with project-based approaches experiment with new teaching methods.
Even teachers who report no prior familiarity with project-based or student-centered teaching methods experiment with the teaching methods promoted in the training when they return to their classrooms. This suggests that the training motivates teachers to use their new knowledge in the classroom, regardless of the novelty of these ideas to the participating teachers. Overall, all participants exhibited high levels of follow up and experimented with these approaches to teaching in their classrooms.

The data on national income level suggests that teachers in the lower income countries have 1) less familiarity with project-based approaches to teaching, and 2) weaker access to computing resources.
The data indicate that lower income countries have disproportionately higher percentages of teachers with little prior knowledge of the targeted teaching methods. Teachers from the lower income countries also show a pattern of weak access to computer resources, they are more likely to only have lab access to computers with fewer computers, than teachers in higher-income countries.

Easy access to computing resources in classrooms and labs facilitated teachers' ability to use technology with their students.
Regardless of the technology resources available, a sizeable portion of teachers are increasing their usage of technology for these student-centered activities. The survey results suggest classroom access and lab access support frequent use of technology activities for students.

Teachers who understand the relevance of the teaching methods presented in the training are more likely to experiment with project-based approaches.
The data on the relationship of teachers' perceptions of relevance and increasing the use of project-based approaches with their students suggests the importance of giving teachers time during their training to discuss whether and how they see connections between their current teaching practices and project-based, student-centered approaches to teaching. Teachers who come to the training with very different approaches to teaching are likely to need support to determine how these approaches to teaching might help them to support student learning or to envision concrete ways to draw on these strategies in their classrooms.

The most commonly reported impediments to implementation were inadequate access to computing resources, necessary software, and the Internet.
Lack of computing resources was also the most commonly reported challenge by teachers who are implementing technology integrated lessons with their students. Another commonly reported challenge by teachers from countries at all levels of economic development was the misalignment of their lesson with the curriculum.

Introduction

The Intel® Education Initiative seeks to contribute to the development of modern, high-quality educational systems worldwide by being a partner to national governments in helping to prepare young people for the 21st century. The Intel Education Initiative offers a portfolio of professional development programs for educators. A core component of Intel's efforts is the development, dissemination and support of the Intel® Teach Essentials Course, a professional development program that offers teachers the knowledge and skills to integrate information and communication technologies as critical tools to encourage active student learning.

In six years, this program has reached more than three and a half million teachers in over 30 countries. Through its expanding portfolio of professional development programs, Intel Teach is also supporting the teaching of critical thinking skills, developing school leaders, enhancing technology education and supporting educators working in informal learning environments.

Education Development Center's Center for Children and Technology (EDC/CCT) has been coordinating the worldwide evaluation of the Intel Teach Essentials Course since March 2003. EDC's role with the Essentials Course evaluation has been twofold: designing and coordinating the implementation of two global surveys: the end of training survey and the international impact survey; and secondly, supporting Intel national education managers and local evaluators in designing country-specific evaluations and administering the global surveys. This two-pronged approach to evaluation provides Intel Teach program managers with information that is particular and unique to the experience of each country as well as gross level data about the implementation around the globe. This report on the global evaluation of the Essentials Course draws on findings the impact survey data that was submitted by 20 countries from 2005 to 2006. This quantitative data is complimented by qualitative reports submitted by local evaluators in ten countries.

The analysis of the 2005-2006 impact survey data indicates that the Essentials Course continues to be well received in all participating countries that submitted data. The evidence collected to date shows that the Essentials Course gives teachers a particular vision of how to use information and communications technologies (ICTs) and prepares them to follow up on what they have learned in several ways, including:

- Increased use of ICT to support their own professional work, such as lesson planning and creating curricula;
- Increased use of ICT as a tool to support student research, communication, and collaboration;
- Experimentation with specific instructional strategies emphasized in the training, such as allowing students to select their own topics for research projects, Having students present their work to the class, and encouraging revision of student work over time.

Across four basic outcome indicators that the survey tracks: unit plan implementation, increased use of technology with students, increased use of technology for lesson

planning and preparation, and increased use of project-based approaches; a significant majority of teachers have indicated change in teaching practice.

This report first presents a brief description of the role of ICTs in international efforts to reform educational systems and an overview the role of the Intel Education Initiative and the Essentials Course within these efforts. The report then presents and discusses findings regarding the impact of the program divided into the following sections:

I. Outcome Indicators, examining the results on four basic indicators and if they differ by access to computing resources or by prior knowledge of the teaching methods or by attributed relevance;
II. Student Activities, examining teachers' use of specific technology activities and teaching strategies with their students;
III. Teachers' Classroom Contexts, describing important contextual factors as reported by teachers responding to this survey;
IV. Variation by Region and Level of Economic Development, examining the outcome indicators and contextual factors by region and level of national economic development;
V. Challenges and Impediments, as reported by the teachers taking the impact survey.

Limitations

The multi-national nature of this program does present certain limitations to survey research, the primary one being that survey data can provide only a superficial analysis of teachers' reactions to the program and their attempts to build off of the training. The survey is translated into many languages and often administered using survey strategies that are most appropriate for that country and context. Also, when data from several countries is analyzed without accompanying contextual information, it becomes harder to identify trends in the data. This limits the findings that can validly be inferred from the entire data base. Qualitative reports help immensely and when available, this report refers to that data as well.

The Role of Intel Teach Essentials Course in Preparing Teachers for 21st Century Classrooms

Research demonstrates that the effective use of ICTs is dependent on teachers' ability to select instructionally appropriate ICTs and to use them in the context of effective instructional strategies.[1] Therefore, nations engaged in educational reform must make teacher education, both pre-service and in service, a high priority for investment, since the quality of instruction is central to improving academic achievement.[2]

[1] Webb, M., & Cox, M. (2004). A Review of Pedagogy Related to Information and Communications Technology. *Technology, Pedagogy and Education, 13*(3), 235- 286.
[2] Cohen, D., Raudenbush, S., & Ball, D. (2000). *Resources, Instruction and Research* (CTP Working Paper No. W-00-2). Seattle: Center for the Study of Teaching and Policy.

The Intel Teach Essentials Course offers ministries and other educational authorities a program intended to help meet their goals of creating a well-trained cadre of teachers who are able to integrate ICTs into student-centered and inquiry-driven learning activities. The core of the Essentials Course curriculum focuses on preparing teachers for a 21st Century education system by training them to integrate ICT across the curricula as a tool for learning, and to design and implement inquiry-driven, project-based learning activities. The curriculum also discusses crucial factors for creating high quality student-centered learning environments, including the classroom management issues associated with using technology with students, conducting research on the Internet, assessing students' technology-rich work products, and managing intellectual property issues.

The implementation model for the Essentials Course uses classroom teachers and other local educators as trainers, both to develop local capacity and to make the program more sustainable. The curriculum is delivered through a train-the-trainer model, with senior trainers from ICT training a cadre of senior trainers in each country, who then train Master Teachers from local districts or school. The training uses commonly available Microsoft software, focusing primarily on how to use Windows-based versions of PowerPoint and Publisher to support students in creating presentations, web pages, brochures and newsletters.

Bringing the Essentials Course to teachers in so many different countries requires worldwide, regional, and country-level program staff constantly balance between localizing the program and maintaining a focus on the core themes and goals of the program. Although many Ministries of Education (MOEs) share similar goals for creating education systems that meet the challenges of the 21st Century, the process is also uniquely shaped by the current education system, traditional educational practices, and the level of economic development and ICT infrastructure of each country.

Once the Essentials Course is introduced in each country, it intersects with these unique conditions in two ways. First, the messages that participants take away from the program are shaped by the extent to which the program connects with their prior experiences and knowledge. As this report will discuss, the evaluation data demonstrates that teachers come to this training with widely varying levels of prior knowledge, that there are broad national and regional patterns of what teachers know and can do prior to the trainings, and that teacher experience in the training is strongly influenced by their prior knowledge. Second, the ability of participants to follow up on what they have learned can be both facilitated and impeded by their school contexts. This report will also discuss some of the main obstacles that teachers encounter, across widely varying contexts, when they begin to follow up on their training.

Data Sources

This report draws on three types of data: responses to the international impact surveys, evaluation reports from other participating countries, and EDC's own site visits to participating countries and discussions interactions with local evaluation teams.

Survey Data

EDC aggregates and analyzes all data from both the end-of-training and impact surveys submitted by participating countries. The training survey covers the teachers' experience in the training, their prior technology experience and their perceptions of the quality and utility of the training. The impact survey covers issues such as teachers' implementation of a technology-rich lesson; obstacles and challenges to implementation; changes in teacher practice; and technical infrastructure in the schools in which the respondents work. Between November 2005 and December 2006, twenty countries submitted impact survey data on the Intel Teach Essentials Course that could be analyzed for this report (See Table 1). The database contained 15,689 respondents as of December 30, 2006. This represented the most recent survey results for each country.

Table 1: Impact Survey Data by Country

Country	Impact Survey (N)
Australia	737
Brazil	318
Chile	511
China	4,481
Columbia	30
Egypt	183
India	1,563
Italy	139
Japan	233
Jordan	1,454
Korea	261
Malaysia	370
Mexico	972
Pakistan	570
Philippines	391
Russia	322
South Africa	58
S. Korea	992
Thailand	252
Ukraine	206
United States	1,907
TOTAL	**15,689***

* EDC requires that the impact survey be administered to teachers at least six months after the training is completed. Respondents who completed training after June 31, 2005 were removed from the analyses.

Evaluation Reports

The second source of information for this report is a group of reports submitted by national evaluators working in those countries that are conducting evaluation activities beyond the administration of the impact and End of Training surveys. These reports vary considerably in their format and depth, ranging from PowerPoint presentations and text narratives of the impact survey findings to multiple narrative reports submitted over a year or more. All of these reports offer insights into the particular strengths and challenges of the program's implementation in each of these countries.

Table 2: Countries submitting qualitative reports 2006

Regions	
APAC	**LAR**
China Japan Malaysia Philippines	Columbia

EDC Interactions

EDC/CCT has interacted with evaluators, program managers, and practitioners in many participating countries, through field visits, phone, and electronic and face-to-face exchanges. This year, EDC/CCT evaluators have made site visits to six countries (Costa Rica, Colombia, Vietnam, China, Korea and Philippines) and have worked to help plan for evaluations or interpret evaluation data with education managers in other countries.

Section I: Outcome Indicators

The Essentials Course professional development program is designed to assist teachers with the integration of technology into everyday classroom practice. The goal of the training is to help teachers integrate ICTs into their teaching practice by emphasizing student-centered and inquiry-driven learning activities. The survey tracks four broad indicators of program success:

1. implementation of teachers' unit plans;
2. use of technology for lesson planning and preparation;
3. increased use of project-based approaches;
4. integration of new technology activities with students.

This section presents high-level findings on teacher responses on these indicators and also examines them in relation to teachers' access to ICT resources, their prior knowledge of teaching strategies, and the relevance of these strategies to their teaching goals.

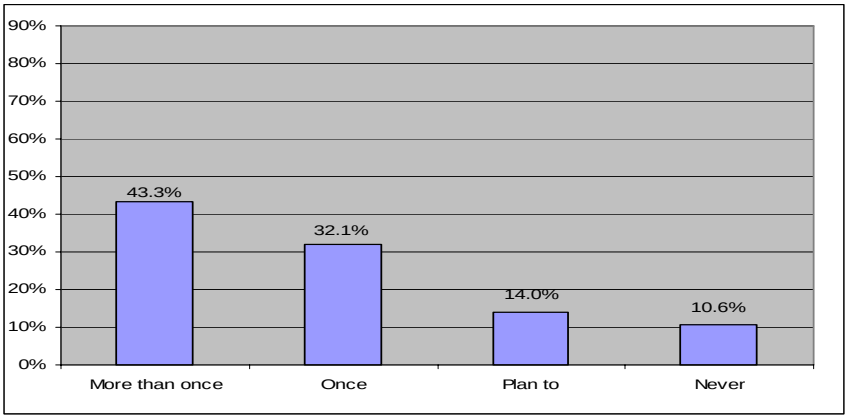
Indicator 1: Implementation of the Unit Plan Designed during the Essentials Course

The core of the Essentials Course curriculum is the creation of a unit plan, including model student work samples, support materials, and an implementation plan. This structure allows teachers to expand their technical skills in the context of a curriculum development process. The process of designing the unit plan is intended to give participants a chance to think deeply about the issues involved in integrating ICT into their teaching. By requiring the creation of immediately relevant materials, the curriculum puts the teachers' interests and concerns at the center of the training experience. Analyses presented here examine the actual implementation of some or all of the unit plan and how that may vary by access to computing resources.

Unit plan implementation

The implementation of all or part of the unit plan is interpreted as a basic indication of whether or not teachers have followed up on the training. The survey asks teachers if they have implemented all or part of the unit plan they designed during the training at least once or more than one time. Roughly 75% of the teachers who responded report having implemented all or part of their unit plan at least once; and 43.3% used their unit plan multiple times. Of the entire sample of teachers who answered this question, roughly 11% have never implemented their unit plan. This data indicates that the majority of teachers are at least experimenting with some of the new concepts and skills they learned in the training by implementing all or part of their unit plans in their classrooms (see Figure 1).

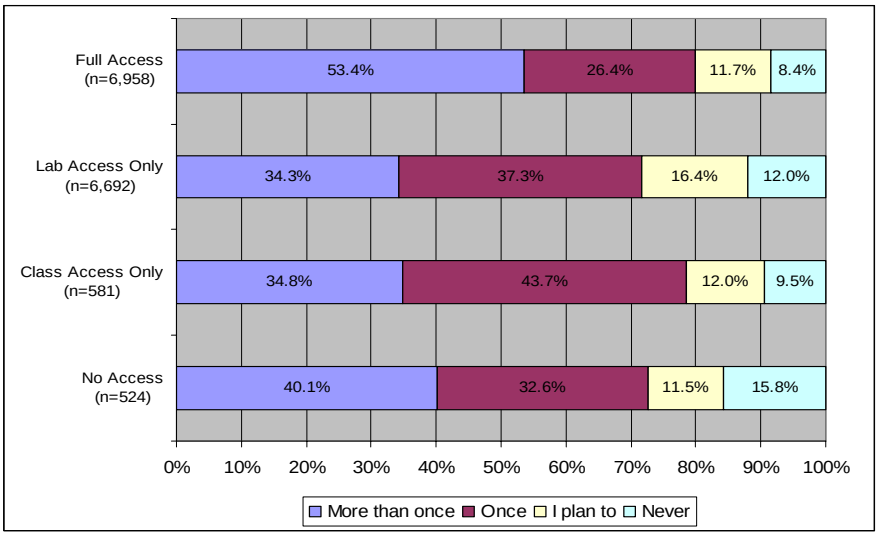
Figure 1: Teachers' Implementation of All or Part of Their Unit Plan
(n = 15,029)



Unit plan implementation by availability of computing resources

EDC examined the role that availability of computing resources plays in the implementation of unit plans, and the data indicates that a substantial portion of teachers at all access levels are implementing their unit. However, teachers with more points of access to computers were seen to be more likely to implement their unit plan. As shown in Figure 2, 79.8% of the teachers with access to ICT resources in both the classroom and a computer lab (full access group) have implemented all or part of their unit plan once or more than once, compared to 72.7% of the teachers reporting no access. The percentage of teachers who implemented some or part of their unit plan at least once is greater for teachers with class access only (78.5%) compared to teachers with lab access only (71.6%). The higher percentage of teachers with full access reporting the implementation of their unit plan suggests that having multiple places to access computing resources makes it easier for teachers to experiment with their unit plan.

Figure 2: Teachers' Implementation of All or Part of Their Unit Plan by Availability of Computing Resources in Their Schools
(n = 14,755)

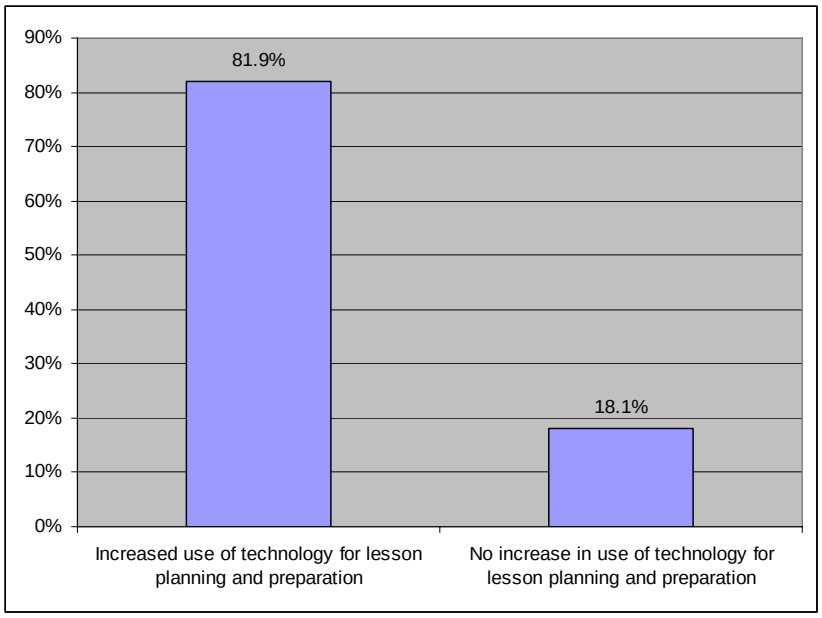


Indicator 2: Teacher Use of Technology for Lesson Planning and Preparation

The Essentials Course also offers teachers the opportunity to experiment with new ways to use technology for lesson planning and preparation. In the Essentials Course, teachers learn how to use the Internet to find information and classroom resources, and create teacher support materials. The following charts present teachers' reports about their increased use of technology for planning, for administrative activities, and to present information to students since completing the Essentials Course. The relationship of the availability of computing resources to teachers' increased use of technology in their planning and preparation was also examined.

EDC combined responses on multiple variables to create an indicator of increased use of technology for lesson planning and preparation. According to this indicator, 81.9% of teachers report that they have increased their use of technology for administration and planning since participating in the training (see Figure 3). This suggests that the teachers are leaving the training program with the skills necessary to use technology to support their teaching.

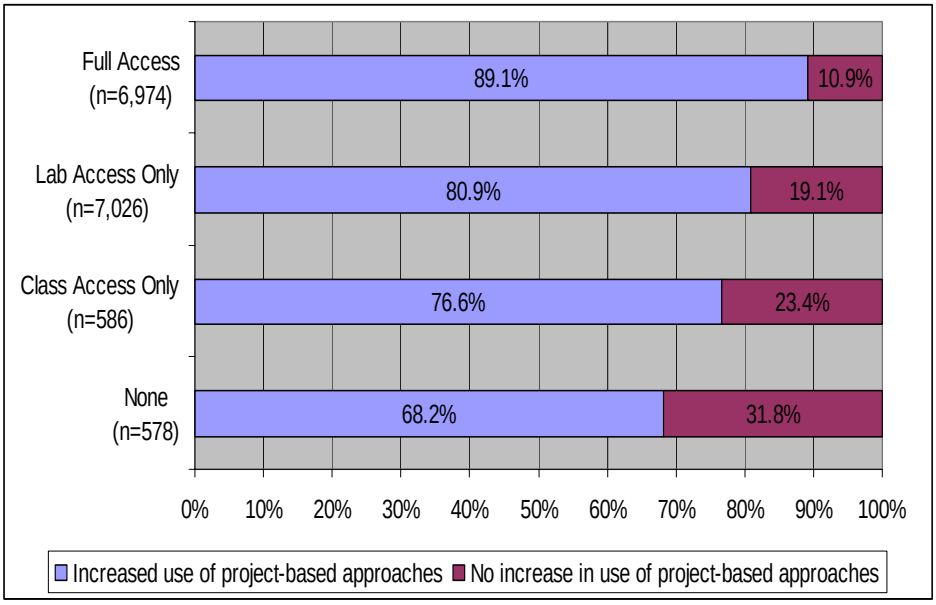
Figure 3: Change in Teachers' Use of Technology for Planning and Preparation
(n = 15,689)



The survey does not capture how teachers are using technology in their planning. But regardless of the type of activities they plan, using technology for planning can be an important step for teachers to take before changing their teaching methods. The country reports suggest that many teachers' initial use of technology for planning and preparation is, in fact, in support of their current teaching methods. For example, one of the issues addressed in a report by the Indian evaluation team, the Teacher Foundation, (www.teacherfoundation.org), was that the movement towards student-centered methods was often preceded by teachers integrating ICT into traditional practices.

Teacher use of technology for lesson planning by availability of computing resources
Since teachers' ability to use technology for lesson planning and preparation can be related to the technological resources available to them, EDC examined both variables. As shown in Figure 4, more teachers with full access to technology report increasing their use of technology for lesson planning and preparation (89.1%), followed by teachers with lab access only (81.0%). Teachers with no access to technology indicate the lowest percentage of increased use of technology (68.2%). However, this still constitutes a significant percentage of teachers reporting having increasing their use of technology for their needs, and overall, the data suggests that the Essentials Course is successful in promoting teachers' use of technology for their lesson planning and preparation.

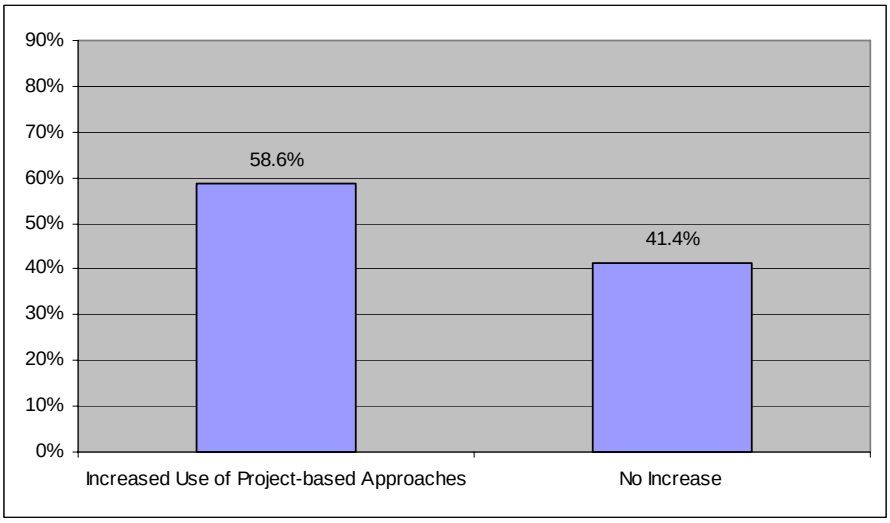
Figure 4: Availability of Computing Resources and Change in Teachers' Use of Technology for Planning and Preparation
(n=15,164)



Indicator 3: Increased Use of Project-Based Approaches
In addition to integration of technology activities, the process of developing a unit plan is designed to prepare teachers to increase their use of project-based approaches to teaching. The following figures detail the relationship between increased use of project-based approaches and implementation of the unit plan and teacher access to technology.

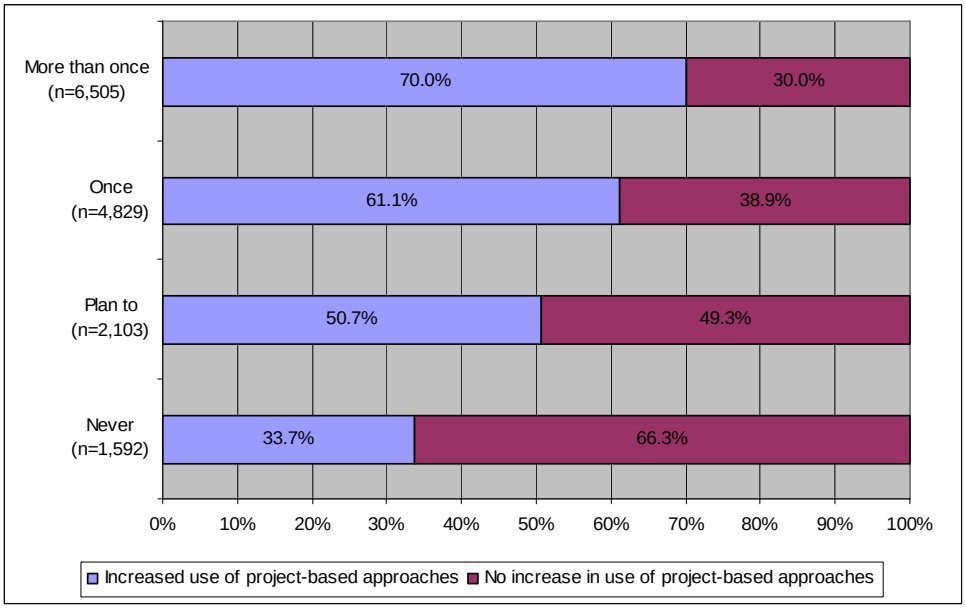
Overall, 58.6% of the teachers reported increasing their use of project-based approaches (see Figure 5).

Figure 5: Increased Use of Project-Based Approaches
(n=15,689)



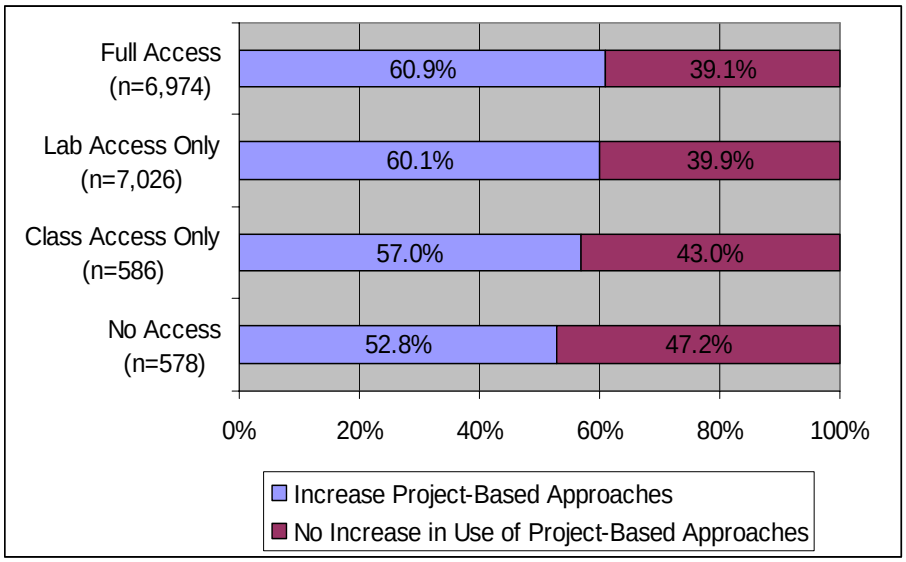
Increased use of project-based approaches and unit plan implementation
Implementation of the unit plan is associated with increased change in the use of project-based approaches (see Figure 6). Teachers who have implemented their unit plan more than once are most likely to report an increase in their use of project-based approaches to teaching (70.0%), followed by teachers who have implemented their unit plan one time (61.1%). Teachers who never implemented their unit plan were also most likely to not increase their use of project-based approaches (66.3%).

Figure 6: Teachers' Implementation of Unit Plan by Use of Project-Based Approaches
(n = 15,029)



Increased use of project-based approaches by availability of computing resources
The data on ICT resources suggest a weak relationship between teachers' level of technology access and their increased use of project-based approaches. As shown in figure 7, there is a trend for teachers with full access to technology or just lab access to be more likely to report increasing their use of project-based pedagogy (60.9% and 60.1% respectively). Conversely, teachers with no technology access report the lowest percentage of increased project-based approaches (52.8%).

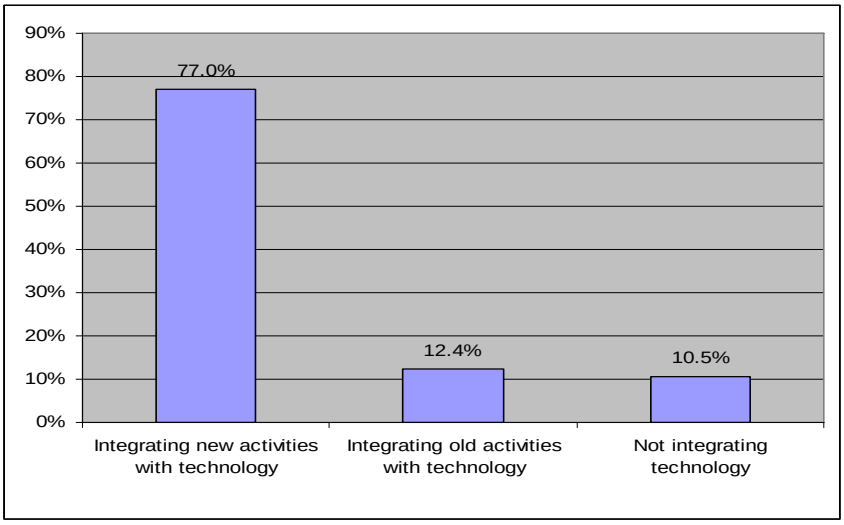
Figure 7: Availability of Computing Resources and Increased Use of Project-Based Approaches
(n=15,164)



Indicator 4: Teacher Integration of New Technology Activities with Students
Creating the unit plan is a way to engage teachers in technology integration but the expectation is that they can build on this initial experience and, over time, apply this knowledge to other activities. Beyond the implementation of the unit plan, the Essentials Course is intended to influence teachers' approaches to integrating technology across their teaching more broadly. As mentioned earlier, EDC created an indicator of how teachers are using technology with their students to identify if teachers are integrating technology in new ways upon completion of the program. The following figures use this indicator to illustrate how teachers' use of technology with their students may vary by a teacher's level of access to technology.

As shown in Figure 8, the large majority (77.0%) of teachers indicate that they are integrating technology in new ways upon completion of the training program. This compares to 12.4% of teachers who are using technology but have not integrated any new activities, and 10.6% of teachers who are not integrating technology at all.

Figure 8: Teachers' Use of Technology with Students
(n = 14,530)

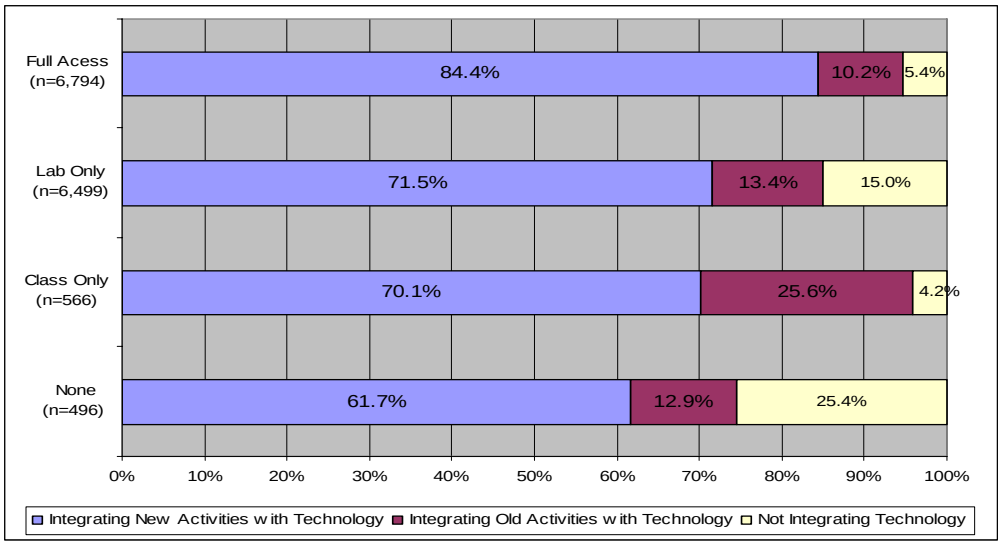


The Essentials Course promotes the idea that students should use the computer to create presentations, reports, newsletters, and other products as well as to conduct their own research. For many teachers the idea that students can be productive agents with technology is new. For example, the evaluation by the Korean Institute of Curriculum and Evaluation (http://www.kice.re.kr/kice/eng/index.jsp) marks as a highlight of the Essentials Course that it helped teachers change their "old perception of ICT as teacher-directed one-way communication" to see that students can use technology to research, explore and direct their own learning.

Integration of new technology activities by availability of computing resources

As with implementing the unit plan, the teacher's ability to incorporate new technological activities may be related to the technological resources available to them, so responses were analyzed relative to teachers' reported availability of computing resources in school. The data suggests a relationship between multiple access points (class and lab) and integrating new activities with their students (see Figure 9). Teachers with full access to technology (both classroom and lab access) exhibit the greatest percentage of integrating technological activities in new ways (84.4%) in comparison to teachers with lab access only (71.5%), class access only (70.1%), and no access (61.7%). Conversely, teachers who indicate that they have no access show the greatest percentage of *not* integrating any type of technological activity (25.4%).

Figure 9: Use of Technology with Students by Availability of Computing Resources in Their Schools
(n = 14,355)



Teacher integration of new activities with technology was seen to be mediated by availability of technology resources. The fact that respondents with full access show the highest proportion of teachers introducing new technology activities suggests that the flexibility of having access to computing resources in multiple places is important to helping teachers integrate technology into their students' learning activities.

Overall, the data suggests that the Essentials Course is successful at encouraging teachers to use technology in new ways at all levels of computing resources. Even 61.7% of respondents who report having no availability of computing resources in their schools still report integrating technology into their students' learning in new ways. This number is up from 2005 data, in which 48.7% of teachers with no access reported integrating new activities with technology[3]. This increase from last year in percentage of teachers with no school ICT access who still incorporate new technology activities is an indication of teacher's reliance on student use of technology in areas outside of the school. In fact, the most recent data indicates that 66.4% of teachers with no access report having their students engage in technology-integrated lessons at home.

It is important to note that the survey question about "new technology activities" does not capture any information about the nature of the "new activities," or about how successful or problematic teachers found these new activities to be for them or for their students. This is an important indicator of the broader impact of the Essentials Course because it captures evidence of teachers' sustained follow-up. However, it does not track whether these changes are consistent with the goals or priorities of the program. The qualitative data suggests that many teachers are still struggling to improve the quality of their

[3] Light, D., McMillan Culp, K., Menon, R., & Shulman, S. (2006). *Preparing Teachers for the 21st Century Classroom: Current Findings from Evaluations of the Intel Teach to the Future Essentials Course*. New York: EDC/Center for Children and Technology.

technology use and that many of these new activities may be more teacher-centered than student-centered (See *Preparing Teachers for 21st Century Classrooms*). For example, the qualitative evaluation from Japan (2006) reports on the challenges Japanese teachers face integrating these new activities into their already demanding curriculum.

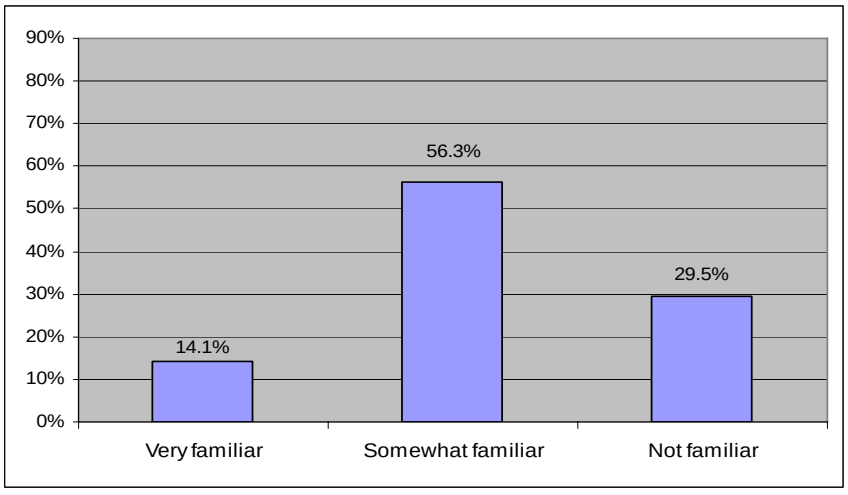
Analysis of Key Indicators by Familiarity and Relevance of the Teaching Methods

Evaluation of the Essentials Course has consistently shown that two key strengths of the course are its ability to build upon teachers' existing knowledge and interests, and to help teachers identify and achieve incremental changes in their use of technology and of project-based teaching methods. This section of the report discusses growing trends in survey data as the program extends to new countries and into more regions in currently participating countries. Previously collected End-of-Training data suggest that teachers coming into the training report little or no prior knowledge of the project-based and student-centered teaching methods emphasized in the training[4].

Familiarity

Most teachers report some degree of familiarity with the teaching strategies presented in the Essentials Course (see Figure 10). Approximately 70% of teachers reported being at least somewhat familiar with the teaching strategies presented in the training, with 14.1% of the teachers within that group indicating that they felt very familiar. This compares to 29.5% of teachers who reported that they were not familiar with the teaching strategies.

Figure 10: Familiarity with Teaching Methods
(n=15,169)



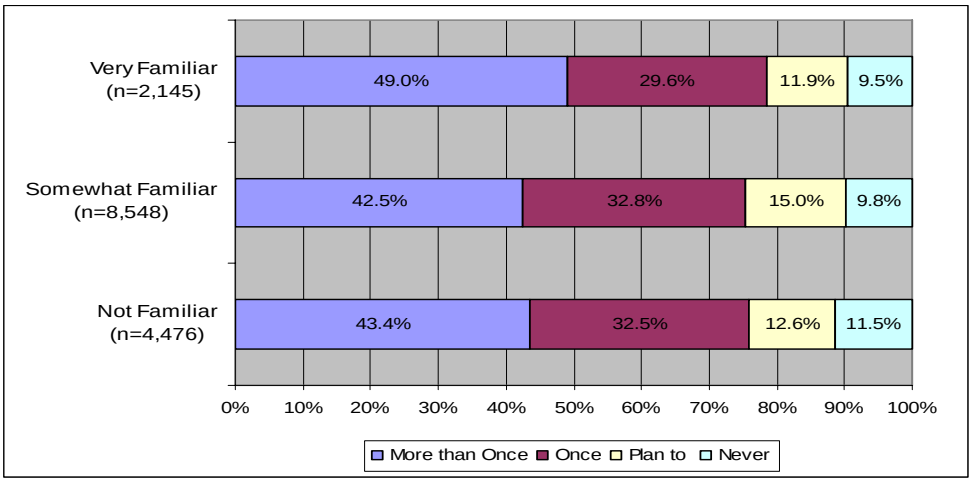
Familiarity and unit plan implementation

Since implementing all or part of their unit plan can also indicate broader changes in teacher practice, we wanted to examine the relationship between prior knowledge of the targeted teaching methods and unit plan implementation. The data indicates that there is

[4] See also the Quarterly End of Training Reports for Q2 and Q2 02005.

no clear relationship between teachers' prior knowledge of these teaching strategies and whether they implement the unit plan (See Figure 11). The overall numbers for implementation of all or part of unit plans one or more times is 78.6% for teachers very familiar with the teaching strategies, and 75.9% for teachers unfamiliar with the teaching strategies. About half (43.4%) of the teachers not familiar with the teaching strategies indicated that they implemented their unit plan more than once, and a slightly larger percentage (49.0%) of teachers who were very familiar with the teaching strategies indicated the same.

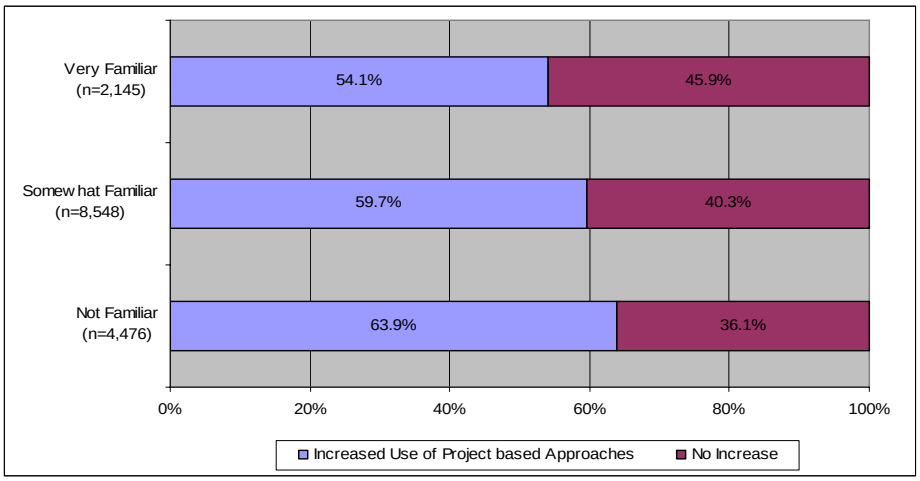
Figure 11: Degree of Familiarity with Teaching Methods by Teachers' Implementation of their Unit Plan
(n = 14,761)



Familiarity and use of project-based approaches to teaching

The survey also asked participants about their use of project-based approaches to teaching. Teachers' use of project-based approaches in the classroom after their training did not differ by familiarity with the teaching strategies (see Figure 12). On the contrary, teachers with no familiarity were more likely to report experimenting with these approaches. More teachers with no prior familiarity (63.9%) indicated that they had used project-based approaches with their students after their training than did teachers who reported being very familiar with the teaching strategies (54.1%). These findings may indicate that the training is helping all teachers increase their use of project-based approaches and is effectively introducing these approaches to new populations of teachers.

Figure 12: Degree of Familiarity with Teaching Methods by Change in Teachers' Use of Project-Based Approaches
(n = 15,169)

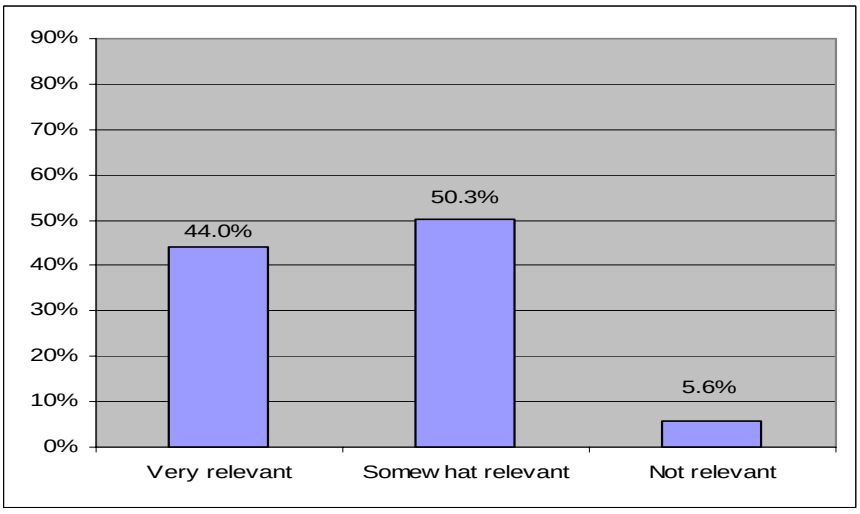


Relevance

Teachers' perceptions of the relevance of the targeted teaching methods to their own teaching practices might be expected to influence how they follow up on the training. If teachers do not perceive the strategies presented in the training to be relevant to their classrooms and teaching goals, they might not follow up on the training in their classrooms.

Nearly all teachers reported some degree of relevance of the teaching strategies to their own practice (see Figure 13). The majority of teachers who responded indicated that the teaching strategies presented in the training were at least somewhat relevant to their teaching goals (94.3%). Only 5.6% of teachers felt that the teaching strategies were not relevant.

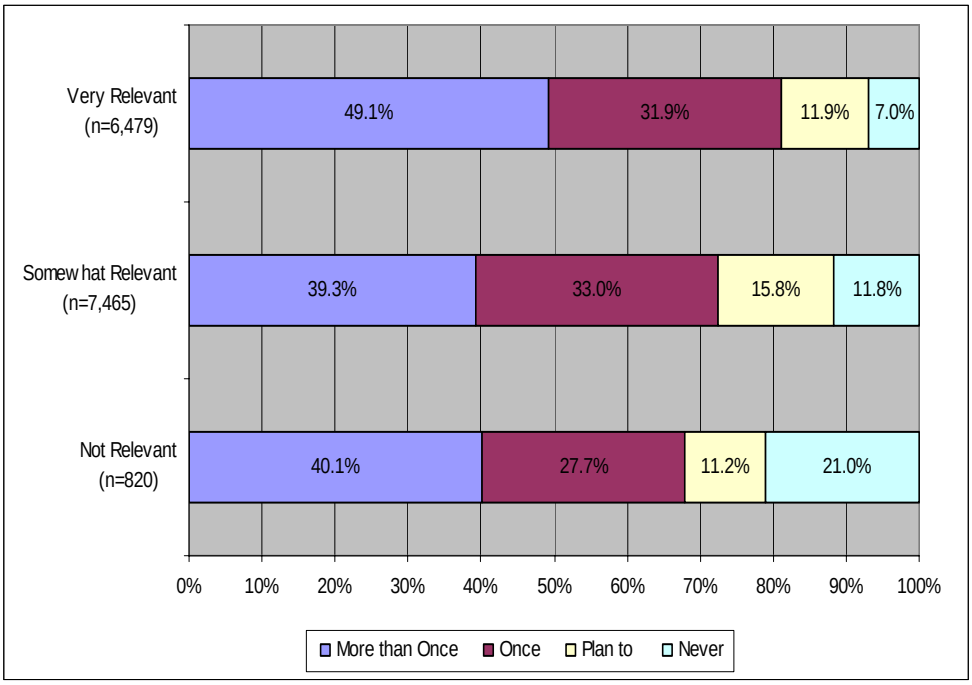
Figure 13: Relevance of Teaching Strategies
(n=15,172)



Relevance and unit plan implementation

Teachers' perceptions of the relevance of the targeted teaching methods had an influence on teachers' use of their unit plans (see Figure 14). The overall implementation rate for teachers who found the teaching methods to be very relevant was 81%, compared to 67.8% of teachers who did not find the teaching strategies relevant to their teaching goals. About 21% of the teachers who did not find the teaching strategies relevant reported they would not implement it at all. This suggests that teachers' ability to see the relevance of these methods is important to their decision to implement all or part of their unit plan.

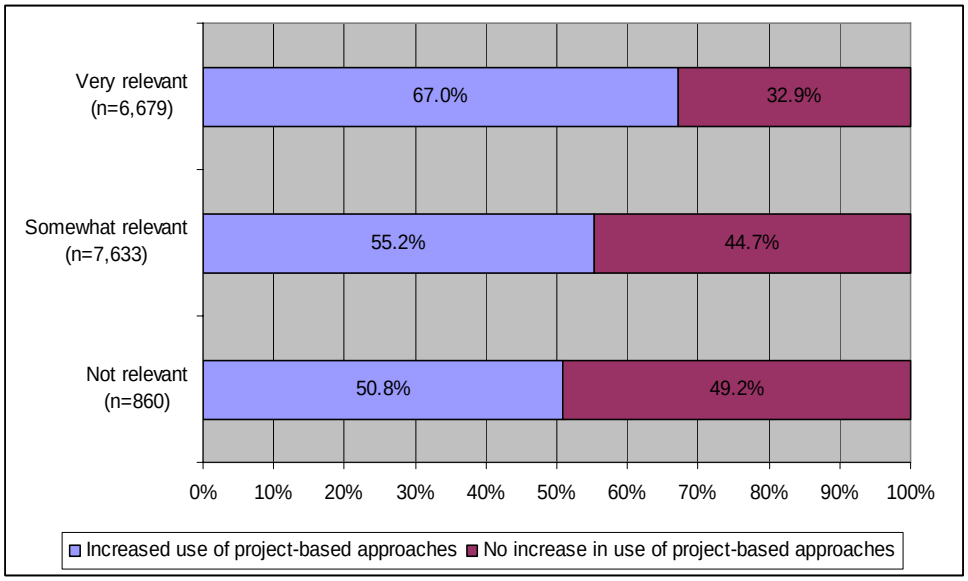
Figure 14: Relevance to Teaching Goals by Teachers' Implementation of Unit Plan
(n = 14,764)



Relevance and increased use of project-based approaches

The connection between teachers' perceptions of relevance and their increase in use of project-based approaches shows a similar pattern as the use of their unit plan. Sixty-seven percent of the teachers who found the teaching strategies very relevant had increased their use of project-based approaches in comparison to 50.8% of the teachers who did not find the teaching strategies relevant (See Figure 15). Teachers who found the teaching strategies not relevant were more likely than teachers who saw at least some degree of relevance to report no increase in project-based practices (49.2%).

Figure 15: Relevance and increased use of project-based approaches
(n=15,172)



Section II: Student Activities

The Essentials Course encourages teachers to put students in control of technology in the classroom, using technology to gather and analyze information and present their knowledge and interpretations to others. It also encourages teachers to promote inquiry learning through project-based teaching. Research suggests that these uses of technology in classrooms, when combined with effective instructional approaches and rich curricular content, can have a positive impact on a variety of indicators of student achievement, such as ability to engage in scientific inquiry, higher-order thinking skills,[5] motivation and organization skills[6], and critical thinking and collaboration skills[7]. The following section details teacher reports of how frequently they have their students engage in activities using technology and promoting inquiry learning.

Assigning Students to Use Technology

The Essentials Course encourages teachers to have students use ICT in their learning. Some of the qualitative reports refer to changes resulting from the use of ICT. For example, the Korean evaluation, by the Korean Institute of Curriculum and Evaluation, considers that a hallmark of the Essentials Course is that it helped teachers change their "old perception of ICT as teacher-directed one-way communication" to assign students to use technology to research, explore and direct their own learning. The survey asks teachers about two specific technology activities that would be expected in a 21st Century learning environment: having students make presentations and students conduct their own Internet research. On the survey, teachers were asked if they had increased the frequency in which they had students engage in this type of activity.

Student presentations

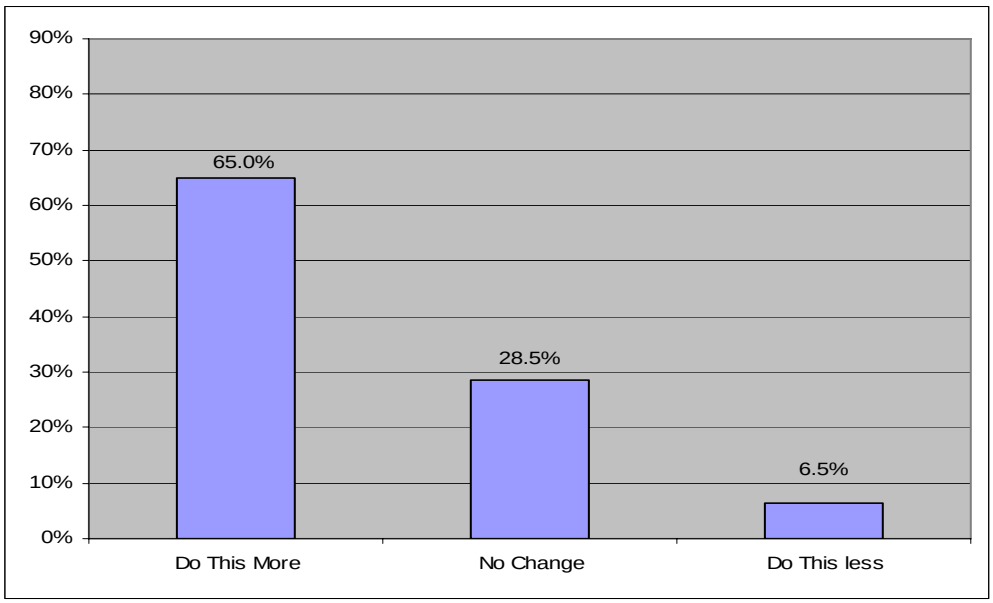
Having students create products to present their work to the class is a central strategy presented in the Essentials Course. The data suggest that teachers are implementing this strategy in a widespread manner with 65% of the teachers reporting having their students present their work to the class more often since the training (See Figure 16).

[5] Hunt, E., & Minstrell, J. (1994). A cognitive approach to the teaching of physics. In K. McGilly (Ed.), *Classroom Lessons: Integration Cognitive Theory and Classroom Practice*. Cambridge, MA: MIT Press, White, B. Y., & Frederiksen, J. R. (1998). Inquiry, modeling, and metacognition: Making science accessible to all students. *Cognition and Instruction, 16*(1), 3-118.

[6] Cradler, R., & Cradler, J. (1999). *Just in time: Technology innovation challenge grant year 2 evaluation report*. San Mateo, CA: Blackfoot School District No. 55, Educational Support Systems.

[7] Means, B., & Olson, K. (1997). *Technology and education reform. Studies of Education Reform*. Washington DC: US Government Printing Office, Sandholtz, J., Ringstaff, C., & Dwyer, D. C. (1997). *Teaching with technology : creating student-centered classrooms*. New York: Teachers College Press, Scardamilia, M., & Bereiter, C. (1996). Computer support for knowledge-building communities. In T. Kaschmann (Ed.), *CSCL: Theory and practice of an emerging paradigm*. Mahwah, NJ: Erlbaum.

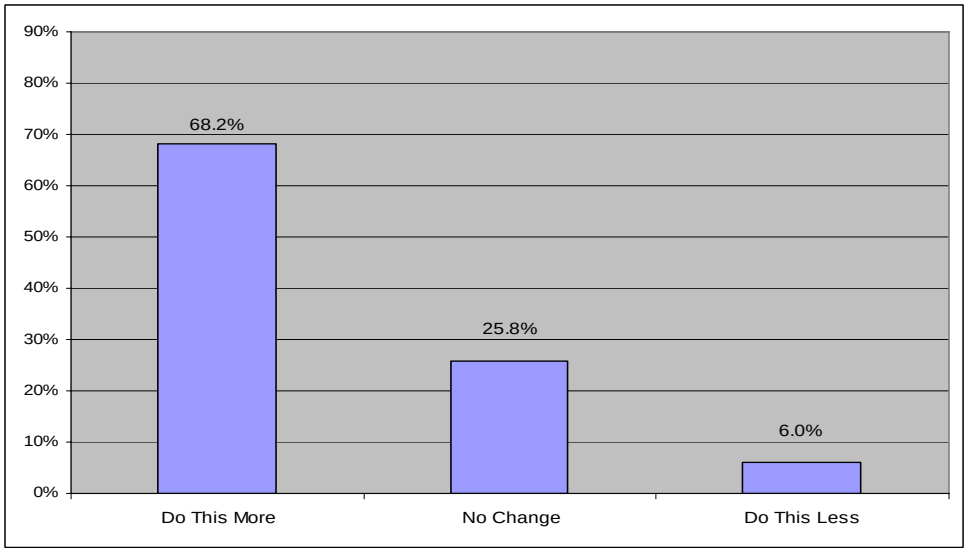
Figure 16: Change in Teachers' Use of Student Presentation of Work to the Class
(n = 13,675)



Student use of the Internet

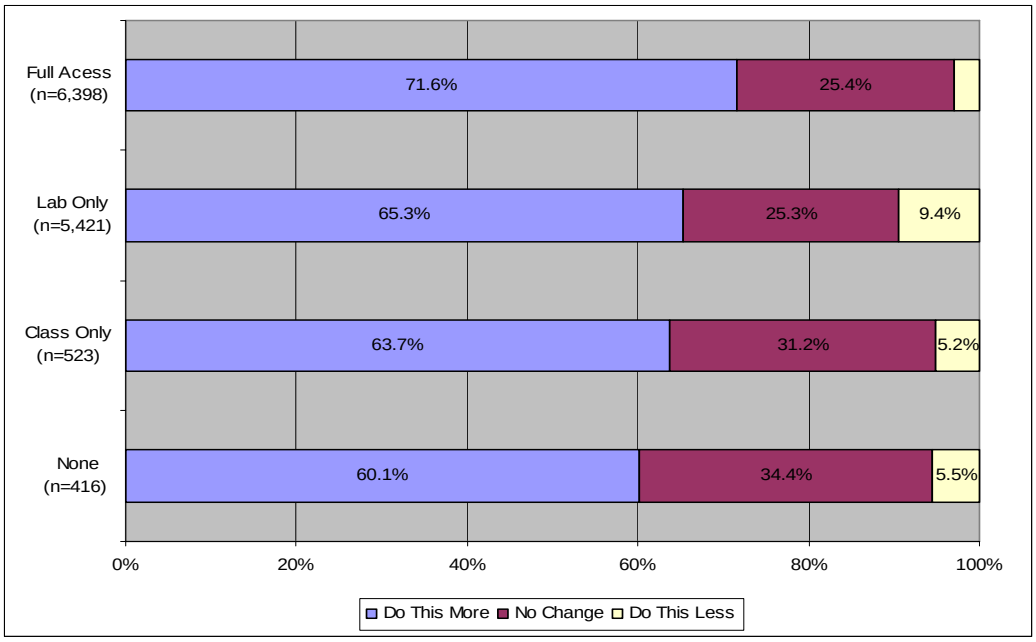
The survey also asked teachers if they had increased the frequency of having students engage in independent research using the Internet. A large percentage of teachers (68.2%) are having their students use the Internet for independent research more often since completion of the training (See Figure 17).

Figure 17: Change in Teachers' Use of Student Internet Research
(n = 12,871)



EDC then examined the use of these ICT activities by teachers' access to computing resources. Surprisingly, when looked at in relation to available computing resources, the data indicate that the lack of school-based computing resources is not complete obstacle to engaging students in technology activity, 60% of the teachers reporting no access to computing resources indicate having their students do more Internet research since taking the Essentials Course training (see Figure 18). Of the teachers reporting access to computing resources in the school, 63.7% of teachers reporting class access only and 65.3% of the teachers reporting lab access only indicated having increased their frequency of asking students to use the Internet for independent research. This shows that in-school access to computers in the classroom or the computer lab only does not make much of a difference in having students use the Internet for their research. However, full access to computers (access to computing resources in both the classroom and the lab) does make a slight difference as a higher percentage of teachers belonging to the full access group (71.6%) reported having their students use the Internet more often to do independent research.

Figure 18: Student Use of Internet for Independent Research by Availability of Computing Resources
(n = 12,758)



***In order to maintain clarity values below 5.0% were removed from the chart.

Supporting Students to Collaborate and Work on Projects

The qualitative reports indicate that many MOEs are attempting to shift their teachers' pedagogical approaches towards student-centered active methods (i.e. Thailand, India, and Colombia). While the Essentials Course does not promote one specific learning theory, it does encourage teachers to have students work on group projects, collaborate

and do their own research. The Essentials Course encourages teachers to use project-based approaches to teaching and use inquiry learning with students.

The 2005-2006 global data show that the Essentials Course is encouraging change across three different pedagogical strategies. About 60% of the teachers surveyed worldwide indicated having increased their frequency of having students choose their own research topics (60.6%, see Figure 19) and work on group projects (66.4%, see Figure 20). In addition, teachers also increased other types of student collaboration, 60.7% of respondents have students review and revise their own work (see Figure 21).

Figure 19: Teacher Use of Students Choosing Research Topics
(n = 13,415)

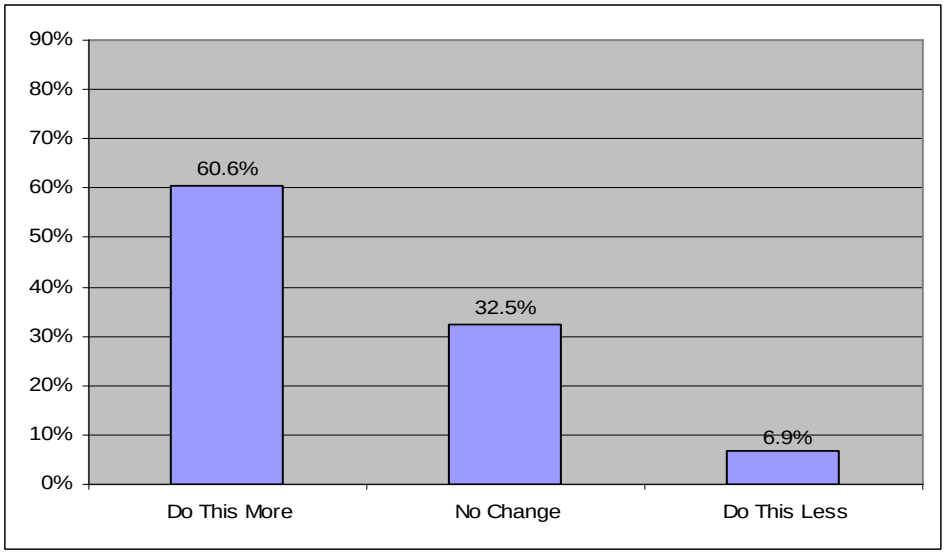


Figure 20: Teacher Use of Student Work on Group Projects
(n = 13,842)

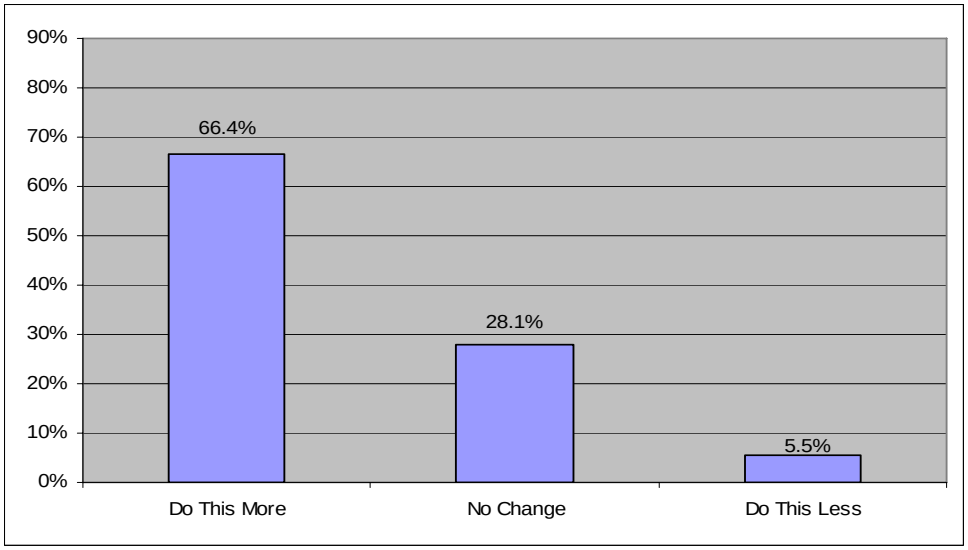
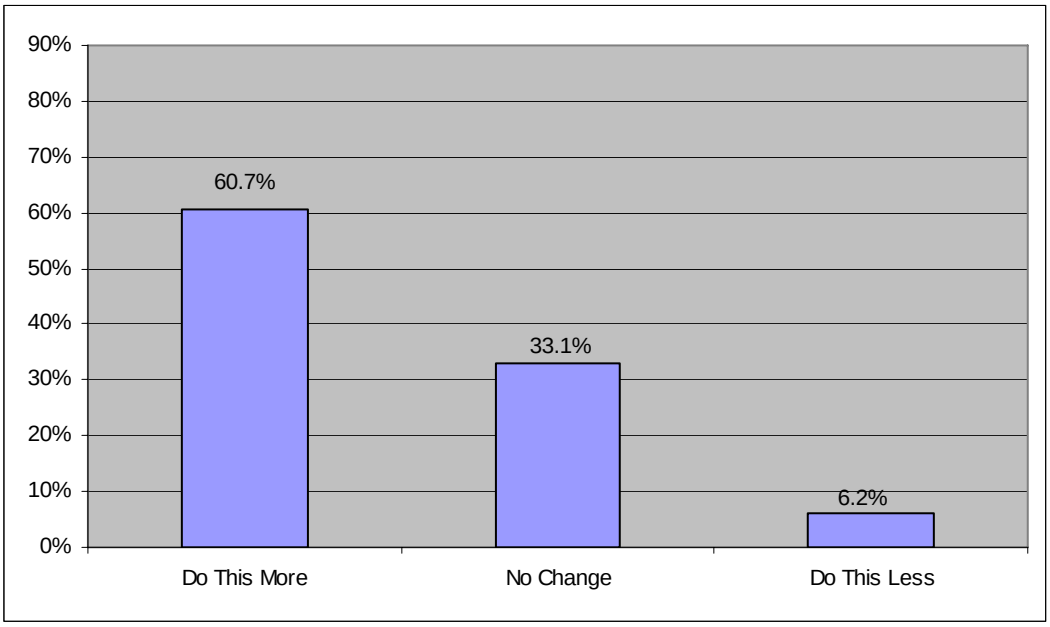


Figure 21: Teacher Use of Students Reviewing and Revising Own Work
(n = 13,604)



Section III: Teachers' Classroom Contexts

The survey contains a number of items that help describe the classroom environment in which program participants work. This information is collected because classroom conditions and available resources shape teachers' subsequent ability to follow up on what they learned in the Essentials Course. Since the survey is used in many different countries and regions, these questions are broadly stated, to ensure that they apply in these various contexts.

Responses to these questions indicate that teachers' reports of class size, availability of computers, the extent of access to computing resources, and internet connectivity vary substantially by country. The following tables detail the classroom and infrastructure-related contexts within which the participant teachers operate.

Computer access: Areas in school where computers are available
Participant teachers were asked to separately indicate whether they had access to computers in their classrooms and/or computer labs. These responses were compiled to create an indicator of the availability of computers in their schools (see Table 3).

Table 3: Availability of Computing Resources
(n = 15,164)

Regions	Country	N	Availability of Computing Resources				Total
			None	Class Only	Lab Only	Full Access	
APAC	Australia	595	0.8%	9.7%	14.8%	**74.6%**	100%
	China	4,481	6.8%	5.5%	34.9%	**52.8%**	100%
	India	1,563	5.7%	1.5%	**88.4%**	4.4%	100%
	Japan	233	0.0%	0.0%	**54.9%**	45.1%	100%
	Korea	992	0.0%	0.6%	5.0%	**94.4%**	100%
	Malaysia	370	3.2%	0.3%	**77.0%**	19.5%	100%
	Pakistan	570	6.5%	2.8%	**76.1%**	14.6%	100%
	Philippines	388	2.3%	0.0%	**82.5%**	15.2%	100%
	Thailand	244	2.5%	1.6%	**57.4%**	38.5%	100%
EMEA	Egypt	183	0.5%	0.0%	**88.0%**	11.5%	100%
	Italy	139	9.4%	3.6%	**61.9%**	25.2%	100%
	Jordan	1,303	2.5%	5.8%	**76.5%**	15.1%	100%
	Russia	314	4.5%	2.5%	40.8%	**52.2%**	100%
	South Africa	49	8.2%	2.0%	36.7%	**53.1%**	100%
	Ukraine	206	3.4%	11.7%	30.6%	**54.4%**	100%
LAR	Brazil	318	7.2%	2.2%	**54.1%**	36.5%	100%
	Columbia	30	0.0%	3.3%	40.0%	**56.7%**	100%
	Chile	511	0.8%	1.2%	**73.2%**	24.9%	100%
	Mexico	949	0.9%	2.1%	46.3%	**50.7%**	100%
US	US	1,726	0.5%	4.9%	10.8%	**83.9%**	100%
	Total	15,164	3.8%	3.9%	**46.3%**	46.0%	100%

Globally, close to half the teachers reported having either only lab access to computers (46.3%), or full access (classroom and lab access) to computers (46.0%). Only 3.9% of the respondent teachers indicated having only classroom access to computers. Individually, countries differed in the type of access reported by the teachers who took the survey. A sizeable percentage of teachers from some countries indicated having no school-based access at all to computers, such as teachers from Italy (9.4%), South Africa (8.2%), and China (6.8%). These "no access" groups were not restricted to low income countries, as these countries represent high income, upper middle income, and lower middle income countries respectively. In several countries such as India (88.4%) and Egypt (88.0%), the largest group of teachers reported having only lab access. But there were other countries, such as Korea (94.4%) and the United States (83.9%), where the largest group of teachers reported having full access to technology resources.

Computer access: Number of lab computers available

Participant teachers were asked to indicate the number of computers available in their computer labs or media centers (see Table 4).

Table 4: Number of Computers in Computer Labs/Media Centers
(n = 13,989)

Region	Country	N	Number of computers available in computer labs/media centers					
			1-10	11-20	21-30	31-40	41 or more	Total
APAC	Australia	528	6.3%	**34.1%**	29.7%	7.2%	22.7%	100%
	China	3,931	4.2%	5.3%	16.0%	16.0%	**58.4%**	100%
	India	1,451	**52.2%**	25.3%	9.9%	6.1%	6.5%	100%
	Japan	233	3.4%	12.0%	12.9%	27.5%	**44.2%**	100%
	Korea	986	1.5%	4.2%	10.0%	**57.0%**	27.3%	100%
	Malaysia	347	4.6%	21.6%	28.0%	**28.2%**	17.6%	100%
	Pakistan	517	**38.1%**	31.5%	14.1%	9.5%	6.8%	100%
	Philippines	373	**42.4%**	35.1%	13.9%	3.8%	4.8%	100%
	Thailand	232	5.6%	15.1%	17.2%	15.9%	**46.1%**	100%
EMEA	Egypt	182	**83.5%**	11.0%	2.7%	0%	2.7%	100%
	Italy	121	9.9%	16.5%	19.8%	23.1%	**30.6%**	100%
	Jordan	1,213	16.2%	**52.4%**	15.3%	8.7%	7.4%	100%
	Russia	290	**52.1%**	26.9%	1.7%	15.2%	4.1%	100%
	S. Africa	46	4.3%	13.0%	26.1%	21.7%	**34.8%**	100%
	Ukraine	175	**78.9%**	16.6%	2.9%	0.6%	1.1%	100%
LAR	Brazil	288	**82.3%**	11.8%	4.2%	0.3%	1.4%	100%
	Columbia	27	**51.9%**	25.9%	14.8%	3.7%	3.7%	100%
	Chile	501	22.4%	**37.1%**	22.2%	6.4%	12.0%	100%
	Mexico	919	13.6%	**46.8%**	22.2%	8.5%	8.9%	100%
US	US	1,629	4.2%	13.4%	**34.9%**	17.7%	29.8%	100%
	Total	**13,989**	18.4%	20.7%	17.5%	15.5%	**27.9%**	100%

Globally there is no clear pattern, slightly more than one quarter (27.9%) of respondents have labs with 41 or more computers, 18.4% have 1-10 computers, and 20.7% have 11-20 computers. However, most countries show distinct patterns, with either smaller labs of 1-10 computers or larger labs of 31 computers or more. Respondents from Japan, Italy, and Thailand indicate a predominance of large labs of 41 or more computers. In some countries these different national patterns may reflect educational policies promoting certain types of labs. For example, the Costa Rican government policy is to equip each computer lab with 18 computers.

Class Size

Teachers who reported implementing new technology-integrated activities with their students were asked to indicate the number of students in their class. The modal, or most frequently given, responses of respondent teachers are shown in Table 5, as a range. A class size of 31-40 was the most common response, closely followed by a class size of 21-30. There does not appear to be any relationship between class size and income level. The modal response of teachers from Italy (high income) and South Africa (upper middle income) was a class size of 21-30 students. Also, the class size most often reported by teachers from Brazil (lower middle income) was 1-10 students.

Table 5: Most Commonly Reported Class Size (as a range)
(n = 12,469)

Region	Country	N	Class Size						Total
			1-10	11-20	21-30	31-40	41-50	51 or more	
APAC	Australia	577	5.4%	14.7%	76.1%	1.7%	1.0%	1.0%	100.0%
	China	3,991	1.0%	8.4%	14.4%	25.1%	25.4%	25.8%	100.0%
	India	1,198	4.0%	14.9%	21.2%	25.1%	17.2%	17.6%	100.0%
	Japan	181	8.8%	14.9%	29.8%	39.8%	4.4%	2.2%	100.0%
	Korea	923	3.0%	5.3%	13.0%	64.9%	12.1%	1.6%	100.0%
	Malaysia	226	7.1%	3.1%	22.6%	54.0%	11.9%	1.3%	100.0%
	Pakistan	324	15.1%	20.4%	29.6%	20.4%	5.6%	9.0%	100.0%
	Philippines	276	2.5%	4.3%	6.5%	13.4%	26.1%	47.1%	100.0%
	Thailand	226	2.7%	2.7%	8.0%	45.6%	38.1%	3.1%	100.0%
EMEA	Egypt	164	4.9%	4.9%	17.1%	36.6%	32.9%	3.7%	100.0%
	Italy	111	3.6%	28.8%	53.2%	11.7%	2.7%	0.0%	100.0%
	Jordan	964	6.7%	17.6%	39.4%	26.9%	8.2%	1.1%	100.0%
	Russia	136	33.1%	50.7%	14.7%	1.5%	0.0%	0.0%	100.0%
	S. Africa	34	0.0%	14.7%	52.9%	14.7%	11.8%	5.9%	100.0%
	Ukraine	202	29.2%	37.1%	29.2%	3.5%	1.0%	0.0%	100.0%
LAR	Brazil	261	28.4%	26.8%	21.8%	16.9%	1.9%	4.2%	100.0%
	Columbia	17	0.0%	11.8%	29.4%	23.5%	35.3%	0.0%	100.0%
	Chile	405	4.7%	11.6%	25.4%	36.3%	18.3%	3.7%	100.0%
	Mexico	647	10.5%	12.5%	26.1%	38.8%	9.1%	2.9%	100.0%
US	US	1,606	10.7%	27.3%	42.2%	11.4%	5.7%	2.7%	100.0%
	Total		6.1%	14.1%	25.7%	26.3%	15.4%	12.4%	100.0%

Ease of access to shared computing resources (computer labs)
Participant teachers were asked how easy or difficult it was to schedule time in the computer lab or media centers in their schools. The results are summarized in Table 6 and suggest that scheduling time in shared computer labs was difficult in most countries. Teachers in only a few countries– Brazil, Ukraine, Egypt, and Mexico indicated that scheduling was easy.

Table 6: Perceived Ease of Scheduling Time in the Computer Lab
(n = 13,925)

Region	Country	N	Difficult	No Opinion	Easy	Total
APAC	Australia	527	**51.6%**	8.4%	40.0%	100.0%
	China	3,931	**52.9%**	17.2%	29.9%	100.0%
	India	1,391	**54.5%**	8.6%	36.9%	100.0%
	Japan	215	**38.2%**	27.8%	34.0%	100.0%
	Korea	986	**55.5%**	9.1%	35.4%	100.0%
	Malaysia	350	**50.5%**	32.9%	16.6%	100.0%
	Pakistan	517	**53.8%**	18.0%	28.2%	100.0%
	Philippines	375	**72.5%**	7.7%	19.7%	100.0%
	Thailand	234	**65.8%**	6.8%	27.3%	100.0%
EMEA	Egypt	182	36.8%	10.4%	**52.8%**	100.0%
	Italy	121	7.5%	**52.9%**	39.7%	100.0%
	Jordan	1,219	**66.3%**	13.7%	20.0%	100.0%
	Russia	291	**69.4%**	16.5%	14.1%	100.0%
	S. Africa	43	**55.8%**	4.7%	39.5%	100.0%
	Ukraine	175	40.0%	16.6%	**43.4%**	100.0%
LAR	Brazil	288	24.0%	10.1%	**66.0%**	100.0%
	Chile	501	40.7%	8.8%	**50.5%**	100.0%
	Columbia	28	**64.3%**	14.3%	21.4%	100.0%
	Mexico	919	34.5%	12.6%	**52.9%**	100.0%
US	US	1,632	**54.1%**	11.6%	34.4%	100.0%
	Total	13,925	**52.3%**	14.0%	33.7%	100.0%

Internet Connectivity

The data indicate that Internet access lags behind computer access (see Table 7). Many teachers report connectivity as being relatively limited. Overall, 18.4% of these teachers do not have connectivity in their schools, 38.4 % have connectivity only through their lab, while 41.9% have both lab and classroom connectivity. Most countries show distinct patterns; for example, large percentages of teachers in the Philippines, Jordan, and India do not have connectivity, and in Thailand, Egypt, and Italy lab-based connectivity predominates. Nearly all teachers in the high income countries have connectivity and teachers from Australia, Korea, and the United States reported having internet access in their computer labs and their classrooms.

Table 7: Availability of Internet Connectivity
(n = 13,965)

Region	Country	N	Internet Connectivity for Teachers with Technology Access				Total
			None	Class Only	Lab Only	Full Access	
APAC	Australia	518	0.4%	0.3%	19.3%	**80.1%**	100.0%
	China	3,931	4.5%	1.6%	42.5%	**51.5%**	100.0%
	India	1,450	**59.7%**	0.3%	**38.6%**	1.3%	100.0%
	Japan	232	0.0%	0.4%	**58.2%**	41.4%	100.0%
	Korea	986	0.0%	0.4%	5.7%	**93.9%**	100.0%
	Malaysia	353	27.8%	1.1%	**66.6%**	4.5%	100.0%
	Pakistan	517	38.9%	1.5%	**52.4%**	7.2%	100.0%
	Philippines	377	**59.2%**	0.8%	33.4%	6.6%	100.0%
	Thailand	231	3.0%	0.4%	**65.8%**	30.7%	100.0%
EMEA	Egypt	182	18.1%	0.0%	**74.7%**	7.1%	100.0%
	Italy	121	0.0%	0.0%	**81.8%**	18.2%	100.0%
	Jordan	1,205	**42.7%**	3.4%	**43.7%**	10.1%	100.0%
	Russia	289	33.9%	4.2%	21.8%	**40.1%**	100.0%
	South Africa	44	20.5%	0.0%	38.6%	**40.9%**	100.0%
	Ukraine	175	13.1%	1.7%	30.9%	**54.3%**	100.0%
LAR	Brazil	288	6.9%	2.1%	**55.2%**	35.8%	100.0%
	Chile	501	2.0%	0.4%	**77.2%**	20.4%	100.0%
	Columbia	27	29.6%	3.7%	**37.0%**	29.6%	100.0%
	Mexico	919	29.3%	2.2%	**40.8%**	27.7%	100.0%
US	United States	1,619	0.8%	0.7%	14.3%	**84.2%**	100.0%
	Total	13,965	18.4%	1.3%	38.4%	**41.9%**	100.0%

Section IV: Variation by Region and Level of Economic Development

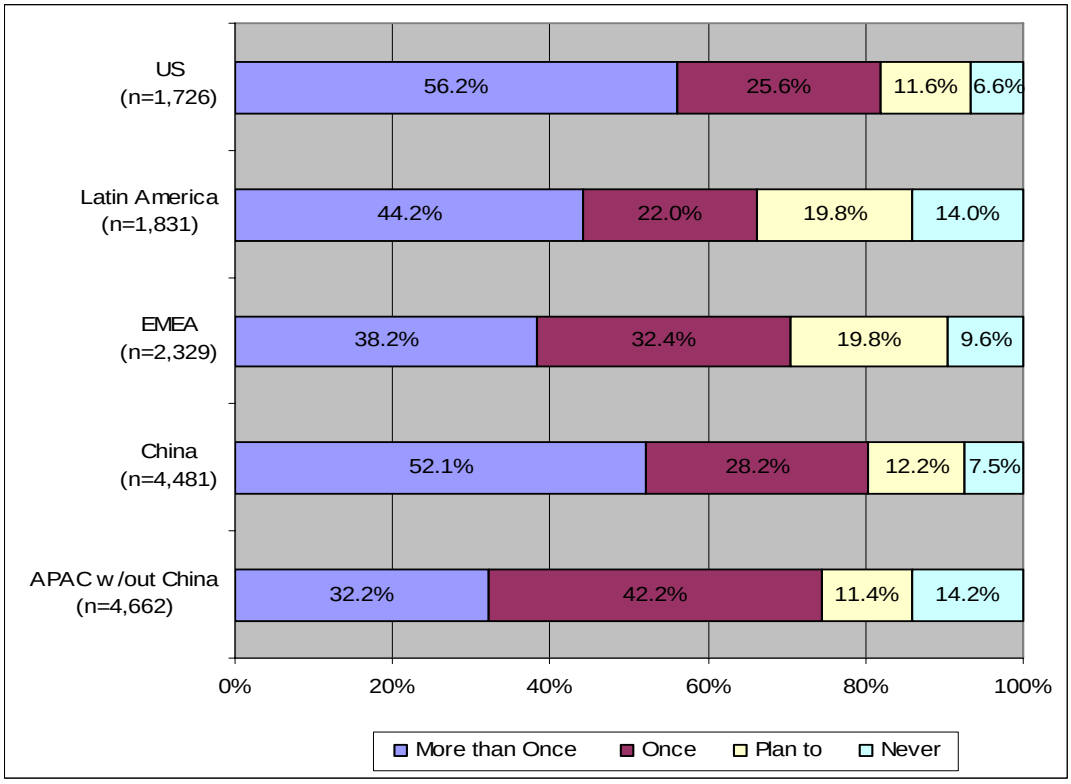
Regional Variation

EDC examined the key indicators of teacher outcomes by region since previous survey results have indicated regional differences. This section examines regional differences on four teacher outcome indicators: unit plan implementation, integration of new technology activities, increased use of project-based teaching methods, and increased use of technology for lesson planning and preparation. In addition, this section also examines whether regional differences exist in teacher reports of familiarity and relevance of teaching methods presented in the Essentials Course, as well as availability of computing resources.

Regional variation in unit plan implementation

There is some regional variation in teachers' implementation of their unit plans. More teachers from US region (56.2%) and China (52.1%) seem to be implementing their unit plans more than once when compared to teachers from the rest of APAC (32.2%), Latin America (44.2%) and EMEA (38.2%). Looked at overall, over 65% of the teachers from all regions are implementing their unit plans once or more than once (see Figure 22).

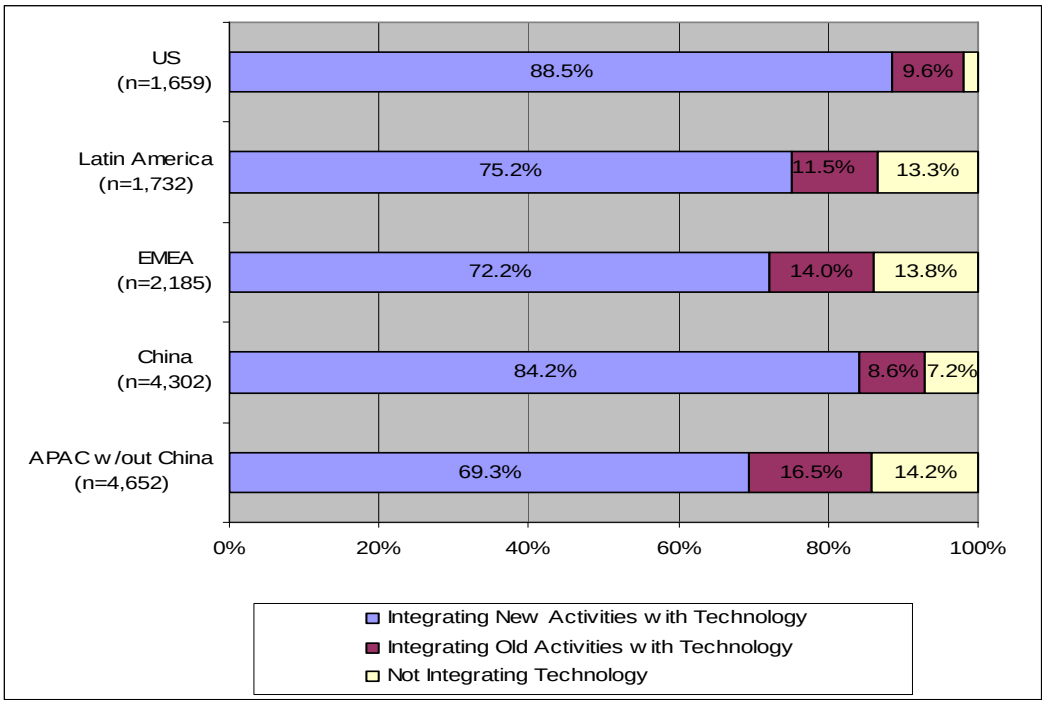
Figure 22: Unit Plan Implementation by Region
(n = 15,029)



Regional variation in integration of new technology activities

The survey results indicate that a significant number of teachers across all regions are integrating new technology activities with their students. Teachers from the US report the highest frequency (88.5%) of integrating new technology activities, closely followed by teachers from China (84.2%), and comparable numbers of teachers from LAR (75.2%), EMEA (72.2%) and the rest of APAC (69.3%) regions. LAR, EMEA, and APAC without China are also roughly equivalent in their percentage of teachers who are not implementing technology activities (see Figure 23).

Figure 23: Teacher Integration of Student Technology Activities by Region
(n = 14,530)

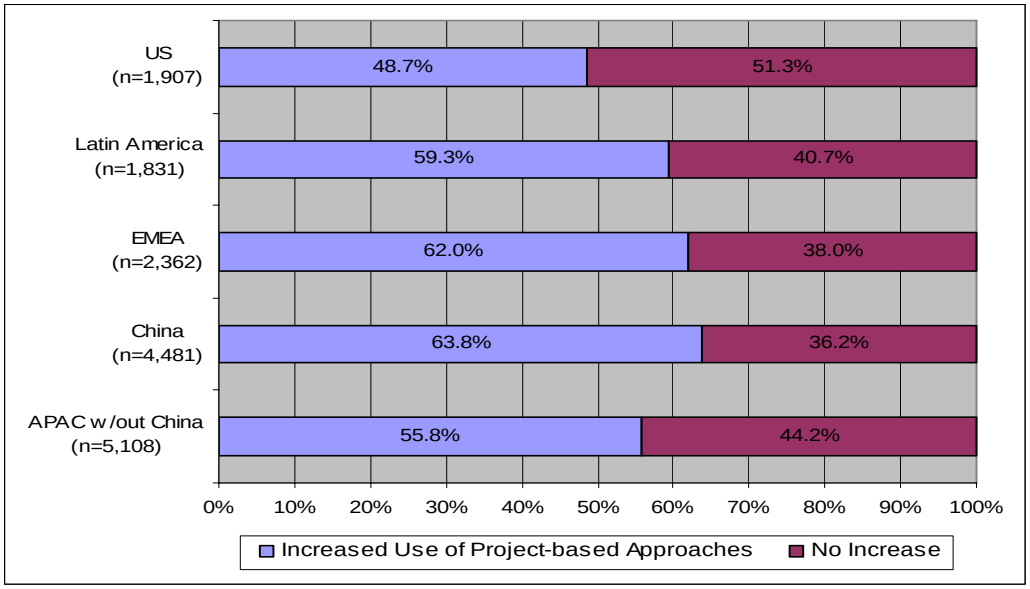


***In order to maintain clarity values below 5.0% were removed from the chart.

Regional variation in use of project-based teaching methods

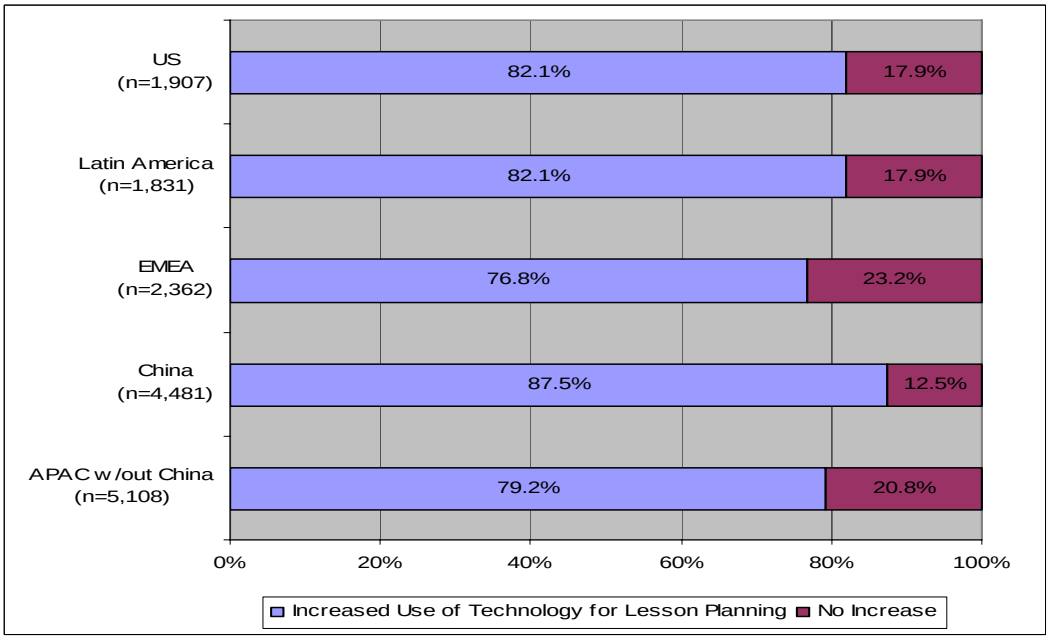
The survey data indicates that across all regions except the US, more than half of the responding teachers have increased their use of project-based approaches (see Figure 24). Teachers from China reported the highest frequency of increased use of project-based approaches to pedagogy (63.8%) closely followed by teachers in EMEA (62%). Teachers from the US report the lowest frequency (48.7%) of increase in project-based pedagogy. But, since the US also has the highest rates of prior knowledge of project-based approaches, this could be because the survey tracks an increase in using project-based approaches and does not account for teachers who may already be using these approaches.

Figure 24: Teachers' Increased Use of Project-Based Approaches by Region
(n = 15,689)



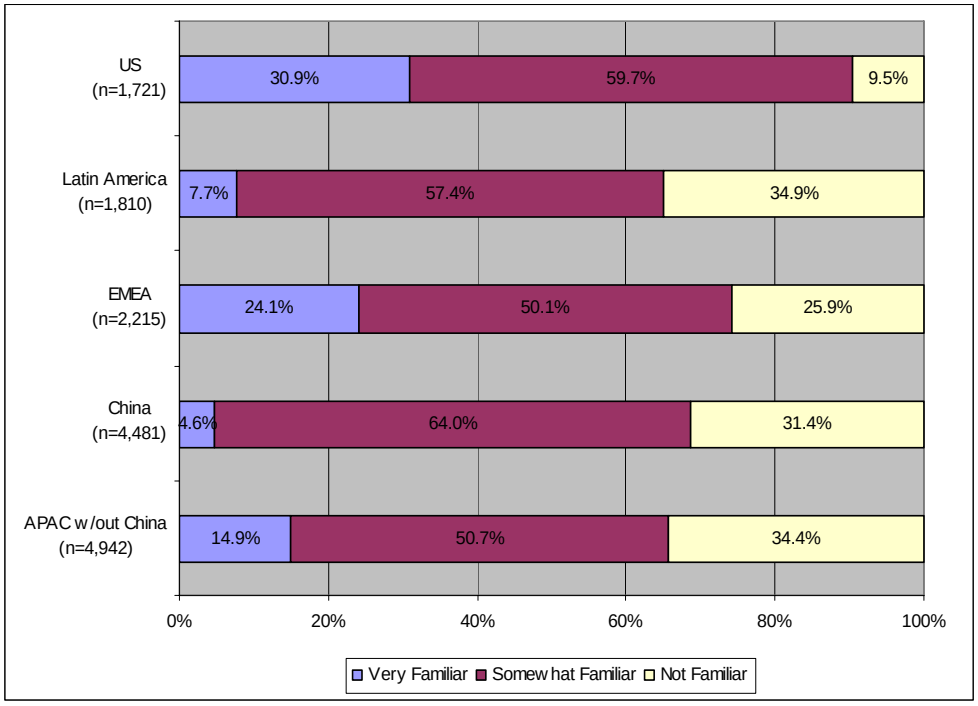
Regional variation in use of technology for lesson planning and preparation
Over three quarters of all teachers surveyed responded that they used technology for their lesson planning and preparation, indicating little regional difference. Most teachers from China (87.5%) and the US (82.1%) reported having increased their use of technology for lesson planning (see Figure 25).

Figure 25: Teacher Use of Technology for Lesson Planning by Region
(n = 15,689)



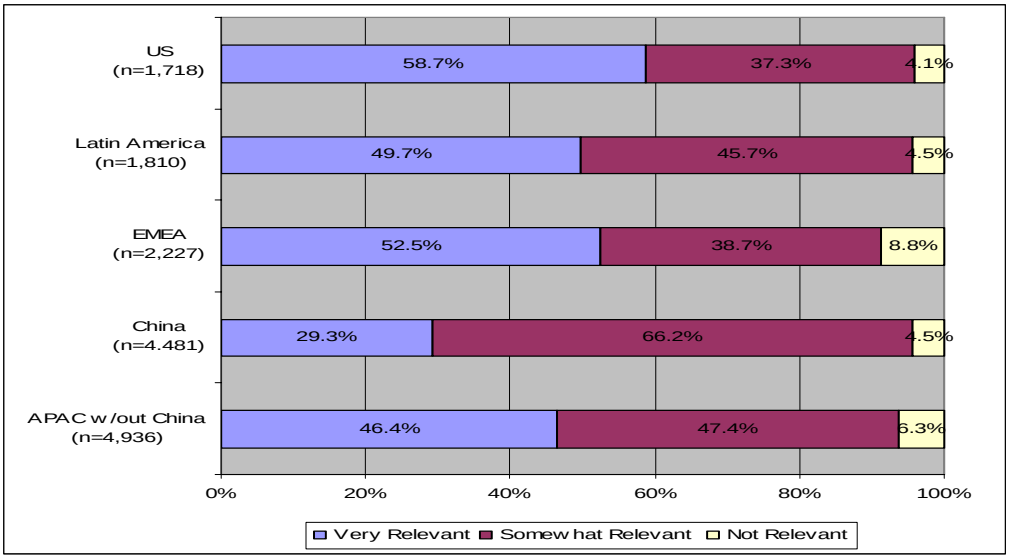
Regional Variation in Degree of Familiarity with Teaching Methods
In general, teachers from the US (30.9%) and EMEA (24.1%) regions reported being most familiar with the teaching methods presented in the Essentials Course, followed by teachers from APAC without China (14.9%), Latin America (7.7%) and China (4.6%), indicating that some regional differences did exist in teachers' prior knowledge of the teaching methods presented in the Essentials Course. Overall, APAC without China, China and LAR showed the lowest frequency of teachers reporting some prior knowledge of the teaching methods, but these regions still had over 65% of respondents indicating some level of familiarity (see Figure 26).

Figure 26: Degree of Familiarity by Region
(n = 15,169)



Regional Variation in Degree of Relevance of Teaching Methods presented in the Essentials Course
The survey data indicates that very few teachers reported that the teaching methods presented in the Essentials Course were not relevant to their teaching goals. Overall, a significantly high number of teachers (over 90%) attached some degree of relevance to the teaching methods (see Figure 27). This suggests no regional differences in the degree of relevance attributed to the teaching method presented in the Essentials Course.

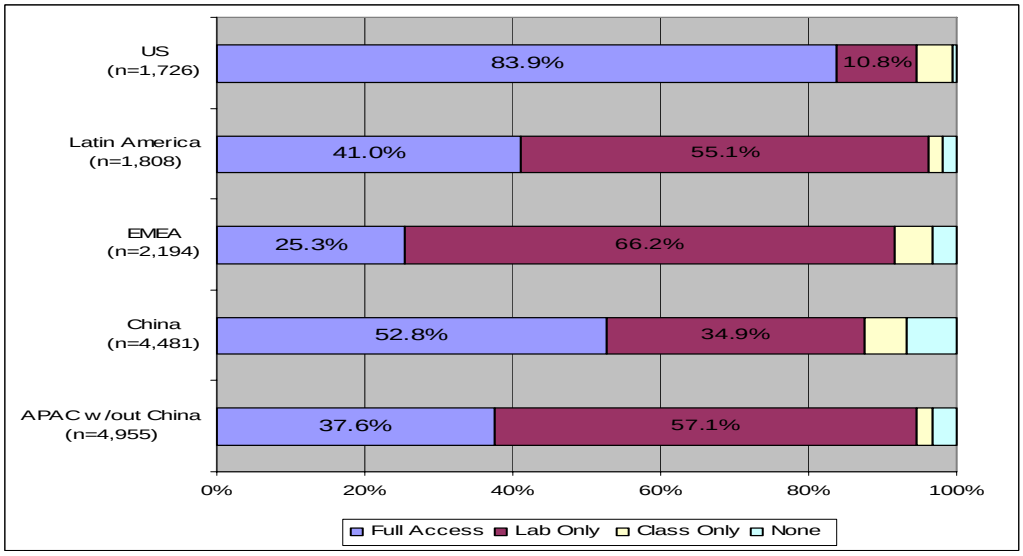
Figure 27: Degree of Relevance by Region
(n = 15,172)



Availability of computing resources by region

The survey data suggests the presence of some regional differences in availability of computing resources (see Figure 28). Teachers from US reported the highest frequency (83.9%) of having full access to computing resources (in classrooms as well as computer labs). Over 50% of teachers from the remaining regions, APAC, LAR and EMEA, reported higher frequencies for lab access to computers. More teachers from China indicated full access to computers than lab access only. The notable finding here is that a significant majority of teachers from all regions report some form of in-school access to computing resources, be it in classrooms or the computer lab or both locations.

Figure 28: Availability of Computing Resources by Region
(n = 15,164)



***In order to maintain clarity values below 7.0% were removed from the chart.

Variation by Level of Economic Development

The Intel Teach Essentials Course is implemented worldwide, in countries at various levels of economic development. In this section EDC examines the impact of the level of national economic development on program success. To conduct this analysis EDC used a parallel indicator for economic development – the World Bank Income Groups. EDC grouped the national data according to the World Bank's 2006 categorization of national incomes based on 2005 gross national income (GNI) per capita (see Tables 8 and 9). The World Bank classifies economies into low income, lower middle income, upper middle income, and high income countries.[8]

Table 8: World Bank 2006 Income Groups Based on 2005 GNI per capita

Income Group	Corresponding Per Capita Income
Low Income	**$875 or less**
Lower Middle Income	**$876 - $3,465**
Upper Middle Income	**$3,466 - $10,725**
High Income	**$10,726 or higher**

Table 9: Participating Countries by National Income Level

Country	Income Level	N
Australia	High	737
Italy	High	139
Japan	High	233
South Korea	High	992
US	High	1,907
Chile	Upper Middle	511
Malaysia	Upper Middle	370
Mexico	Upper Middle	972
Russia	Upper Middle	322
South Africa	Upper Middle	58
Brazil	Lower Middle	318
China	Lower Middle	4,481
Columbia	Lower Middle	30
Egypt	Lower Middle	183
Jordan	Lower Middle	1,454
Philippines	Lower Middle	391
Thailand	Lower Middle	252
Ukraine	Lower Middle	206
India	Low	1,563
Pakistan	Low	570

[8] This data is available in the World Bank List of Economies Report (http://web.worldbank.org/WBSITE/EXTERNAL/DATASTATISTICS/0,,contentMDK:20420458~menuPK:64133156~pagePK:64133150~piPK:64133175~theSitePK:239419,00.html).

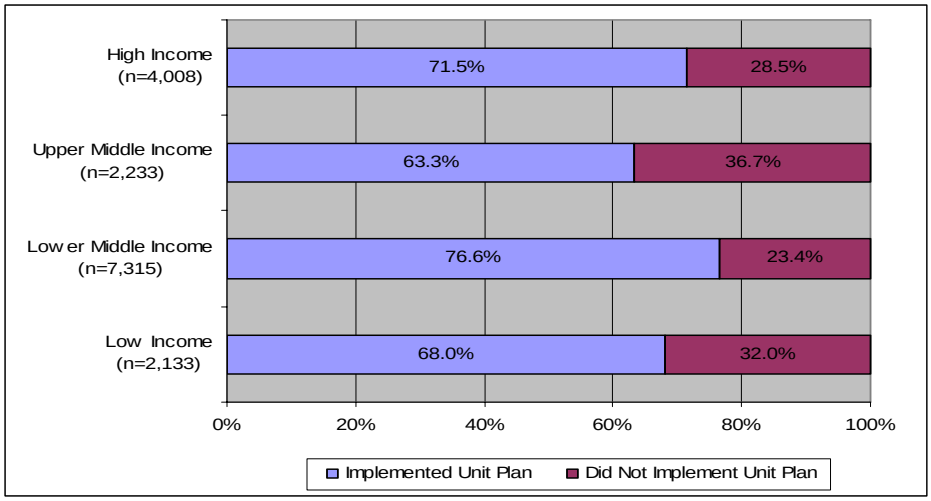
EDC analyzed teacher responses across the four basic outcome indicators to identify possible trends. The analysis also included an examination of the key contextual factors by income level. Overall, the data does not reveal a close connection between the level of economic development and program outcomes. This suggests that the Essentials Course can be effective across a diversity of contexts. It would appear that program success is not simply based on the level of resources available to a country but how those resources are deployed.

Review of Key Indicators

Unit plan implementation by income level

Whether teachers implement the unit plan they created as part of the program did not appear to vary by income level. The slight fluctuation noticed does not follow any trend as teachers from countries at all levels of economic development were reporting comparable rates of implementation (see Figure 29). Teachers from lower middle income countries report the highest implementation rates of 76% and teachers from low income countries reported a 68% implementation rate. Around 63% of teachers from upper middle income countries indicated implementing their unit plans in comparison to 71.5% of teachers from high income countries.

Figure 29: Unit Plan Implementation by Income Level
(n = 15,689)



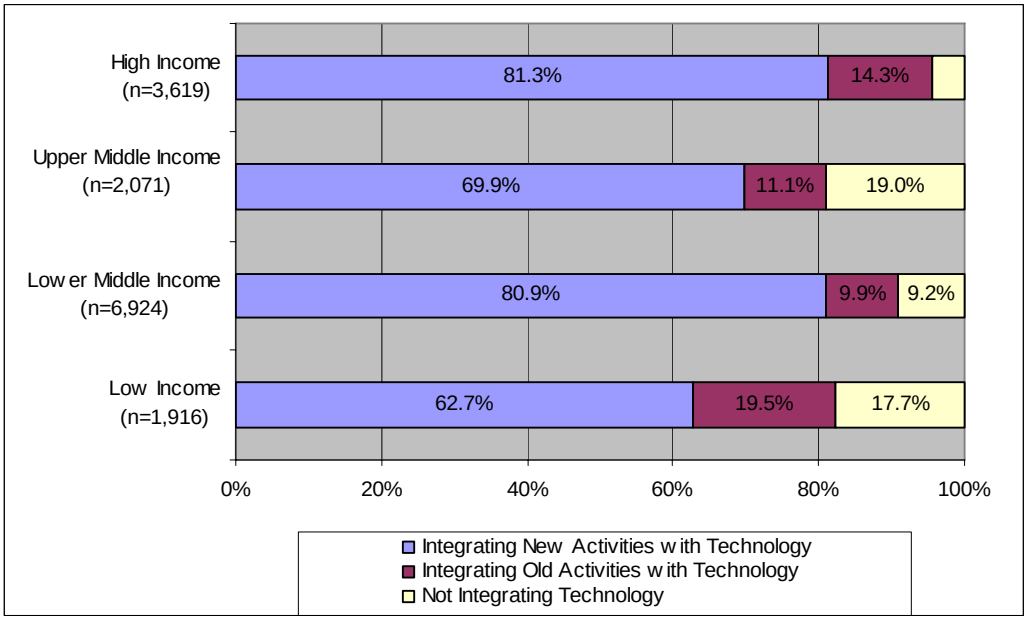
The absence of a clear pattern suggests that the professional development strategy of having teachers create their own innovative lesson unit is an effective strategy that allows teachers in a wide variety of contexts to leave the training with a product that they will be able to implement. Other evaluations of the Essentials Course indicate that implementation of their unit plan is a strong indicator of other and deeper changes in participants teaching.

Use of technology with students by income level

The use of technology with students is an indicator of broader changes in teacher practices of integrating ICT in to students' learning. The data for use of technology with students when looked at by income level also suggests that there is not a linear relationship between economic development and the success of an ICT program, like the Essentials Course. Teachers in countries with very different levels of economic development report very similar levels of change integrating ICT: the percentage of teachers from lower middle income countries reporting use of technology with students (80.9%) matched that of high income countries (81.3%). This suggests that factors in addition to the level of economic development, such as the policy context or any education reform underway, are also responsible for supporting the implementation rate of teachers. This interpretation is further supported by the lower responses for the upper middle income countries (69.9%) which may be connected to government policy or other factors independent of national development that affect teachers ability to implement broader changes. (See Figure 30).

Figure 30: Use of Technology with Students by Income Level

(n = 14,530)



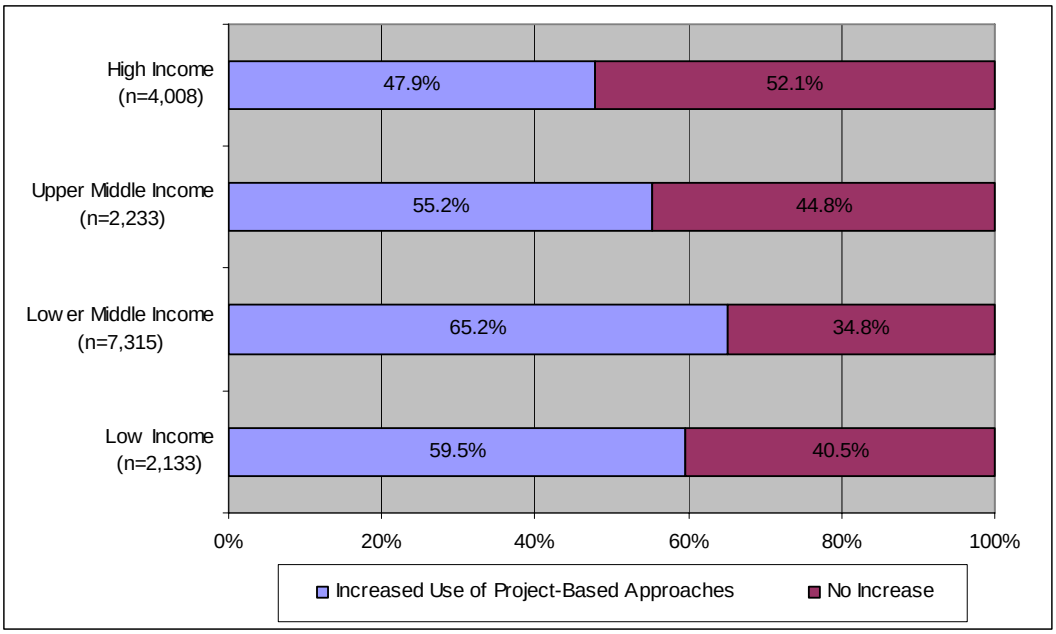
***In order to maintain clarity values below 7.0% were removed from the chart.

Increased use of project-based approaches by income level

The survey also included an indicator of increased use of project-based teaching strategies that do not necessarily include ICT use. Although the numbers are lower than the percentages of respondents using ICT with their students, the findings suggest that project-based approaches are interesting and feasible to teachers in all countries regardless of national economic development. The data on increased use of project-based approaches indicates that more teachers from low income (59.5%) and lower middle income (65.2%) countries are increasing their use of project-based approaches when

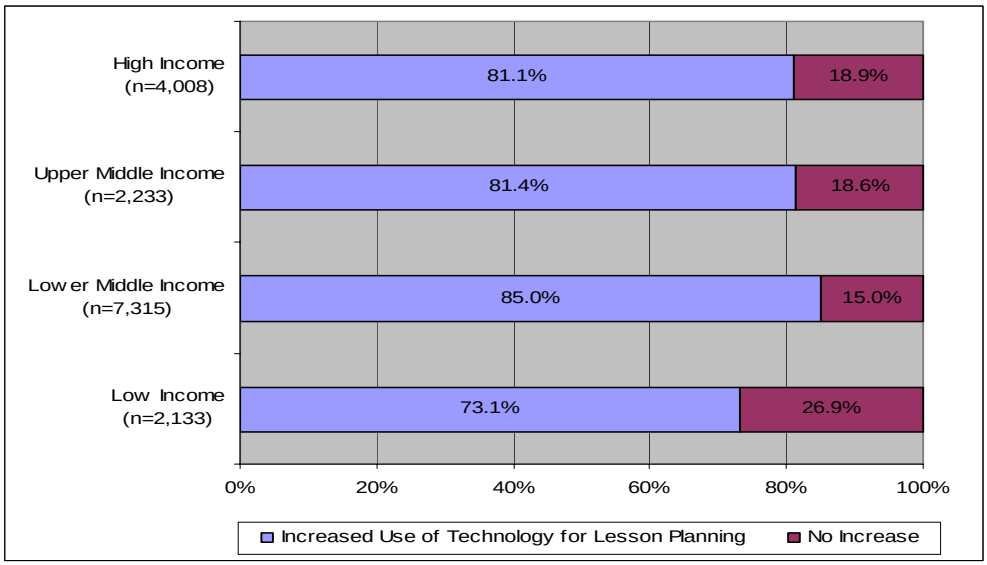
compared to teachers from upper middle (55.2%) and high income (47.9%) countries (see Figure 31). However the lower rates for teachers in the high income countries may not mean that they are not engaged in project-based approaches. The survey asks if teachers have *increased* their use of project-based approaches and other data indicates that teachers in the high income countries are, in general, more familiar with project-based teaching. Therefore, teachers from more economically developed nations may already be using project-based approaches and thus not reporting increased use.

Figure 31: Increased Use of Project Based Approaches by Income Level
(n = 15,689)



Increased use of technology for lesson planning and preparation by income level
The data on teacher use of technology for lesson planning and preparation reveal the same trends noticed in the above analyses by national income level. Respondents from countries at all levels of national income are increasing their use of ICT for lesson planning and preparation (see Figure 32). Teachers from lower middle income countries report the highest frequency (85%) of increased use of technology for lesson planning and preparation, with teachers from upper middle income (81.4%) and high income (81.1%) countries following closely behind. About 73% of teachers from low income countries reported increasing their use of technology for lesson planning and preparation.

Figure 32: Increased Use of Technology for Lesson Planning by Income Level
(n = 15,689)



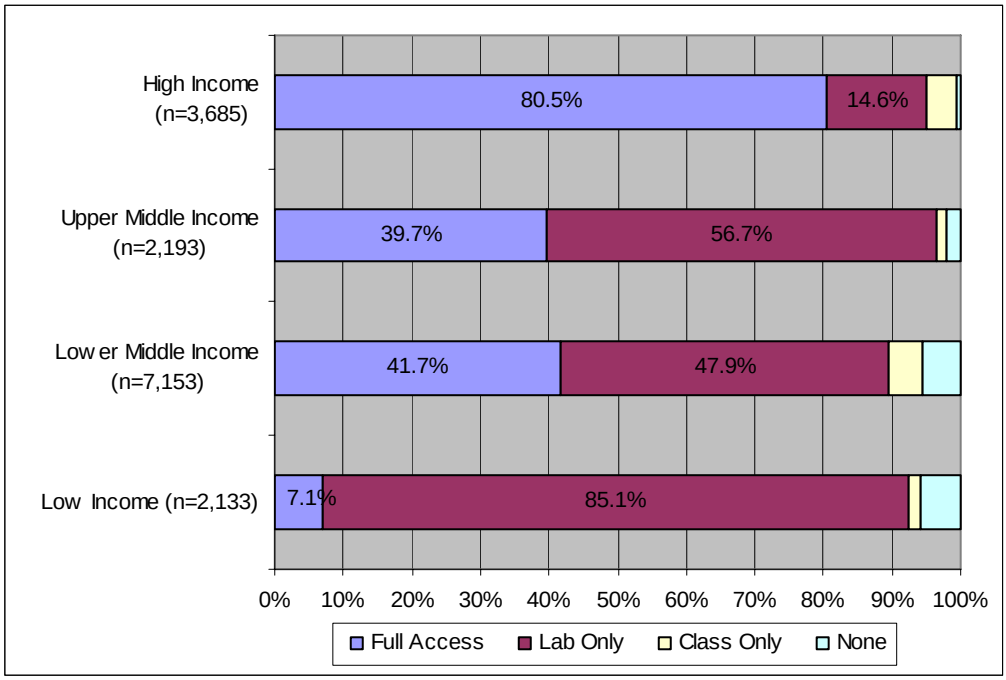
Review of Contextual Factors

To more closely examine the relationship between economic development and the influence of Essentials Course on changing teacher practice, EDC looked at three related contextual factors that are covered in the survey: teachers' access to infrastructure, prior knowledge of the teaching strategies underlying the Essentials Course, and the relevance of those strategies.

Infrastructure by income level

EDC examined the infrastructure available to teachers within different national income levels. The data reveals the availability of more flexible resources for teachers in higher income countries (See Figure 33). Teachers in the high income category are most likely (80.5%) to report having full access (both classroom and lab access) to ICT and only 14.6% of these teachers have only lab access. The majority of teachers from countries at the other three income levels primarily have only access to a lab, ranging from a high 85.1% of teachers in the low income countries to 47.9% respondents in the lower middle income countries. The notable finding here is that very few teachers report no access at all to computing resources in their schools. The highest frequency of teachers reporting no access to computing resources was from respondents in low income countries.

Figure 33: Availability of Computer Resources by National Income Level
(n=15,164)

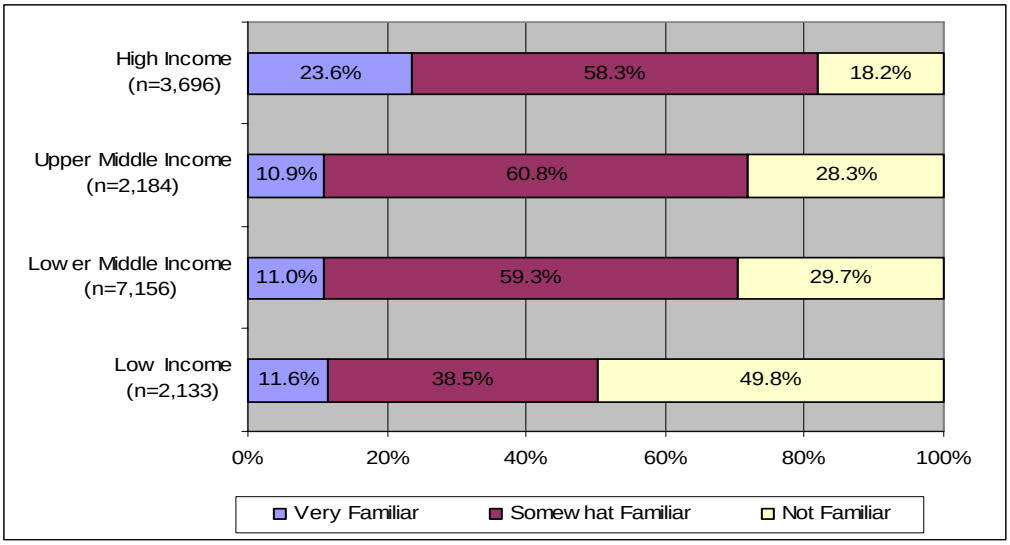


***In order to maintain clarity values below 6.0% were removed from the chart.

Degree of familiarity with teaching methods presented in the Essentials Course by income level

To more closely examine the relationship between economic development and the influence of the Essentials Course on changing teacher practice, EDC looked at teachers' level of familiarity with the teaching methods presented in the training (see Figure 34). The data confirmed the expected trend, that teachers from higher income countries are more familiar with the teaching methods in the Essentials Course than teachers from lower income countries. Close to half of the teachers from low income countries (49.8%) reported no familiarity at all with the teaching methods presented in the Essentials Course while only 18.2% of teachers from high income countries reported no familiarity with the teaching methods. Teachers from medium-low and medium-high countries were in the middle with about 29% of teachers reporting no familiarity with the teaching methods.

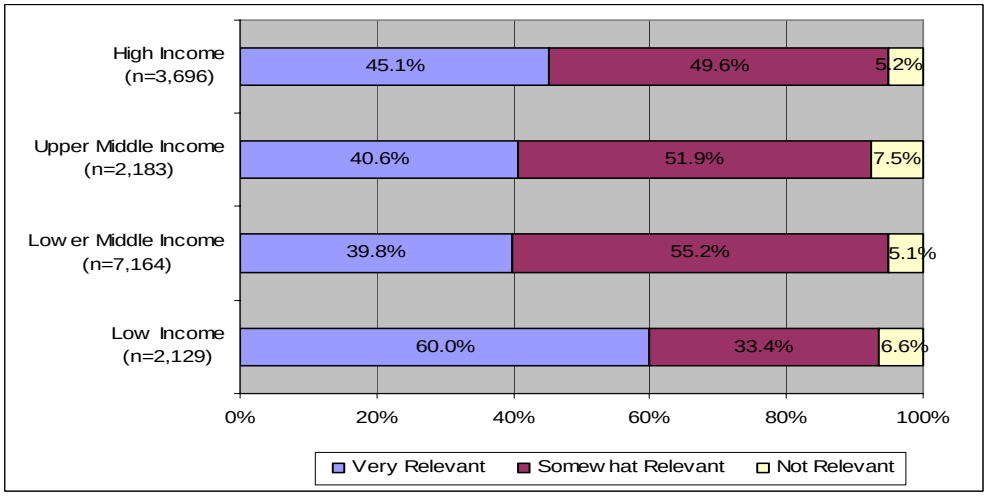
Figure 34: Degree of Familiarity with Teaching Methods by Income Level
(n=15,169)



Degree of relevance of teaching methods presented in the Essentials Course by income level

Across all levels of economic development, teachers found the new teaching strategies to be relevant to their teaching. When the degree of relevance teachers attributed to the teaching methods presented in the Essentials Course was examined by income level, no trend was apparent at all (see Figure 35). In fact teachers from countries of all income levels attributed a high degree of relevance to the teaching methods presented in the Essentials Course. Over 90% of teachers from countries at all income levels said they found the teaching methods "very relevant" or "somewhat relevant". In fact, more teachers from low income countries (60%) than higher income countries report the teaching methods to be "very relevant".

Figure 35: Degree of Relevance of Teaching Methods by Income Level
(n=15,172)



Section V: Challenges and Impediments to Implementation

The Impact Survey asks teachers about two different sets of difficulties they may encounter when trying to integrate new student technology activities into their teaching: 1) Impediments or barriers reported by teachers who were not able to integrate new student technology uses; and 2) Challenges or difficulties teachers experience when they are implementing new student uses of technology. The following section outlines the main challenges and impediments reported by the responding teachers. Overall frequencies reveal that the primary problem reported by teachers as a challenge as well as an impediment to implementation was inadequate access to computing resources.

EDC calculated an "impediment ratio" and a "challenge ratio" to delve deeper into the challenges and impediments teachers face across regions and economic development levels. The impediment ratio ranges between 0 and 1, and is the number of reported impediments divided by the total number of impediments (9) listed in the survey. Similarly, the challenge ratio was created by dividing the number of reported challenges by the total number of challenges (7) listed in the survey. In both ratios, a score of 1 would indicate that teachers reported all the listed challenges or barriers to be an issue for them, and a score of 0 would indicate that the respondent reported no challenges or barriers whatsoever.

Variation in Impediments and Challenges by Region

The results from teachers who were not able to implement ICT with their students indicate that respondents from APAC region excluding China and EMEA report the highest frequency of impediments (.48 and .47 respectively: see Table 10). The higher impediment ratio might explain why a lower percentage of teachers from these same regions reported integrating new technology activities with their students in comparison to teachers from the other regions.

APAC region shows the highest challenge ratios, with China reporting a ratio of .50 followed by the rest of APAC excluding China (.40). Teachers from US reported the lowest challenge ratio (.27). This provides an interesting insight. Both China and the US had the highest implementation rates (see Table 10), but are on opposite ends of the challenge ratio. The country report from China indicates that China is in the middle of an intense and widespread education reform process similar to efforts undertaken in the US since the 1990's to integrate ICT and project-based learning. The overall favorable educational policy context in both countries may explain the teachers high implementation rate and the newness of the current reform may explain the higher number of challenges teachers report.

Table 10: Regional Variation in Impediments and Challenges, with percent of teachers implementing new ICT activities

Region	Impediment Ratio	Challenge Ratio	Using New ICT Activities
APAC (without China)	.48 (n=918)	.40 (n=3,755)	69.3%
China	.44 (n=490)	.50 (n=3,991)	84.2%
EMEA	.47 (n=254)	.39 (n=1,633)	72.2%
Latin America	.33 (n=136)	.32 (n=1,327)	75.2%
US	.37 (n=84)	.27 (1,530)	88.5%

Obstacles to implementing by region

The following table (Table 11) shows a regional breakdown of the most prevalent (over 50% agreement) impediments as indicated by teachers did not use technology with their students. Impediments in bold are common impediments reported by teachers from at least four out of five regions, and the percentages in bold are the most frequently reported impediment within each region. The most prevalent impediments are all related to computing resources, or the lack thereof. Inadequate planning and preparation time was an impediment reported quite often by teachers from the APAC region not including China. LAR only had one impediment, a lack of computing resources, which was reported by more than 50% of the respondents.

Table 11: Impediments by Region

	APAC (without China)	Latin America	EMEA	US	China
Not enough computers were available	**66.1%**	**53.7%**	**77.1%**	**66.3%**	64.7%
The necessary software was not available	60.8%		66.2%	50.6%	**78.4%**
You did not have adequate access to the Internet	61.2%		71.3%	50.0%	52.4%
You did not have enough planning and preparation time	60.5%		55.6%		
You did not have adequate technical support	51.2%		52.2%		

Challenge breakdown by region
Similar to the above table, this following table (table 12) shows a regional breakdown of the most prevalent (over 50% agreement) challenges faced by teachers while implementing technology-integrated lessons with their students. Again, challenges in bold are common challenges reported by teachers from at least four out of five regions, and the percentages in bold are the most frequently reported challenge within each region. Here too, the most commonly reported challenge is inadequate computing resources. Teachers in LAR reported no single common challenge, and US respondents report inadequate access to computers as the largest challenge.

Table 12: Challenges by Region

	APAC (without China)	Latin America	EMEA	US	China
Not enough computers were available	55.3%		**57.0%**	**51.3%**	54.1%
The class time or lab time that was available was too short	**62.6%**		55.8%		57.8%
You did not have adequate access to the Internet			52.1%		
Many students did not have strong enough computer skills			51.5%		57.5%
You did not have adequate instructional support					49.2%
It was difficult to manage students on the computer					**60.1%**

Variation in Impediments and Challenges by Economic Development
The impediments and challenges reported by teachers do show variation by the level of economic development. Teachers from low and lower middle income countries report higher impediments and challenges than teachers from high and upper middle income countries.

Of the teachers who did not integrate new technology activities with their students, respondents from low and lower middle income countries report the highest level of impediments (.51 and .46 respectively). From the teachers who did integrate new technology activities with their students, teachers from lower middle income countries report the greatest challenge ratio (.47) followed by teachers from low income countries (.43). Teachers from high income countries report both the lowest impediment (.35) and challenge ratios (.30). (See Table 13).

Table 13: Variation in Impediments and Challenges

Income Level	Impediment Ratio	Challenge Ratio
High	.35 (n=231)	.30 (n=3,285)
Medium High	.41 (n=262)	.33 (n=1,431)
Medium Low	.46 (n=845)	.47 (n=6,106)
Low	.51 (n=544)	.43 (n=1,414)

Impediment breakdown by economic development

The table below (Table 14) shows an income level breakdown of the most prevalent (over 50% agreement) impediments as indicated by teachers who decided not to use technology with their students. Impediments in bold are common impediments reported by teachers from at least three of the four income levels, and the percentages in bold are the most frequently reported impediment within each category. The common impediments across most countries regardless of income level are related to inadequate access to computing resources and inadequate planning and preparation time.

Table 14: Impediments by Economic Development

	High	Upper Middle	Lower Middle	Low
Not enough computers were available		52.2%	69.7%	**73.6%**
The necessary software was not available			**71.8%**	71.5%
You did not have adequate access to the Internet		50.9%	62.5%	71.1%
You did not have enough planning and preparation time	**59.3%**	**53.8%**	50.0%	58.5%
You did not have adequate technical support				52.4%

Challenge breakdown by economic development

The following table (Table 15) shows an income level breakdown of the most prevalent (over 50% agreement) challenges as indicated by teachers who integrated new technology activities with their students. Challenges in bold are common challenges reported by teachers from at least three of the four income levels, and the percentages in bold are the most frequently reported challenge within each category. The notable

finding here is that misalignment of lesson with curriculum was a challenge for teachers from countries at all levels of economic development.

Table 15: Challenges by Economic Development

	High	Upper Middle	Lower Middle	Low
Not enough computers were available			50.5%	
The necessary software was not available	50.2%		58.2%	53.7%
You did not have adequate access to the Internet				61.7%
The lesson did not fit well into your curriculum	**50.9%**	**50.2%**	**59.4%**	**65.9%**
You did not feel confident enough in your technology skills			57.4%	55.7%

Conclusion

The Intel Education Initiative has a firm commitment to the evaluation of the Essentials Course worldwide, both to inform the continuous improvement of the program and its implementation model, and to document and demonstrate the impact of the program on its teacher participants. This report on the global evaluation of the Essentials Course draws on data from both quantitative evaluations done in many countries and the qualitative reports that are often part of the local evaluation.

Overall, the survey data indicate that the program is providing teachers with very positive experiences, which in turn help them rethink their practice, take the first steps towards reforming their practice, and eventually integrate technology into their teaching. Across the four indicators that the evaluation tracks, the results are positive.

Majority of teachers are implementing all or part of their unit plan.
Survey data indicate that about three quarters of the teachers trained in the Essentials Course are experimenting with the new concepts and skills learned in the training by implementing their unit plans or some part of it. Teachers with multiple points of access to computing resources were slightly more likely to implement their unit plans; however, it needs to be noted that over 70% of teachers reporting no access to computers in their schools implemented their unit plans at least once.

Teachers are increasing their use of technology for lesson planning and preparation.
The data suggest that the Essentials Course is successful at helping teachers increase their use of technology for planning and preparation. This is moderated to some degree by the availability of computing resources, as a higher percentage of teachers with multiple access points to computing resources indicate increased use of technology for lesson planning and preparation. Survey results also indicate that the program is effective at encouraging teachers with no school-based access to increase their use of technology for lesson planning and preparation, as evidenced by the fact that even the group of teachers with no in-school technology access report increased use of computers for their administrative work.

More teachers report increasing their use of project-based approaches to teaching.
Over half of the teachers surveyed indicated increased use of project-based approaches to teaching since completing the Essentials Course training. Availability of computing resources did not make much of a difference in teachers' use of project-based approaches, although teachers with access to computing resources in their classroom and computer labs were more likely to report increased use than teachers with no access to computing resources in their school. Teachers who had already implemented their unit plans or were planning to do so were much more likely to use project-based approaches to teaching than teachers who had not implemented their unit plans.

The program is supporting teachers in integrating new technology activities with students.
Overall, the data suggest that the Essentials Course is successful at encouraging teachers to use technology in new ways at all computer resource levels. Teacher integration of new activities with technology is moderated by availability of technology resources, suggesting that the flexibility of having access to computing resources in multiple places supports teachers' efforts to integrate technology into their students' learning activities. However, even respondents who report having no availability of computing resources in their schools indicate they are using other access strategies, such as community technology centers, to integrate technology into their students' learning in new ways.

When evaluation data is collected from so many different countries, it allows for considering the complexity about how a program like the Essentials Course interacts in so many disparate contexts. National and regional policies on education and ICT infrastructure play a significant role in shaping the local and national context in which teachers work. This context, in turn, has substantial influence over whether, and how, teachers follow up on their participation in the Essentials Course. These contextual factors, including the professional expertise of local leadership, the coherence and depth of national curricula and standards for learning, standards for training of the local teaching staff, and the range and quality of the instructional resources available, all shape teachers' opportunities to innovate and improve their teaching practices, as well as the obstacles they encounter as they pursue these goals.

The Essentials Course is successfully impacting teachers from all regions.
Despite all the potential differences in context, the data on variation by region indicate that the Essentials Course is having an impact on teachers from all regions. Significant number of teachers report change in teaching practices across all regions, indicating that the Essentials Course is having an impact on teachers from all regions. In most measures the regional differences were relatively minor, and other data suggest that these differences might be related to specific policy contexts.

The Essentials Course can be successful for countries at different levels of economic development.
In reviewing the relationship between economic development and program success, the data suggest that there is no strict connection between the two and that the program can be effectively localized and adapted to support teachers in a variety of contexts to change their use of ICT. A good majority of teachers at all levels of national income seem to be following up on what they learned in the Essentials Course. Previous year's data have suggested that teachers from high income countries more likely to be able to integrate new technology activities. This no longer appears to be the case. Other data suggest that local and national contexts and the program needs and goals are increasingly aligned, and this is supporting the teachers in being successful with the Essentials Course. For example, two countries with high implementation rates – China and the US (see Figure 23) – both have the highest percentage of respondents with full access to computing resources (see Table 3).

However, there are two key contextual factors that continue to differ between the less economically developed countries and their wealthier counterparts. First, although the data indicate there is a core level of in-school access to computing resources across all levels of national income, there is still a trend for teachers in the lower income countries to have lab only access to computers, while the teachers in higher income countries are more likely to have full school access to computing resources. The second point at which there was a linear relationship with national income was with teachers' familiarity with the teaching methods. Teachers from countries with less economic resources were less likely to have had prior exposure to the teaching methods presented in the Essentials Course. This may be due to two inter-related factors: 1) with less resources, these countries cannot afford to offer as many professional development experiences to their teachers, and 2) Intel Teach may be one of the first ICT professional development programs being offered to these governments.

Both of these issues, teacher prior knowledge and ICT access, are important influences in shaping how teachers follow up on the Essentials Course. However, the data also suggest that the program is still successful in helping teachers make changes even with these challenges.

Teachers at all levels of prior knowledge increase their use of project-based approaches to teaching.

Even teachers who report no prior familiarity with project-based or student-centered teaching methods experiment with the teaching methods promoted in the training when they return to their classrooms. This suggests that the training is motivating teachers to use their new knowledge in the classroom, regardless of the novelty of these ideas to the participating teachers. Overall, all participants exhibited high levels of follow up and experimented with these approaches to teaching in their classrooms.

The evaluation data on the Essentials Course across many countries suggests that teachers are highly motivated by participation in the course, and frequently follow up on the training by experimenting with new teaching practices and new uses of technology in the classroom. Past evaluation from most countries suggests that teachers eventually encounter gaps between a vision of teaching promoted by the Essentials Course and the realities of the environment in which they work. Cross-country analysis of the available data suggests that these gaps emerge at similar moments and in similar ways across countries. Now as the program matures in more and more countries, the data suggest that many of these gaps are narrowing or that teachers in many countries are finding ways to integrate ICT into their classrooms and to make other changes in their teaching.

References
(See Appendix B for a list of local Intel evaluation reports)

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Appendix A

2005 Intel® Teach Essentials Course Impact Survey

1. Which Intel Teach Essentials Course training did you complete?

Master Teacher training
Participant Teacher training

2. When did you complete your training?

Jan.-March, 2000
April-June, 2000
July-Sept., 2000
Oct.-Dec., 2000
Jan.-March, 2001
April-June, 2001
July-Sept., 2001
Oct.-Dec., 2001
Jan.-March, 2002
April-June, 2002
July-Sept., 2002
Oct.-Dec., 2002
Jan.-March, 2003
April-June, 2003
July-Sept., 2003
Oct.-Dec., 2003
Jan.-March, 2004
April-June, 2004
July-Sept., 2004
Oct.-Dec., 2004
Jan.-March, 2005
April-June, 2005
July-Sept., 2005
Oct.-Dec., 2005

3. Since completing your Intel Teach training, how many times have you used your:

	More Than 10 Times	*4-10 Times*	*1-3 Times*	*Not At All*	*Did Not Receive*
a) Intel Teach manual?					
b) Intel Teach CD-ROM?					

4. Since completing your Intel training how many times have you visited the Intel Innovation in Education website?

More than 10 times
4-10 times
1-3 times
Never / Don't know

5. Since your training, have you implemented some or all of the unit plan you developed in your Intel Teach training?

Yes, more than once
Yes, once
Not yet, but I plan to use the lesson before the end of this school year
No, never

6. Since completing your Intel Teach training, how often have you had your students engage in technology-integrated lessons?

Daily
Weekly
Monthly
Several times a year
Once a year
Never **(Skip Question 7)**

7. Have you used technology with your students in new ways since you participated in the training?

Yes
No

Question 8 is only for teachers who DO NOT use technology with their students

8. Did any of the following reasons influence your decision not to use technology with your students? Please indicate the extent to which you agree or disagree with each statement.

	Strongly Disagree 1	*Disagree 2*	*No Opinion 3*	*Agree 4*	*Strongly Agree 5*
a) Not enough computers were available.					
b) The necessary software was not available.					
c) You did not have adequate access to the Internet.					
d) The lesson did not fit well into your curriculum.					
e) The lesson would not help your students meet required learning goals.					
f) You did not feel confident enough in your technology skills.					
g) You did not have enough planning and preparation time.					
h) You did not have adequate administrative support.					
i) You did not have adequate technical support.					
j) You did not have adequate instructional support.					

(Skip to Question 13)

Questions 9 to 12 are for teachers who HAVE used technology with students

Think of a class in which you implemented a particular technology-integrated lesson or activity. Please answer the following questions about that experience.

9. How many students were in that class?

1-10
11-20
21-30
31-40
41-50
51 or more

10. Below are some possible objectives of that lesson. Please mark an "X" beside the ONE goal that was most relevant or important for that lesson.

Students learn curriculum content
Students work on basic skills (such as math and reading)
Students express their ideas/opinions by creating multimedia products
Students conduct research
Students gain preparation to succeed in the workforce
Students present information to an audience
Students improve their computer skills
Students learn to work in groups
Students learn to work independently
None of the above

11. Please indicate the degree to which you agree or disagree with each statement about the impact of this technology-integrated lesson on your students.

	Strongly Disagree 1	*Disagree 2*	*No Opinion 3*	*Agree 4*	*Strongly Agree 5*
a) Students were motivated and actively involved in the lesson.					
b) Students worked together more often than in previous, comparable assignments.					
c) Technology-integrated lessons addressed students' different learning styles.					
d) Student work showed more in-depth understanding of content than in previous, comparable assignments.					
e) Students were able to communicate their ideas and opinions with greater confidence than in previous, comparable assignments.					

12. The following statements are about challenges you may have faced while implementing this technology-integrated lesson or activity. Please indicate the extent to which you agree or disagree with each statement.

	Strongly Disagree 1	*Disagree 2*	*No Opinion 3*	*Agree 4*	*Strongly Agree 5*
a) It was difficult to manage your students on the computers.					
b) Not enough computers were available.					
c) You did not have adequate access to the Internet.					
d) The class time or lab time that was available was too short.					
e) You did not have strong enough computer skills.					
f) Many students did not have strong enough computer skills.					
g) You did not have adequate administrative support.					
h) You did not have adequate technical support.					
i) You did not have adequate instructional support.					

13. In addition to its focus on technology skills, the Intel Teach training suggests strategies that participants might use to incorporate project-based lessons into their teaching. Please indicate whether the teaching strategies presented in the training were new or relevant to your teaching.

	Not True At All 1	*Somewhat True 2*	*Very True 3*
a) The teaching strategies were new to me.			
b) The teaching strategies were relevant to my teaching goals.			

14. Since completing your Intel Teach training, has there been a change in how frequently you do the following?

	Do This Less 1	*No Change 2*	*Do This More 3*	*Not Applicable 4*
a) Use a textbook as a primary guide for instruction.				
b) Use Essential Questions to structure lessons.				
c) Access the Internet to aid in developing lessons or activities.				
d) Use a computer for administrative work (for example, grading, attendance, creating handouts).				
e) Present information to students using computer technology.				
f) Use rubrics to evaluate student work.				
g) Have students review and revise their own work.				
h) Have students present their work to the class.				
i) Have students engage in independent research using the Internet.				
j) Have students work on group projects.				
k) Have students choose their own topics for research projects.				

15. How many computers are in your classroom (the room(s) in which you primarily teach, not the school computer lab)?

0 computers **(skip to question 17)**
1 computer
2-4 computers
5-7 computers
More than 7 computers

16. Do the computers in your classroom have Internet access?

Yes, all of them do
Yes, some of them do
No, none of them do

17. In your school do you have computer labs or media centers?

Yes
No **(skip to question 22)**

18. Do some or all of the computers in the labs/media centers have access to the Internet?

Yes
No

19. In total, how many computers are available in the computer labs or media centers? (Please give a combined total if your students have access to multiple labs or media centers.)

1-10 computers
11-20 computers
21-30 computers
31- 40 computers
41 or more computers

20. How often do you work with your students in the computer lab or media center?

Daily
Weekly
Monthly
Less than once per month
Never

21. How easy or difficult is it to schedule time in the computer lab/media center?

Very difficult
Somewhat difficult
No opinion
Easy
Very easy

22. Do you have your students use computers at home to do their schoolwork?

Yes
No

23. To do their schoolwork, do you have your students use computers outside of school at a community center, library, or public technology center?

Yes
No

Appendix B

Columbia
Final Report for the Pilot of Intel Teach to the Future
Prepared by LIDIE, University of the Andes, Bogota, Colombia

China
INTEL Future Education Teacher Training Project (FETTP China) Implementation Benefit Evaluation Report
Prepared by the Education Supervision and Evaluation Research Center of Central Education Science Institute

Japan
Survey on the Intel® Teach to the Future Program (Powerpoint)
December 2006
Prepared by National Institute of Multimedia Education

Malaysia
Impact Evaluation of the Intel ® Teach to the Future Program in Malaysia
2006 Report
Prepared by the Center for Instructional Technology and Multimedia and the School of Educational Studies, University of Science, Malaysia

Philippines
Intel Teach to the Future Impact Evaluation Phase 1 Report
Prepared by the College of Education, the Center for Integrative and Development Studies Education Research Program, and the Integrated School of the University of the Philippines.