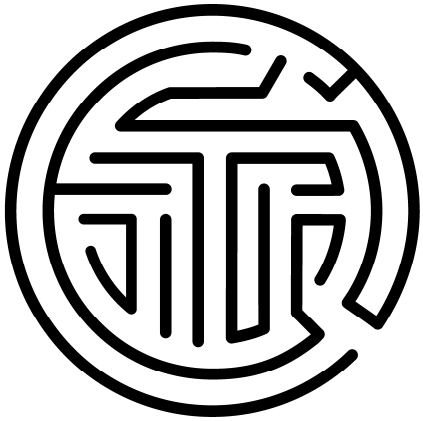

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Intel Teach Affiliate Case Studies: Promoting Statewide Professional Development

2007 Evaluation Report

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Submitted to:

Intel Foundation

January 4, 2008

Executive Summary

This report presents findings from evaluation research on the Intel® Teach Affiliate (ITA) management structure, conducted by Education Development Center, Inc.'s Center for Children and Technology (EDC/CCT) in Spring and Summer 2007.

Intel® Teach seeks to be a global partner to national governments and to contribute to the development of modern, high-quality educational systems worldwide, to help prepare young people for the 21st century. In the United States, Intel Teach works with state departments of education or designated intermediary organizations to accomplish this goal. Called Intel Teach Affiliates or ITAs, these entities are charged with using Intel Teach Program offerings—the Essentials and Thinking with Technology courses, and Leadership Forums—to achieve goals related to systemic reform, educational technology use, and, ultimately, improvements in student achievement.

EDC/CCT conducted case studies of ITAs in six states, to investigate how the new ITA management structure was working toward integrating Intel Teach programs in achieving the goals listed above. The study encompassed two mature programs, in Alabama and North Carolina, whose use of Intel Teach programs predated the ITA structure, and four states—Louisiana, New York, West Virginia, and Texas—whose programs were in various stages of 'start-up' mode. These case studies illustrate the roles that Intel Teach programs play in facilitating and catalyzing change, illuminate the policy and practical conditions that make it possible for these programs to contribute to broader changes at the state and district levels, and examine the challenges that state departments of education face in trying to promote systemic improvement. They also explore preliminary reactions to the revised Essentials curriculum known as Essentials 10 and to Essentials Online (also known as Essentials Online Course or EOC), which were rolled out in June 2007.[1]

Data collection occurred in two main waves: January – July for North Carolina, Alabama, Louisiana, and New York; June – September for West Virginia and Texas, which were added to the project in the Spring of 2007. In each state, EDC/CCT researchers conducted a review of key policy documents; interviewed policymakers at the state level; interviewed policy implementers, the state coordinators of the Intel Teach programs; and conducted a site visit.

To organize the themes that emerged from the six case studies, we used eight critical factors derived from research on successful technology integration projects (Hawkins, Spielvogel, & Panush, 1996; Light and Manso, n.d.). Key findings organized around these eight factors included the following:

[1] Due to the timing of the data collection, this report present findings based on *initial* reactions to the new Essentials curriculum and delivery platform. An additional phase of work will address issues around deployment and implementation of Essentials 10 and EOC in the U.S.

1. **Purpose and Goals**
   - Leaders see Intel Teach as a forward-looking program that helps educators focus on the instructional and pedagogical issues around technology integration, rather than on information technology skills.
   - Educators view Intel Teach as a leading educational technology professional development program that is aligned with states' standards and goals for teachers and students.
   - Intel Teach Program offerings (Essentials, Thinking with Technology, Leadership Forums) are sufficiently flexible to allow ITAs to integrate Intel with states' other educational technology professional development initiatives.
   - Experienced Intel educators view Essentials 10 as a cutting-edge program that will help district educational technology staff as well as teachers address technological and instructional issues related to using Web 2.0 in classrooms.

2. **Infrastructure and Organization**
   - The organization of the state education systems varied along several dimensions that affected the coordination, deployment, integration, and implementation of Intel Teach:
     - Control centralized at the state level or dispersed at the local level
     - State education departments more service-oriented or more monitoring-oriented
     - Delivery of Intel Teach programs through established state education department structures or through intermediary organizations
   - Access to a statewide network for dissemination and deployment is important for the diffusion of the Intel Teach program.

3. **Leadership**
   - Leadership is critical for the success of Intel Teach programs at several levels: a high-level 'champion' who has a statewide role of authority (such as state educational technology director), the Intel coordinator, and district-level leaders.

4. **Organized Growth and Experimentation**
   - ITA staff allow the Intel Teach program to evolve as needed when implementation challenges come to light or circumstances (e.g., policies) change.
   - ITAs are using a strategy of organized growth and experimentation with the introduction of EOC. Through this process they have uncovered a host of concerns, chief among them:
     - Trainers feel that they need a better grasp of the Essentials 10 curriculum before they implement EOC training.
     - Leaders worry about the face-to-face version of Essentials being phased out.

5. **Professional Development**
   - Intel Teach programs do not stand alone; they are situated in rich professional development environments.
   - The mix of pedagogy and technology is seen as a key differentiator of Intel from other educational technology programs, which contributes to its longevity.
   - Intel Teach programs are perceived as being high-quality and research-based.

6. **Community Connections**
    - Visions for a 21st century economy have led some states to adopt Intel as part of a long-term investment in workforce development.

7. **Financing**
    - All case study states have committed resources to aligning and deploying Intel Teach programs.
    - ITAs have not yet addressed sustainability beyond the life of the Intel grant.

8. **Time**
    - ITAs promoting Intel Teach programs face challenges from the competing demands on the time available for teachers' professional development.

The shift to the ITA structure appears to effectively have advanced Intel's agenda—that states use Intel Teach programs to achieve goals related to systemic reform and educational technology. ITAs vary in the strategies they use to achieve their goals and to overcome the challenges to realizing these goals.

Several questions remain unanswered through this examination of the ITA structure; EDC/CCT's current and future work aims to investigate such issues as the characteristics of effective ITAs; responses of school systems to Essentials 10; and teachers' use of Web 2.0 tools in classrooms.

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Introduction

This report presents findings from evaluation research on the Intel® Teach Affiliate (ITA) management structure, conducted by Education Development Center, Inc.'s Center for Children and Technology (EDC/CCT) in Spring and Summer 2007.

Intel® Teach seeks to be a global partner to national governments and to contribute to the development of modern, high-quality educational systems worldwide, to help prepare young people for the 21st century. In the United States, Intel Teach works with state departments of education or designated intermediary organizations to accomplish this goal. Called Intel Teach Affiliates or ITAs, these entities are charged with using Intel Teach Program offerings—the Essentials and Thinking with Technology courses, and Leadership Forums—to achieve goals related to systemic reform, educational technology use, and, ultimately, improvements in student achievement. Previously in the U.S., Intel Teach offered its programs, free of charge, to individual school districts through Regional Training Agencies (RTAs). However, in 2007 Intel redesigned its management model to offer its programs to state education systems in support of the state's educational goals.

EDC/CCT conducted case studies of ITAs in six states, to investigate how the new ITA management structure was working toward integrating Intel Teach programs in achieving the goals listed above. The study encompassed two mature programs, in Alabama and North Carolina, whose use of Intel Teach programs predated the ITA structure, and four states—Louisiana, New York, West Virginia, and Texas—whose programs were in various stages of 'start-up' mode. These case studies illustrate the roles that Intel Teach programs play in facilitating and catalyzing change, illuminate the policy and practical conditions that make it possible for these programs to contribute to broader changes at the state and district levels, and examine the challenges that state departments of education face in trying to promote systemic improvement. They also explore preliminary reactions

to the revised Essentials curriculum known as Essentials 10 and to Essentials Online (also known as Essentials Online Course or EOC), which were rolled out in June 2007.[2]

Intel Teach Program offerings are delivered using a train-the-trainer model. State-based Senior Trainers, certified by national trainers, are responsible for training district- or school-level Master Teachers. Master Teachers receive training in the Essentials Course, Essentials Online Course, or Thinking with Technology Course, and are then encouraged to deliver the training locally to at least 10 other teachers, known as Participant Teachers. The Leadership Forum, a program that focuses on school leadership for promoting, supporting, and implementing effective technology integration in schools, follows a similar structure, with Senior Leaders and Master Leaders respectively. Each state writes a proposal that incorporates explicit objectives for numbers of Senior Trainers, Master Teachers, and Participant Teachers trained in the various Intel Teach programs.

Conceptual Framework

To organize the themes that emerged from the six case studies, we use eight critical factors derived from research on successful technology integration projects (Hawkins, Spielvogel, & Panush, 1996; Light and Manso, n.d.). The eight key factors are:

- *Purpose and goals:* clear links between education and reform purposes and technology; emphasis on student work and student use.
- *Leadership:* specific vision of good education; high-level, distributed, and coordinated leadership, with one or more people in a position with the responsibility and authority to carry out the vision; long-term and consistent approach to technology integration, with a recognition that technology is not an issue of acquisition and distribution.
- *Infrastructure and organization:* successful designs for infrastructure, which give attention to whole buildings or groupings of buildings; the roles of specialists; mixed models of physical space for technologies; deep and reliable technical

[2] Due to the timing of the data collection, this report present findings based on *initial* reactions to the new Essentials curriculum and delivery platform. An additional phase of work will address issues around deployment and implementation of Essentials 10 and EOC in the U.S.

backup; small ‘communities’ of conversation; and a systemic networking structure.

- *Organized growth and experimentation:* creating and learning from local testbeds; investment in the lower grades, followed by expansion upward.
- *Professional development:* investment in growing human capacity; recruitment from within the community of educators; development rather than technical skills training.
- *Community connections:* use of strategies for active community involvement; use of technology to attract parent and local business volunteers; technology facilities for community use; no (or few) mixed messages.
- *Financing:* coordinated budgeting; financing options; individual grants as coordinated building blocks.
- *Time:* Light and Manso (n.d.) suggest in their investigation of Latin American SchoolNets that time is the eighth critical factor in successful technology integration programs. They conceive of time as an important resource in technology integration, one that needs to be managed, just as physical and financial resources need to be.

While these categories referred originally to school districts, the reader will see in this report that, with some modifications in their definitions, they are equally relevant for state educational technology programs.

Organization of the Report

This report presents the results of our investigation into how state-based ITAs are implementing Intel Teach programs. After an overview of the case study states and a review of methods and data sources, we introduce key findings that cut across all states, followed by a discussion and conclusions. An appendix contains profiles of the states that comprise the six cases.

Case Study State Overview

The six case study states are (in alphabetical order): Alabama, Louisiana, New York, North Carolina, Texas, and West Virginia. Here we provide a brief summary of Intel Teach in each state.

Alabama

The state of Alabama has participated in Intel's professional development programs since the beginning of Intel Teach to the Future in 2000. This coincided with the inception of Technology in Motion (TiM), a statewide teacher training initiative that provides the majority of technology-related professional development programs in Alabama. The 11 TiM specialists based in regional centers around the state offer over 50 professional development workshops and courses at one time, ranging from basic PowerPoint use to complex programs such as Intel Teach and eLearning for Educators. With a coordinator based at the Alabama State Department of Education and TiM specialists who are Senior Trainers and Master Teachers, the transition from RTA to ITA for this senior state was smooth.

Louisiana

Louisiana was one of the first new states to begin Intel Teach under the ITA structure. The Louisiana State Department of Education incorporated its Intel Teach offering, which it named *LaTel*, into its existing statewide structure for technology-based professional development programs. The Intel Teach program is overseen by the Division of Leadership and Technology and run by two Education Technology Consultants who work in the Technology Planning and Online Professional Development department. Eight Regional Teaching Learning and Technology Centers are responsible for disseminating and implementing Intel Teach in the state. Each center has one coordinator that maintains contacts with districts in the surrounding region and coordinates technology-based professional development.

New York

New York joined the Intel Teach community as an ITA early in 2007, with New York Institute of Technology (NYIT) as the lead agency in partnership with New York State Teacher Centers (NYSTCs). NYIT is a private institution of higher education with a focus on career education. As legislatively mandated, state-funded entities for almost 25 years, NYSTCs are a major vehicle for teacher professional development in the state.

NYIT has a long-standing relationship with the NYSTCs; a professor at NYIT facilitates the quarterly meetings of the New York State Teacher Centers' Technology Committee and communicates regularly with New York State Education Department staff about NYSTC Tech Committee activities. Three people—all certified as Senior Trainers in the Essentials Course—are charged with promoting and coordinating the Intel program in three regions: New York City, Long Island, and the rest of the state. One is housed at NYIT while the other two are affiliated with Teacher Centers.

North Carolina

The Intel Teach program has been operating as a staff development project based at the North Carolina Department of Public Instruction since 2002. Originally set up as an RTA, it transitioned to ITA status in 2006. Responsibility for implementing Intel Teach programs falls to the Department's Instructional Technology Division, which relies on its regional Educational Technology Implementation and Planning Services network, staffed by six regional consultants, for disseminating the program. The primary task of the six regional consultants is to support local education agencies in writing and implementing their technology plans. In addition, each consultant is assigned a special project. The consultant responsible for Intel Teach programs has been with the program since its inception and is known throughout the state as "the Intel lady."

Texas

Texas has participated in Intel's professional development offerings since the beginning of Intel Teach to the Future. The University of North Texas and Texas A&M functioned as RTAs in north and south Texas, respectively. Each received an Intel grant; they

worked separately but collaboratively, coordinating trainings through LEAs. In 2007, at the suggestion of the Texas Education Agency (TEA), the Region 10 Education Service Center (ESC) based in Dallas successfully applied to become the Texas ITA. TEA staff describe ESCs as "their arms," critical for implementing statewide initiatives because by law the TEA cannot be involved directly with private industry.

West Virginia

The West Virginia Department of Education (WVDE) began participating in Intel Teach in 2007. The Office of Technology Instruction, one of four offices within the Division of Curriculum and Instruction, is responsible for overseeing the ITA. It is working with the state's eight Regional Educational Service Agencies (RESAs), each of which is responsible for professional development in five or six counties (districts), to implement Intel Teach program offerings. The state's educational technology director and assistant director initially spearheaded the Intel Teach initiative until August 2007, when they appointed a coordinator.

Methods

Data Collection

In each state, EDC/CCT researchers conducted a review of key policy documents; interviewed policymakers at the state level; and interviewed policy *implementers,* the state coordinators of the Intel Teach programs. Researchers also conducted a site visit, during which they observed trainings, spoke formally and informally with educators, and attended state education technology conferences. In states with mature programs researchers also investigated how key state policies are implemented at the local level, by speaking with selected practitioners in districts and schools.

Data collection occurred in two main waves: January – July for North Carolina, Alabama, Louisiana, and New York; June – September for West Virginia and Texas, which were added to the project in the Spring of 2007.

Data Analysis

EDC/CCT researchers wrote analytic memos for each state, containing emerging themes, descriptions of activities, and observations and trends. They then reviewed the literature on educational technology, professional development, and scaling up education programs. They wrote brief profiles of each of the case study states as well as a memo describing preliminary themes for the Intel Foundation. They shared their preliminary findings at a panel presentation with two state education technology directors at the State Education Technology Directors Association annual conference in November 2007.

In a process known in the qualitative research literature as "member checking" (Lincoln & Guba, 1985), the researchers also invited feedback from key informants in the state ITAs and from Intel on the emerging interpretations of the data. According to Lincoln and Guba, "The member check, whereby data, analytic categories, interpretations, and conclusions are tested with members of those stakeholding groups from whom the data were originally collected, is the most crucial technique for establishing credibility" (p. 314).

Findings

Key themes are organized around the eight critical factors of successful education technology initiatives: purpose and goals; leadership; infrastructure and organization; organized growth and experimentation; professional development; community connections; financing; and time. An explanation of the themes, along with illustrations from the case study states, follows each category.

Purpose and Goals

- *Leaders see Intel Teach as a forward-looking program that helps educators focus on the instructional and pedagogical issues around technology integration, rather than on information technology skills.*

- *Educators view Intel Teach as a leading educational technology professional development program that is aligned with states' standards and goals for teachers and students.*
- *Intel Teach Program offerings (Essentials, Thinking with Technology, Leadership Forums) are sufficiently flexible to allow ITAs to integrate Intel with states' other educational technology professional development initiatives.*
- *Experienced Intel educators view Essentials 10 as a cutting-edge program that will help district educational technology staff as well as teachers address technological and instructional issues related to using Web 2.0 in classrooms.*

Educators we spoke with see Intel Teach programs as being aligned with states' standards and goals in terms of teacher professional development and of academic preparation for students. Furthermore, the Intel Teach programs thrive where people and policies value technology integration as part of an overall strategy to improve instruction and to emphasize instructional goals over technology skills training.

ITAs' choices about which Intel Teach program offerings to focus on are influenced by their existing educational technology training programs. This is true in all states, but in newer ITA states, it plays out in particularly interesting ways. For example, Louisiana and West Virginia both had programs they considered to be similar to the Essentials[3] course, so both states chose to concentrate on the Thinking with Technology course in their initial deployment of Intel Teach. Also, ITAs that had decided to begin their Intel Teach initiatives with the Teaching with Technology course were intrigued by the new Essentials 10 content and are currently considering how to integrate components of Essentials 10 into upcoming Intel implementations.

In interviews before and after the official launch of the Essentials 10 curriculum, people at both policy-making and policy-implementing levels in all states were excited about the new curriculum. Without minimizing the potential challenges of using Web 2.0 tools in classrooms, they considered it 'cutting-edge' in the same way that the original Essentials

[3] Essentials 5.4, since Essentials 10 had not yet been released at the time of their applications.

course was cutting-edge at its inception, over seven years ago. State staff viewed Essentials 10 as having the power to influence districts' technology policies regarding Web 2.0 tools, such as blogs, wikis, collaborative documents, and shared video, especially given Intel's reputation in states where Essentials had been offered earlier. In several states, state staff mentioned that district technology directors were reluctant to open up networks because of the potential security risks to data and safety risks for children. They hope that Essentials 10 will stimulate conversations about the appropriate uses of Web 2.0 tools for instruction, and that participating teachers will help move district policies towards more openness.

At the same time that they voiced enthusiasm for the Essentials 10 curriculum, many experienced Intel educators expressed regret at not having access to the previous Essentials curriculum (version 5.4). These educators valued both the traditional Essentials curriculum and the new one. They felt there was still a place for version 5.4—that in a sense it was a 'prerequisite' course for version 10, for those teachers who lacked basic technology integration skills. Even in new ITA states, professional development staff as well as policy makers wondered about what they called a 'technology literacy gap' between the demands of the Essentials 10 course and teachers' actual technology skills.

A major challenge for ITAs was the way that various goals and objectives at the state level compete for the limited time, capacity, and resources allotted to professional development. This challenge is generally not a problem about educational technology programs, since states perceive Intel Teach offerings as well-aligned with state goals and policies. It relates, rather, to competition from other professional development initiatives, such as those in the core academic areas of reading, math, and science. For example, in Alabama, the statewide math and science initiative and its two reading initiatives are relatively well-financed and heavily promoted by the state; they take priority for districts' limited professional development hours, making it difficult for the educational technology professional developers in Alabama to recruit for other initiatives such as Intel Teach, especially because the Intel courses are relatively demanding in terms of

teachers' time commitments. However, TiM specialists felt that the reputation and prior track record of Intel professional development helped it remain an attractive option.

Infrastructure and Organization

- *The organization of the state education systems varied along several dimensions that affected the coordination, deployment, integration, and implementation of Intel Teach:*
  - *Control centralized at the state level or dispersed at the local level*
  - *State education departments more service-oriented or more monitoring-oriented*
  - *Delivery of Intel Teach programs through established state education department structures or through intermediary organizations*
- *Access to a statewide network for dissemination and deployment is important for the diffusion of the Intel Teach program.*

The deployment, integration, and implementation of Intel Teach programs is influenced both by state structures and by the choices ITAs make for how the program is coordinated. All states have an infrastructure for helping districts implement educational technology policies, such as technology plans and professional development, and for monitoring the implementation of these policies. Some states use a type of *intermediary agency* structure for the delivery of services (New York, Texas), whereas others rely on a more direct delivery system, with structures *within* the state education department (Louisiana, North Carolina, West Virginia).[4] These structures correspond with the orientation of state departments of education.

State departments of education with more of a monitoring orientation often lacked capacity or resources to deploy a professional development program such as Intel Teach. In those cases—Texas and New York being the main examples in our case studies—intermediary organizations took on the task of coordinating and implementing Intel Teach in the state. The New York ITA is based at NYIT, a private institution of higher

[4] Alabama is a bit of a hybrid; a state education department staff person coordinates Intel Teach, but it is implemented by semi-independent, state-funded regional technology trainers.

education that partners with state-funded centers dedicated to professional development, called *Teacher Centers*. They are located in schools, districts, or regions, depending on their geographic location, and work closely with the other major intermediary organization in New York state (the Boards of Cooperative Education Services, known as *BOCES*) to provide schools and districts with professional development. In this way, the ITA is aware of state education department policies and initiatives but does its work independently from the state's education department. The lead ITA liaison keeps the state education department abreast of ITA activities through regular meetings. Similarly, the ITA in Texas is housed not at the Texas Education Agency but in one of the state's regional service centers. However, in contrast to New York, the Texas state education technology director was involved both in developing the Intel Teach application and in supporting its statewide implementation. The case study states where departments of education play more of a support role tend to be among the smaller states.

In our case study states, ITAs chose to coordinate the Intel Teach program in one of three ways. Some states had a point person for Intel who is not a trainer; this person's main role was to coordinate the program (Alabama, North Carolina). A more typical structure was to have coordinators who are also trainers (Louisiana, New York, Texas, West Virginia). In some cases, the coordinator/trainer worked for the state education department and was responsible for the implementation of Intel Teach programs throughout the state (Louisiana, West Virginia). In others, members of a distributed team acted as coordinators/trainers for a specific region in the state (New York, Texas).

Each approach has advantages and disadvantages. A person who is solely a coordinator can concentrate on statewide strategy, dissemination, and support issues. A person who is both coordinator and trainer, knows more intimately the professional development curricula; the dual role also adds capacity to the state's cadre of Senior Trainer. The downside is that organizing and providing trainings can distract from program coordination. Furthermore, while taking a regional approach to coordination may make sense in a large and diverse state, it also may cause inefficiencies and incoherencies in promoting and disseminating Intel Teach programs statewide.

Leadership

- *Leadership is critical for the success of Intel Teach programs at several levels: a high-level 'champion' who has a statewide role of authority (such as state educational technology director), the Intel coordinator, and district-level leaders.*

The literature on school reform initiatives and technology integration points to leadership as a key factor to successful program implementation (Hawkins, Spielvogel, & Panush, 1996). In recognition of this, several ITAs used Leadership Forums to help make district and school administrators, as well as state education department personnel, more familiar with the issues around technology integration.

Merely providing high-quality professional development programs such as Intel Teach offerings is not sufficient for program success. Leaders at the state level help institutionalize the program by integrating it within the policy vision and actively promoting it within not only the instructional technology division but also other divisions. They work with coordinators to support its continual implementation into districts and schools. Furthermore, state leaders such as state educational technology directors are also policy makers.

Leaders at the implementation level are necessary to spread information about a program, motivate recruitment, and oversee each level of implementation. Having or creating leaders at the state, region, and local levels can help a program succeed by providing the personnel to lift it off the ground, make adjustments if necessary, and serve as contacts to whom educators can turn with questions.

West Virginia offers an illustration of how a 'champion' of Intel Teach—the state's educational technology director—obtained buy-in in from state educators that went both wide and deep. In preparation for becoming an ITA, the Division of Curriculum and Instruction hosted mini-Intel trainings for specific groups such as department coordinators and division heads within the state department of education or professional development coordinators from the regional education services agencies. They also held

Leadership Forums for district and school administrators and for teachers. The Division of Curriculum and Instruction also engaged two other divisions (Technical and Adult Education, and Special Projects) in these efforts. People inside and outside the state education department viewed these efforts as critical for the eventual buy-in to the Intel program.

Leadership issues play out differently in ITAs that are housed within state departments of education and those that are housed in intermediary organizations. As mentioned above, state leaders are also policy-makers in positions of authority. The two intermediary organizations in our case studies represent two possible leadership models. In Texas, the state's educational technology director worked actively with the Intel Foundation and the on-the-ground regional collaborators to institute the projects. In New York, the intermediary organizations that constitute the ITA occupy what McDonald (2004) calls the 'third space,' not of the school district or state education department. This enabled them to implement a large-scale project such as Intel Teach in a state that, according to a recent report to the New York State Regents, "has not created a collective vision and strategy for how technologies can advance teaching, learning, and leading in the 21st Century." The report continues, "[w]ith some notable exceptions, few K-12 teachers or administrators report having a clear understanding of their district or school's vision and expectations for educational technology in the context of learning, teaching, and leading" (Metiri, 2007, p. 1).

Organized Growth and Experimentation

- *ITA staff allow the Intel Teach program to evolve as needed when implementation challenges come to light or circumstances (e.g., policies) change.*
- *ITAs are using a strategy of organized growth and experimentation with the introduction of EOC. Through this process they have uncovered a host of concerns, chief among them:*
  - *Trainers feel that they need a better grasp of the Essentials 10 curriculum before they implement EOC training.*
  - *Leaders worry about the face-to-face version of Essentials being phased out.*

ITA leaders who are introducing Intel often use an iterative process of planning, experimentation, and reflection to develop their deployment model. In each of the newer ITA states, this approach has played out in a way unique to the state context. For example, Louisiana already had a robust instructional technology program, so leaders decided to focus on the Thinking with Technology course. Moreover, because their state has a 'zero tolerance' policy for teachers leaving the classroom during instructional time, the coordinators/trainers turned Thinking with Technology into a hybrid course that meets one day at the beginning and one half-day at the end, with five weeks of online work in the middle. The coordinators/trainers, based at the state education department, worked with a cadre of regional trainers to develop the hybrid course, known as *LaTel*, localize it to be consistent with Louisiana professional development standards, and then test it out and refine it. An example of experimentation in a mature state is North Carolina, which started the program in one region before spreading it to the rest of the state. As a result of the initial experiences, the Intel coordinator decided to seek out Master Teachers who were not classroom teachers, to allow them more flexibility to support teachers after the training.

ITAs have applied this planning-experimentation-reflection model to Essentials Online Course. Curiosity and excitement marked coordinators', STs', and MTs' initial reactions to the introduction of EOC. State education technology leaders expressed similar interest, but they were also concerned that EOC would eventually supplant, rather than supplement, the face-to-face version of the Essentials course. After EOC's introduction at the Senior Trainer Summit in June 2007, STs articulated several concerns that may explain why they were hesitant to implement it[5]: STs felt that they needed to become more familiar with the Essentials 10 curriculum; new STs in particular felt the need to become more familiar with the Intel format, nomenclature, and style. Furthermore, several STs were uncertain whether it would be an effective means of training, given its text-heavy nature, confusing navigation, and added burden of online facilitation.

[5] EDC's additional phase of work will address these issues in more depth in a report to be submitted in January 2008.

Professional Development

- *Intel Teach programs do not stand alone; they are situated in rich professional development environments.*
- *The mix of pedagogy and technology is seen as a key differentiator of Intel from other educational technology programs, which contributes to its longevity.*
- *Intel Teach programs are perceived as being high-quality and research-based.*

The Intel Teach programs include several—but not all—of the characteristics of effective professional development identified in the literature (Garet, Porter, Desimone, Birman, & Yoon, 2001). In the case study states, the professional development goals and offerings at the state and local levels offer key elements that the Intel Teach programs do not provide, such as subject-matter content connections, follow-up, coherence in teachers' professional development experiences and work lives, and the influence of technology integration on student thinking in the content areas. Professional development staff who work in both Intel and other instructional technology efforts draw connections between Intel Teach and other professional development efforts on an ongoing basis. For example, in North Carolina, one Master Teacher is also the technology integration specialist of her elementary school. She works on an ongoing basis with the teachers of the school; she also works with others in her small, rural district. In this way she is able to help teachers make connections between the content area they choose for their Intel unit and technology integration, and follow up through implementation of the unit. Another Master Teacher in North Carolina is the K–5 technology facilitator in her district; she has a partner who covers middle and high school. Together they do Intel trainings in their district; they also make connections to the concepts and materials introduced in Intel trainings when they do other professional development programs.

In addition, all the states have other professional development offerings that complement the Intel Teach programs, in the technology area and in subject-specific areas. State staffs for instructional technology professional development see Intel Teach programs as a valuable, research-based addition to their offerings. In Alabama, Intel Teach links core ideas from three major subject-focused initiatives to provide a more applied technology-

oriented program. Intel Teach also provides what professional developers, administrators, and teachers alike see as an exciting step up from many of the technology-based professional development programs that teachers had been using for years. TiM specialists actively used these connections to recruit participants and promote the utility of Intel Teach.

Community Connections

- *Visions for a 21st century economy have led some states to adopt Intel as part of a long-term investment in workforce development.*

Several ITAs see Intel as serving not only pedagogical purposes but also purposes in the larger community, linking back to the goals and vision for instructional technology. This is especially true in West Virginia and North Carolina, both 21st Century Partnership states. It is somewhat true in Alabama as well, where the governor sees instructional technology as a driver for educational access as well as for the economy.

North Carolina focuses on economic development and workforce preparedness and sees its state education system as a means of accomplishing this goal. The current governor established a 21st century skills initiative in 2005, called *Future -Ready Students,* that involves educators and policymakers as well as the Partnership for 21st Century Skills and the North Carolina Business Committee for Education. The Committee conducted a survey of its members to determine the qualities and skills high school graduates need (Business Education Technology Alliance, et al., 2007). Their findings were similar to those of a national survey conducted by the Conference Board (2006): 21st century high school graduates will need basic skills in reading and math as well as skills in using and integrating information and communication technology. In 2007, a commission comprised of members of the Business Education Technology Alliance, the School Technology Commission, and the Joint Legislative Oversight Committee on Information Technology submitted the *Joint Report on Information Technology,* providing recommendations to "fully infuse technology into the public schools of North Carolina"

(p. 3). The state's education technology director sees Intel Teach programs as an integral part of the *Future-Ready Students* initiative.

Financing

- *All case study states have committed resources to aligning and deploying Intel Teach programs.*
- *ITAs have not yet addressed sustainability beyond the life of the Intel grant.*

The grant from the Intel Foundation allows ITAs to deploy the Intel Teach program, but all ITAs commit time, money, and staff toward implementing the professional development offerings. In addition, ITAs try to leverage funds at the state level, for example by making Intel Teach offerings an attractive component to include in competitive district grant proposals for federal Enhancing Education Through Technology (EETT) funds.

Financial resources at the state level appear to be a critical factor in whether a state education department or an intermediary organization becomes an ITA. State education departments with limited budget or personnel may not be able to carry out the function of an ITA. In Texas, for example, the state's education technology director is greatly involved in the deployment of the Intel program, but the ITA is housed in one of the state's regional education services agencies. The fact that Intel Teach programs are free of charge makes them attractive to states and districts alike but raises concerns about sustainability should the Intel Foundation stop funding a particular ITA program.

Time

- *ITAs promoting Intel Teach programs face challenges from the competing demands on the time available for teachers' professional development.*

Educators—coordinators, STs, MTs, and leaders alike—mentioned 'time' over and over again as one of their main challenges. ITAs are critical in helping create time for coordinators to manage Intel Teach programs and for trainers to be trained and to then

implement the training; however, ITAs cannot themselves make policies about creating time for participant teachers. For example, Louisiana policy is that teachers may not leave the classroom to be trained. In response the Louisiana ITA created an online professional development program based on the Thinking with Technology course.

In addition, experienced Intel educators have raised many concerns about the time commitments related to Essentials 10, in both the face-to-face and the online versions. They are also concerned about the additional time that trainers seem to need to facilitate the Essentials Online course. These concerns will be addressed more fully in EDC/CCT's upcoming evaluation report on Essentials 10.

Discussion

Elmore (2002) offers a definition of teacher professional development that is deliberately narrow and focuses on the *collective* good rather than on individual growth or personal advancement:

> Professional development is the set of knowledge- and skill-building activities that raise the capacity of teachers and administrators to respond to external demands and to engage in the improvement of practice and performance. In this context, professional development is effective only to the degree that it engages teachers and administrators in large-scale improvement.… Its value is judged by what it contributes to the individual's capacity to improve the quality of instruction in the school and school system (pp. 13–14).

This definition is relevant because the Intel Teach program, since its inception, has been concerned about creating a program that can go to scale. In the U.S., the shift from the approach that used RTAs to offer Intel Teach programs to schools and districts and to train teachers to the ITA model stemmed in no small part from that concern. A hallmark of the ITA model is that Intel Teach works directly with state education agencies, who are expected to "[implement] statewide, systemic deployment of Intel® Teach professional development… [and align] Intel Teach with state-developed resources to

improve professional development on a statewide scale" (New Intel® Teach Course, n.d.).

In addressing the effectiveness of Intel Teach for scaling up an earlier version of the Essentials course, Culp, Martin, and their colleagues argued the program was successful in achieving positive outcomes across the four dimensions of scale posited by Coburn (2003)—depth, spread, sustainability, and shift in ownership—in large part "because local adaptation and teacher creation of instructional materials were key design elements of the program, and… because the scaling model focused on creating large cohorts of trained teachers within schools and developing district leaders to support technology integration" (Culp, Martin, Gersick, & Nudell, 2003, not paged). The shift to an ITA structure further enhances Intel's ability to address these four dimensions of scale. By incorporating not only the flagship Essentials Course but also the Thinking with Technology Course and the Leadership Forum, and by going beyond district boundaries, the ITA structure allows states to make strategic decisions about the deployment and implementation of the different courses rather than leaving these decisions up to local education agencies, as was the case under the RTA structure. The ITA structure also offers a certain flexibility, as in the cases of Texas and New York, to base the ITA at intermediary agencies instead of the state education department when that is more expeditious.

Discussing the gap between standards and achievement, Elmore (2002) makes a strong argument that it is not the characteristics of effective professional development that are in question, but rather how to implement and institutionalize them within the structures of schools and districts. "The problem," he states, "is connecting the ideal prescriptions of the consensus model with the real problems of large-scale improvement and accountability" (p. 11). The ITA implementation approach is designed to address that question. By making state entities or their designees responsible for the deployment and implementation of Intel Teach programs, Intel hopes that its programs can be integrated and institutionalized within the state education systems. The first year of the ITA management structure shows promise in that regard. Moreover, the experiences of the

mature states that previously had RTAs based at the state level show some effective strategies for accomplishing the desired integration and institutionalization.

In an earlier work, Elmore (1996) offers four ideas for tackling problems of scale in education related to professional development and incentive structures for teachers:

(1) Develop strong external professional and social normative structures of practice.
(2) Develop organizational structures that intensify and focus, rather than dissipate and scatter, intrinsic motivation to engage in challenging practice.
(3) Create intentional processes for reproduction of successes (e.g., consider alternate kinds of growth such as incremental, cumulative, discontinuous, unbalanced, and 'cell division, or reproduction').
(4) Create structures that promote learning of new practices and incentive systems that support them (pp. 318–327).

As this report shows, the Intel program thrives in states that have embedded these structures and processes into their educational technology professional development programs.

Finally, Kozma's (2005) case studies of three countries identified factors of successful reforms, based on information and communication technology, that may influence national social and economic development. His analysis can help frame these issues for the U.S. Intel Teach program and its ITAs. The strategies he recommends for national policies and programs are relevant in the U.S. for state departments of education: (1) create a vision; (2) develop a plan; (3) align policies; and (4) monitor and evaluate outcomes (p. 149). While the Intel application process seeks to address these strategies, states or designated intermediary organizations may yet need support in enacting the plans put forth in the grant application.

Conclusion

The shift to the ITA structure appears to effectively have advanced Intel's agenda—that states use Intel Teach programs to achieve goals related to systemic reform and

educational technology. ITAs vary in the strategies they use to achieve their goals and to overcome the challenges to realizing these goals.

The eight categories we used to analyze the ITA case studies—purpose and goals; infrastructure and organization; leadership; organized growth and experimentation; professional development; community connections; financing; and time—allowed us to compare cases as to how ITAs addressed those issues and to highlight the success strategies the ITAs used. A next step for research and evaluation might be to define the *characteristics* for each category that lead to the successful integration and institutionalization of Intel Teach into systemic reform efforts.

The work of aligning a state's Intel Teach program with the state's instructional technology goals and systemic reform efforts goes far beyond writing a grant application for the Intel Foundation. The eight categories do not necessarily capture the work necessary to progress from the plan set forth in the grant application to a functioning program. Some states—for instance, West Virginia and Texas—lay the groundwork for this before they submit their application. Other states—Louisiana is one example—build a program development phase into their timeline. Using an intermediary organization as an ITA, as in New York, adds an additional level of complexity; those ITAs may need more time than others to ramp-up Intel Teach.

Questions that remain unanswered through this examination of the ITA structure are:

(1) How will school systems respond to the new Essentials 10 curriculum, given the technology requirements for Web 2.0 tools?
(2) How will teachers use the new Web 2.0 tools in the classroom?
(3) What program will states use for educators who have fewer basic technology skills than are required by the new Essentials 10 curriculum, now that Essentials 5.4 is no longer available?
(4) Will the concerns of experienced Intel educators and supporters at the policy-making levels—that some of the benefits of Intel Teach programs (e.g., fostering

teacher collaboration in schools) may be lost if the flagship program Essentials moves online—be realized?

(5) What happens if funding from the Intel Foundation comes to an end? Are institutionalization and sustainability the same thing?

(6) What are the characteristics, policies, and visions (e.g., motivation to have more online programs) that will allow an ITA to adapt, thrive, and be sustainable over the coming year(s)?

The current and future work of EDC/CCT aims to address many of these questions. A forthcoming report will focus on how state leaders, STs, MTs, and PTs are reacting to the content and format of Essentials Online . The findings of this study may indicate how Intel can enhance implementation of EOC and help it to be better embedded within the ITA system. Upcoming work will also address how teachers are using Web 2.0 tools from Essentials (version 10) in classrooms and what are the implications for how these tools and corresponding pedagogy are presented in the training. Future work will study the strategies and challenges of creating and nurturing ITA systems across time, to learn whether and how ITAs adapt their deployment of Intel Teach to build sustainability, efficiency, and effectiveness of the program across the state.

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Appendix: State Profiles

The following state profiles, in alphabetic order, provide an overview of how Intel Teach programs fit within state structures as well as how the ITAs are organized. Each profile focuses on a few of the eight key factors derived from research on successful technology integration projects:

- *Purpose and goals*
- *Infrastructure and organization*
- *Leadership*
- *Organized growth and experimentation*
- *Professional development*
- *Community connections*
- *Financing*
- *Time*

Alabama

Intel in Alabama

Alabama has participated in Intel's professional development programs since the beginning of Intel Teach to the Future in 2000. The Intel Teach programs began around the time of the inception of Technology in Motion (TiM), a teacher training initiative that emphasizes technology professional development and provides the majority of statewide technology professional development programs. The 11 TiM specialists based in regional centers around the state offer over 50 professional development workshops and courses at a time, ranging from basic PowerPoint use to complex programs such as Intel Teach and eLearning for Educators. With the coordinator based at the Alabama State Department of Education (ALSDE) and the specialists as either Senior Trainers or Master Teachers, the transition from RTA to ITA for this senior state was easily accomplished.

Leadership

The onset of the ITA infrastructure has not greatly changed the way Alabama is implementing the Intel Teach programs. The State Director for Educational Technology oversees the numerous technology professional development programs in Alabama. She is responsible for managing staff in areas ranging from library media services to distance learning. She searches nationally for new programs and helps to make connections among existing programs. She delegates responsibility for promoting and implementing the use of Intel Teach programs in Alabama to a Project Manager, whose charge involves all higher-level responsibilities that directly involve Intel Teach, including coordinating the TiM specialists.

Professional Development

Intel Teach has been successfully implemented in Alabama for years, partly because it fits well into the ALSDE's professional development scheme. Alabama provides a large array of technology-based professional development programs, for which schools across the state show a strong interest. The State Director for Educational Technology stated that there can even be too many requests for these programs: "Teachers want [the Technology Initiatives department] involved in all major projects, and it's too much sometimes." With the variety of offerings TiM provides, numerous programs have begun to move toward an online format, a movement backed by the ALSDE. TiM specialists feel online professional development may could give teachers more choices and ease the burden of traveling, so Essentials Online Course could potentially be as well-adopted as the traditional face-to-face Intel Teach courses.

With educators' strong desire for technology professional development, Intel's courses fit well within ALSDE's system; however, even with online offerings, teachers have limited time and numerous options. One high school math teacher stated that these constraints would have an effect on enrollment, since the Intel Teach programs have two main

statewide competitors; both the Alabama Reading Initiative[6] (ARI) and the Alabama Math, Science, and Technology Initiative[7] (AMSTI) have large budgets and are backed by the state.

The AMSTI initiative was begun by the ALSDE to improve math and science teaching across the state. The program provides professional development together with computing equipment and materials. To become an 'AMSTI School,' a school must send all of its math and science teachers to two-week Summer Institutes for two summers. The institutes focus on subject-specific, inquiry-based learning and provide materials to support teachers' professional development. AMSTI is not run by TiM specialists. Ten university-based in-service centers do the trainings; 365 schools have completed the program. Prior evaluations have shown positive student gains, and the ALSDE has received an additional $35.8 million for Fiscal Year 2008 for this program. Teachers get an honorarium of $500 per week for attending AMSTI institutes.

ARI is a statewide K–12 initiative managed by the ALSDE. It focuses solely on reading and pedagogy to help improve reading levels for all students, but especially for struggling readers. ARI, similar to AMSTI, trains entire school faculties rather than independent teachers. It has 899 schools as of March 2007. Its budget is not as large as AMSTI's, but this program, too, has a strong push from state-level educators.

The Project Manager for Intel Teach stated that the large scale of these programs can make recruiting for Intel Teach programs more difficult; however, she feels that the instructional approaches of these programs are consistent with Intel Teach's approach and that schools can benefit from both programs. Intel Teach links core ideas from ARI and AMSTI and provides a more applied technology-oriented program to their more subject-focused initiatives. A few TiM specialists even mentioned the idea of trying to blend AMSTI with Intel[8]; because AMSTI focuses on science and mathematics, they felt that technology integration had "gotten pushed to the back burner" but that Intel could be added to AMSTI as an advanced technology component. One TiM specialist added that Intel Teach also provides a "step up" from many of the basic, older professional development programs offered by TiM that teachers had been taking for years. He stated that with Intel having connectivity and advanced ideas, the courses continue to draw teachers and are always successful.

Infrastructure and Organization

The ALSDE decides which technology professional development courses will be offered to Alabama teachers, but no particular programs are mandatory or—aside from AMSTI and ARI—even encouraged. The state allocates most of those responsibilities to the regional TiM specialists, who are a line item on the state budget each year. They have a

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[6] See http://www.alsde.edu/html/sections/section_detail.asp?section=50&footer=sections
[7] See http://www.amsti.org/
[8] Two TiM specialists at the Alabama Educational Technology Conference mentioned being in favor of this idea. Although there is no formal plan to act on this possibility, it shows the TiM specialists' dedication to integrating Intel Teach into the larger scheme of the ALSDE's other technology programs.

$1.38 million grant, which one specialist considers “not large considering the amount of work we perform.”

TiM specialists work directly with local education agencies (LEAs) to garner support for the Intel Teach programs. They must determine regional needs and goals, with the LEAs’ and districts’ coordinators to help them select among professional development courses. Regional goals vary according to the number and size of their LEAs. Some LEAs are very small, with only three schools, while some have fifty to sixty schools. If the LEAs cannot support a technology trainer on their own, the TiM specialists will still train teachers and provide assistance as necessary.

TiM specialists provide a list of workshops for schools and districts to decide what best fits their needs. The districts and schools have full control of choosing which professional development their teachers will take. District leaders often take recommendations from the specialists, but they can select programs on their own. This regional and local control can have benefits. Alabama has numerous rural areas in which educators appreciate having someone they can contact, who will come to them for planning and training. Strong rapport is also built between districts and TiM specialists, allowing communication via listservs, e-mail, IM, Google talk, and others.

The downside to this regional control, from the point of view of a national program such as Intel Teach, is insufficient support from the state level. The promotion, recruitment, implementation, and coordination of technology-related professional development essentially falls on the shoulders of the TiM specialists. No one at the state level puts any pressure or incentive on technology coordinators or administrators to adopt programs such as Intel. If specialists did not actively promote the program and recruit teachers in their regions, the technology professional development would not take place. One TiM specialist mentioned that the ALSDE does spread the word on available new trainings, but the follow-up is generally “See your local trainer for more information.” Another specialist noted, “If it were not for me, instead of 35 Essentials trainings, [there] would have [been] none.” Thus administrators do not always know what technology professional development is available or which programs are best suited for their districts; specialists have to personally contact and visit them. With a number of rural areas in Alabama sometimes 100 miles away from regional centers, this can be difficult for the specialists to coordinate. In addition, there is more and more pressure on principals to participate in AMSTI and ARI, making it increasingly difficult for TiM specialists to schedule Intel trainings, as these programs siphon off almost all the professional development time for elementary teachers and AMSTI fills most of the summer for middle school math and science teachers. According to TiM specialists, teachers then worry about losing time in the classroom and may avoid additional professional development such as Intel.

Several TiM specialists agreed that their job would be easier if the TiM program had additional state support to help with these issues. The lack of accountability for technology integration may give these programs a lower priority in teachers’ and administrators’ eyes. An example, given by a TiM specialist, is that the state could add

technology integration to principal and teacher evaluation criteria. Another specialist said that if the Technology Initiatives office at the state could communicate some expectations to principals, administrators, and superintendents of wanting to see these trainings being implemented, that alone would improve participation; and if they added observation of these trainings and implementation in the classroom to their monitoring practices, "…the specialists would not have enough time to breathe and the trainings would be constant statewide. That is the biggest thing state could do—just like they do with ARI and AMSTI."

Purpose and Goals

Alabama recently implemented its first set of official technology standards for teachers and administrators—a demonstration of their goals to support technology-based professional development. The ALSDE's 2007–2012 state technology plan named IMPACT[9] (Indicators for Measuring Progress in Advancing Classroom Technology) describes Alabama's goals for technology integration and mastery of standards, technology professional development, technology infrastructure, and expansion of technology opportunities.

The State Director for Educational Technology stated that Alabama has a strong sense of purpose when it comes to integrating technology into the schools, with positive movement toward supporting technology-related professional development such as implementing and rewriting new state technology standards and trying to integrate instructional technology into the other sections of the education department; however, because the state is still very regionalized, implementation of any statewide technology standards and practices would need additional time and effort.

Despite the professed clear vision of the ALSDE for technology use and integration, TiM specialists have noted some further challenges: It is difficult for teachers to get release time for professional development; there is little accountability for learning technology-based pedagogy; and there is no strong push from the state level (other than the written technology goals) for enrollment in many programs.

Organized Growth and Experimentation

The State Director for Educational Technology emphasized that the actual implementation of the Intel Teach program needs to be flexible in order for it to thrive. She felt that although the Intel Teach courses fit well into the existing statewide professional development system, continual improvement is necessary for making ALSDE's use of Intel Teach better. The State Director wants experts and research to inform decision-making and is willing to change ALSDE's implementation of Intel, even after seven years of operation, if it will help teachers learn better. She feels that adopting any suggested improvements could save time and money while improving Alabama's education system in the long run.

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[9] See http://www.alsde.edu/html/sections/documents.asp?section=61&sort=10&footer=sections

Louisiana

Louisiana was one of the first new states to begin Intel Teach under the ITA structure. The Louisiana State Department of Education (LSDOE) incorporated its Intel Teach offering, which it named *LaTel*, into its existing statewide structure for technology-based professional development programs. The Intel Teach program is overseen by the Division of Leadership and Technology (DLT) and run by two Education Technology Consultants who work in the Technology Planning and Online Professional Development department. Eight Regional Teaching Learning and Technology Centers (TLTCs)—which are not directly affiliated with the State Department of Education but rather are run by districts with state-allocated funds—have the responsibility of disseminating and implementing Intel Teach in the state. Each center has one coordinator that maintains contacts with districts in the surrounding region and coordinates technology-based professional development.

Organized Growth and Experimentation

What makes Louisiana unique is its creation of LaTel, a professional development course that maintained the core curriculum of Thinking with Technology while incorporating the use of Web 2.0 tools, all placed in the state's online learning platform. At the time Louisiana prepared its ITA grant application, DLT leaders thought Essentials was too similar to INTECH, the state's major technology professional development offering.

LaTel was developed in Spring 2007 and piloted in the summer; it is now being offered as a hybrid course. Led by the Education Technology Consultants, TLTC coordinators wrote the LaTel curriculum in a collaborative process that was challenging but ultimately rewarding. Input from the coordinators made for a better course and also provided buy-in from the field. One of the consultants who coordinates LaTel explained that because the TLTC coordinators were open to each other's opinions and ideas about what content to include and how to present it, as well as willing to experiment to make the course both user-friendly and effective, the course evolved successfully. A TLTC specialist said, "There is a learning curve with these tools… and we as programmers had to go through it, learn, and adjust the program to make sense to us, so it will make sense to [participants]."

Infrastructure and Organization

Districts in Louisiana have control over which professional development programs they use, but the system for administering and delivering trainings is solidly grounded at the state level. The LSDOE has 10 divisions, all of which attempt to cooperate in forming a coherent plan that provides guidance for the regional TLTCs. The DLT is responsible for implementing LaTel and works with other branches of the LSDOE, incorporating such components as the state comprehensive curriculum and standards into DLT's professional development initiatives, to enhance the way teachers understand and use instructional technologies in the classroom.

Each TLTC has a coordinator who maintains contact with districts in the surrounding region, manages the technology professional development offerings, and reports back to the LSDOE. TLTC specialists communicate with district and school technology coordinators about the professional development courses being offered. District coordinators communicate with teachers, and they ultimately help select the most appropriate professional development courses for them, given district goals and individual needs. Since the LSDOE does not mandate any particular courses, districts have freedom to choose among any of the offerings.

A TLTC specialist stated that one challenge posed by district control is a difficulty in recruiting in smaller districts, especially if teachers wish to take courses other than LaTel. She noted that smaller districts, with a small number of teachers, may not be interested in multiple types of professional development, thus limiting the implementation of new, innovative programs. In addition, small rural districts may have limited Internet access, inherently restricting the appeal of LaTel.

Professional Development

Louisiana's main instructional technology professional development programs have been INTECH and INTECH II, but according to a DLT staff member, educators wanted something "more advanced," providing part of the impetus for what became LaTel. To make LaTel an attractive next-step program and to get the necessary buy-in from district coordinators and teachers, LaTel's development team incorporated the Thinking with Technology thinking tools with state standards and curriculum as well as Web 2.0 tools. One of the Educational Technology Consultants noted that these features help LaTel stand out when it is compared to other instructional technology offerings. State staff promote LaTel extensively at state conferences, as well as through educators who have completed programs such as INTECH.

Although specific technology professional development courses are not mandated by the state, the LSDOE shows commitment to technology integration in policies that allow teachers to add endorsements such as Education Technology or Education Technology Leadership to their certification. As the assistant director of the DLT said, this provides "'carrots' to get the teachers wanting to take more technology professional development."

Purpose and Goals

Louisiana has a comprehensive academic curriculum[10] written by external contractors who worked with the LSDOE's curriculum department. It also has a K–12 educational technology standards[11] for students. The standards document outlines—among other things—the LSDOE's goals for students in technology-based communication, problem-solving and decision-making, productivity, and research. It also integrates Louisiana's foundation skills to demonstrate how technology intertwines with other learning goals.

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[10] See: http://www.doe.state.la.us/lde/saa/2108.html

[11] See http://www.doe.state.la.us/lde/lcet/324.html

An assistant director of the DLT explained that because the technology standards were not incorporated into the comprehensive curriculum, the technology department tries especially hard to integrate them in every way possible to make professional development around technology more coherent for teachers. This is why, according to him, Louisiana's adaptation of the Thinking with Technology curriculum incorporated Louisiana's core curriculum in various ways. For example, the LaTel course encourages educators to create curricular units that build on the core curriculum and can be be shared across the state on Louisiana's Making Connections[12] website.

One challenge Louisiana educators face in taking professional development courses is what is commonly known as the zero tolerance release policy, which maintains that teachers cannot leave the classroom for most professional development training. Therefore, professional development staff at the LSDOE made the decision to make LaTel a hybrid course.

Financing / Time

The LSDOE matched Intel's grant through federal Enhancing Education through Technology (EETT) funding, leadership funds, and state technology funds, allocating a $60 stipend per participating teacher. The Educational Technology Consultants felt that $60 would not be an enticing incentive for teachers, given the amount of time and effort they needed to put into the training, even though teachers also receive continuing education credits and a flash drive. In fact, several TLTC coordinators indicated that the time commitment teachers need to make to LaTel has made it difficult to promote, even though only one-and-a-half days are face-to-face[13]. TLTC coordinators felt that the online component of LaTel would help with time issues because participants could fit working on their own into their schedules more easily; however, it is unclear whether this is, in fact, the case.

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[12] See http://mconn.doe.state.la.us

[13] An assistant director of the DLT explained one way to help with time demands: Districts which are awarded additional competitive funds through EETT can write leave days into their proposals to circumvent the zero tolerance policy, but of course this would take funding away from other activities.

New York

New York joined the Intel Teach community as an ITA early in 2007, with New York Institute of Technology (NYIT) as the lead agency in partnership with New York State Teacher Centers (NYSTCs). NYIT is a private institution of higher education with a focus on career education. As legislatively mandated, state-funded entities for almost 25 years, NYSTCs are a major vehicle for teacher professional development in the state.

NYIT has a long-standing relationship with the NYSTCs; Stan Silverman, a professor at NYIT, facilitates meetings of the New York State Teacher Centers' Technology Committee and communicates regularly with New York State Education Department staff about NYSTC Tech Committee activities. Three people—all certified as Senior Trainers in the Essentials Course—are charged with promoting and coordinating the Intel program in three regions: New York City, Long Island, and the rest of the state. One is housed at NYIT while the other two are affiliated with Teacher Centers.

With a statewide student enrollment of almost 3 million PreK–12 students, over 200,000 public school teachers, and 703 school districts that include the nation's largest—New York City, with over 1 million students and about 68,000 teachers—New York State is big and diverse, ranging from rural communities, Indian reservations, and migrant populations to the most densely populated cities and suburbs in the country.

Infrastructure and Organization / Organized Growth and Experimentation

The ITA took the first half of the year to plan for Intel Teach implementation, getting structures and trainers in place to support Intel trainings. New York State has a decentralized education system that made it difficult, logistically, to kick off the Intel program. New York State has local districts as well as regional education agencies known as *BOCES* (Boards of Cooperative Education Services). New York City's size posed special challenges. The approximately 130 local Teacher Centers across the state are organized into seven regional networks. The size and capacity of individual centers vary; for instance, the New York City-based United Federation of Teachers (UFT) Teacher Center has over 250 school-based sites in addition to additional outreach locations around the city.[14] Throughout the state, some Teacher Centers are housed in BOCES; some, in school districts; and others are freestanding.

Another challenge for starting up Intel in New York State was that the original grant application did not address myriad details regarding how Intel would be implemented in different regions. At the March meeting of the NYSTC Technology Committee—the group charged with implementing Intel Teach in New York—approximately 20 Teacher Center staff from around the state learned more about the Intel Teach programs and discussed many logistical aspects of the proposed plans for rolling them out in New York. Chief among those were how to work effectively in New York City, with its special considerations due to size; how to work together with BOCES, which

[14] From: http://www.ufttc.org/modelnetwks.html

traditionally charge fees for professional development courses; how to manage the impending transition to Essentials version 10; and how to handle MTs trained prior to the new ITA agreement. At times, ITA staff consulted with Intel Teach Foundation staff for input.

After the group reached consensus on some basic structures for promoting and implementing Intel activities, the New York ITA focused on building training capacity. At their quarterly meeting in June, a national Senior Leader trained the NYSTC Technology Committee in conducting Leadership Forums, and the group made plans for disseminating the Forums. The group also discussed ways of developing a cadre of Senior Trainers and Master Trainers for Essentials and for Thinking with Technology courses. In preparation for the launch of Intel Teach, two of the three regional coordinators took part in the Essentials Online beta course in Spring 2007, and all three attended the ST Summit in Atlanta in June 2007. Several trainings took place during the summer; a national ST conducted an MT training for Thinking with Technology in Long Island, and the Long Island coordinator conducted an Essentials Online course for PTs.

Professional Development

NYSTCs have enjoyed a long-standing, close relationship with NYIT. They had a successful professional development partnership around the implementation of ThinkfinityNY (formerly MarcoPoloNY), which involved training over 22,000 teachers and generating more than 3,000 lessons and resources aligned with the New York State Learning Standards; they planned to build on these experiences in implementing the Intel program. In addition, since NYSTCs are integral to the professional development landscape in New York State, their staff are involved in and therefore aware of the many state initiatives beyond educational technology.

Purpose and Goals / Leadership

New York State has been a leader in the educational standards movement. It has learning standards in place for all major academic subjects and, according to Education Week, its assessments are aligned to standards at all levels.[15]

However, the policies, funding, and implementation of educational technologies in New York have been less coherent than the initiatives for learning standards and assessments. A special report commissioned by the New York State Regents' Technology Policy and Practices Council encapsulates the particular challenges face by efforts to implement Intel in New York State:

> The findings indicate that innovative, high-quality use of technology in New York's K–12 schools is more the exception than the rule. … The State of New York has not created a collective vision and strategy for how technologies can

[15] *From Cradle to Career: Connecting American Education from Birth Through Adulthood* (New York). Accessed on February 23, 2007 from http://www.edweek.org/ew/toc/2007/01/04/index.html

> advance teaching, learning, and leading in the 21st Century (Metiri Group, 2007, p. 1).

This naturally affects the ability of the New York State Education Department to implement programs and policies effectively, and suggests why the activities of intermediary agencies such as the Teacher Centers and external programs like Intel Teach are so critical for educational technology professional development in the state.

North Carolina

> *When we go out to promote this, it's probably easier for us than in some other states because all of our arrows are pointing in the same direction. It [the Intel program] is very complementary…*
> -- State Coordinator of the Intel Teach program

The Intel Teach program has been operating as a staff development project based at the North Carolina Department of Public Instruction (DPI) since 2002. Originally set up as a Regional Training Agency (RTA), it transitioned to Intel Teach Affiliate (ITA) status in 2006. Responsibility for implementing Intel Teach programs falls to the DPI's Instructional Technology Division, which relies on its regional Educational Technology Implementation and Planning Services network, staffed by six regional consultants, for disseminating the program. The primary task of the six regional consultants is to support local education agencies in writing and implementing their technology plans. In addition, each consultant is assigned a special project. The consultant responsible for Intel Teach programs has been with the program since its inception and is known throughout the state as "the Intel lady."

Purpose and Goals

The state's Intel coordinator called the Intel program "very complementary" to the state's instructional goals and initiatives, making it easy to promote Intel in the state. This is borne out by statistics indicating a high level of activity for Intel Teach programs in North Carolina: The state's proposal to Intel for 2007 said that, since the inception of the program, the state had trained 463 Master Teachers and 4,355 Participant Teachers in Essentials, and 133 Master Teachers and 215 Participant Teachers in Thinking with Technology.

A number of activities at the state level have influenced the successful implementation of Intel Teach programs. First, Intel Teach is written into the state's 2007–2009 Technology Plan, introduced in November 2006 and revised in Summer 2007. The five strategic priorities revolve around the themes "globally competitive students; 21st century professionals; healthy and responsible students; leadership for innovation; and 21st century systems" (DPI, 2007, p. 2). Intel Teach programs are written into the plan as resources under the strategic priorities related to teachers' professional development, as well as under healthy and responsible students (as part of the learning environment). Local education agencies, required by state law to have technology plans, are assisted by the six regional consultants, whose main responsibility is to help LEAs write, implement, and monitor these plans.

In North Carolina, academic guidelines are embodied in curriculum documents known as the North Carolina Standard Course of Study. There are courses of study specifically for computer skills (*The K–12 Computer/Technology Skills Standard Course of Study*) and information skills; both are relevant for technology and other 21st century skills. In general, statewide testing occurs in grades 3 through 8, at the end of the grade, and in

high school, at the end of a course. As a curriculum-wide course of study, technology is supposed to be embedded "over time, through integrated activities in all content areas K–12"[16], while information skills are primarily the domain of the library media specialist. The K–12 computer skills standards have been adapted from the ISTE NETS-S standards, with a formal test in Grade 8. Intel professional development programs are seen as very much aligned with these standards.

Finally, North Carolina was one of the first states to sign on with the Partnership for 21st Century Skills. In 2005, the governor established a 21st century skills initiative called *Future-Ready Students* that involves educators and policymakers as well as the Partnership and the North Carolina Business Committee for Education. The state's education technology director views Intel Teach programs as inextricably intertwined with 21st century learning, helping teachers and students to learn the skills to become lifelong learners. (For more information, see the Community Connections section below.)

Leadership / Infrastructure and Organization

Staff in the state's Instructional Technology division work closely with their colleagues in the curriculum areas. North Carolina's state education technology director has ensured that Intel Teach program offerings are part of the state-supported professional development opportunities.

The regional educational technology consultant responsible for Intel Teach programs in the state promotes them at state conferences and events such as the state's School Library Media conference; disseminates information via communication channels such as listservs, websites, and site visits; schedules trainings; and does all the other managerial tasks associated with Intel program implementation. She is also growing the state's cadre of Senior Trainers for Essentials and Thinking with Technology, and Master Leaders for Leadership Forums. She herself is not a trainer, but focuses on the strategic and logistical aspects of implementing Intel. This is one of North Carolina's success strategies: appointing one person to coordinate the Intel Teach programs in the state, who takes the lead on promoting Intel Teach programs, recruiting, and organizing Senior Trainers and Master Teachers, and taking care of the back-end administrative work associated with the program, with the assistance of someone in the state education department who helps with paperwork. Generally speaking, she does not conduct trainings herself but coordinates the work of STs, MTs, and MLs (Master Leaders, for Leadership Forums).

North Carolina has site-based district and school management; principals can fulfill state mandates as they see fit, so Intel must be promoted to them as a worthwhile professional development program. District technology coordinators are key gatekeepers, because principals and superintendents pay attention to their recommendations. Therein lies a challenge: The regional technology consultants we interviewed all commented on the orientation of district technology directors, saying they leaned toward either pedagogy and technology integration or toward infrastructure and equipment. Those focused on

[16] See www.ncpublicschools.org/curriculum/computerskills

infrastructure reportedly placed a lower priority on professional development programs and did not perceive integration of technology into instruction to be as important as technology skills for teachers. Since the consultants see district technology directors as key gatekeepers for technology professional development programs, this perception became a sometimes-insurmountable issue for entrée into certain districts, although they anticipated that the *Future-Ready Students* initiative would alleviate this in the future.

Professional Development

State staff have integrated Intel professional development opportunities within other state educational technology initiatives such as the IMPACT model and the related IMPACTing Leadership program, both supported by federal EETT funding. And although North Carolina no longer requires teachers to acquire technology professional development credits for license renewal, other official structures serve to reinforce the importance of technology professional development. In addition, the consultants told us that many administrators still recognize the importance of professional development for instructional technology integration and support their efforts despite the lack of a requirement.

State staff have also sought out opportunities to collaborate with colleagues in curricular areas. The Intel coordinator and her counterpart from another region are working together with their colleagues in the social studies division to get a cohort of MTs around the state trained in Essentials and Thinking with Technology, with a focus on the state's social studies curriculum.

Organized Growth and Experimentation

Organized growth and experimentation has been a hallmark of the Intel Teach Program in North Carolina since the beginning. The Intel program started small in the western region of the state, where the coordinator served as educational technology consultant. Then, as the program expanded to the rest of the state, the coordinator listened carefully to her consultant colleagues, STs, and MTs about what was working and what did not work as well. As a result, in North Carolina, MT recruitment targets media and technology specialists who are familiar with providing professional development to other educators and whose schedules allow them more flexibility in scheduling trainings and follow-up. Recognizing a need for more support from administrators at the state and local level, the coordinator now organizes Leadership Forums and special trainings. An outgrowth of such a meeting was a statewide cohort of Social Studies MTs (see Professional Development, above).

The ITA is headed into a new phase of experimentation with the introduction of Essentials version 10 and especially Essentials Online. While educators in the state are excited about the changes, they also spoke of three major challenges they foresee. First, the incorporation of Web 2.0 tools will generate important conversations about the ramifications, in terms of network security issues and student safety issues. The state educational technology director thinks it will be a challenge to "open up networks and minds." Second, the educators we spoke with voiced a concern that the inherent value of

having teachers come together to spend a significant amount of time planning and working will be lost in Essentials Online. Right now, they perceive participation in Intel to send a school-wide message about the importance of technology integration and are afraid that the online course will send a very different message. The third and final challenge they describe, in terms of the switch to version 10 and possibly the Online course, is the amount of basic technology literacy required of teachers.

Community Connections

The state of North Carolina is focused on economic development and workforce preparedness, and sees its state education system as a means of accomplishing this goal. The current governor established a 21st century skills initiative in 2005 that involves educators and policymakers as well as the Partnership for 21st Century Skills and the North Carolina Business Committee for Education. The Committee conducted a survey of its members to determine the qualities and skills high school graduates need (Business Education Technology Alliance, 2007). Their findings were similar to those of a similar, national survey conducted by the Conference Board (2006): 21st century high school graduates will need basic skills in reading and math as well as skills in using and integrating information and communication technology. In 2007, a commission comprised of members of the Business Education Technology Alliance, the School Technology Commission, and the Joint Legislative Oversight Committee on Information Technology submitted the *Joint Report on Information Technology*, providing recommendations to "fully infuse technology into the public schools of North Carolina" (p. 3).

Financing

The additional funding and resources provided by the Intel Foundation are an important part of the instructional technology professional development landscape in North Carolina. "There's not enough money to go around. So any time we have an opportunity to further professional development and move it forward, it's important to us," the state's educational technology director told us. Intel allows districts—which are expected under state law to allocate at least 25% of their technology resources to professional development—to stretch their professional development resources. The funding behind the Intel program makes it attractive for schools, since their in-kind contribution counts toward the 25% allocation and stretches their training budgets. The state currently uses Intel grant money to pay for travel and lodging expenses for trainers and sometimes for PTs as well; they ask local education agencies to cover the hiring of substitute teachers for teachers being released during the school day.

The Intel coordinator and state education technology director are very positive about the impact that Intel Teach programs have had in the state over the past five years. They are concerned, however, about sustainability. Although Intel Teach programs are well-regarded and popular, they wonder what would happen if funding from the Intel Foundation comes to an end, since the leverage Foundation funds provide are critical in the deployment of Intel Teach programs.

Time

The challenge most mentioned by educators in the field was, not surprisingly, time. There are many competing demands for teachers' and administrators' time, including accountability and testing pressures—especially with NCLB requirements and Annual Yearly Progress goals—as well as other educational initiatives and reforms. Surprisingly the lack of a requirement for staff development in technology has not hampered the Intel program. According to those interviewed for this report, administrators recognize the importance of integrating technology in classrooms and understand the critical role of professional development despite the absence of a formal mandate.

Texas

Texas has participated in Intel's professional development offerings since the beginning of Intel Teach to the Future. Initially, the University of North Texas and Texas A&M functioned as RTAs in north and south Texas, respectively. Each received an Intel grant; they worked collaboratively, but separately, coordinating trainings through LEAs. In 2007, at the suggestion of the Texas Education Agency (TEA), the Region 10 Education Service Center (ESC) applied, successfully, to become the Texas ITA. TEA staff describe ESCs as "their arms," which they use to control initiatives because the TEA cannot be involved directly with private industry. According to Region 10 personnel, the former RTAs were happy to help with the transition, which has proceeded smoothly.

Infrastructure and Organization

ESCs are service agencies, as distinguished from regulatory agencies: They serve school districts and provide professional development in a variety of areas, operate as a conduit between the schools they serve and state agencies, and support schools' abilities to meet standards and fulfill statewide education initiatives. However, they do not collect taxes, create policy, or lobby. According to its website, Region 10 is one of 20 service centers that provide services to school districts within their region: "Regional service centers are non-regulatory, have no taxing authority, and provide services for which participation is voluntary on the part of the local school district."[17] In short, ESCs provide professional development and other services to school districts within their regions on a fee-for-service basis. As one official at the TEA noted, ESCs' role is to serve schools; they are affiliated with state-level agencies such as the TEA, but schools are not accountable to ESCs as they are to the TEA. The schools are the ESCs' customers. This important distinction allowed Region 10 to apply for ITA status, which the TEA could not have done under current Texas educational policy.

The mission of the TEA is "to provide leadership, guidance, and resources to help schools meet the educational needs of all students."[18] The group administers educational initiatives for the state that include developing the state curriculum, dispersing grant funds, and adopting textbooks for the entire state. Their operating costs come from state and federal sources; accordingly, it is against their policy to promote private industry. Because of this ban, they often look to the Regional Education Service Centers to work directly with vendors or educational programs that are affiliated with corporations, such as Intel Teach. Since the TEA cannot serve as an ITA, Region 10, which had been contracted to do work on Title II Part D of No Child Left Behind (NCLB) for the agency, was selected as the logical group to apply for the Intel grant.

One challenge in Texas's infrastructure system is the issue of local control. Within the state and regions, independent school districts (ISDs) are responsible for the fulfillment of state and federal standards; how they meet those standards is almost entirely up to

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[17] From Region 10 website: http://www.region10.org/

[18] *From TEA website: http://www.tea.state.tx.us*

them. Due to local control, the degree to which an initiative such as a professional development program can be imposed is generally linked to grant funding or to a specific program; however, ISDs generally hold professional development at their own discretion. "Our independent school districts are *very* independent," remarked one TEA employee. Due to the size and independence of districts in Texas, the TEA is limited and cannot require any particular professional development program. This makes communication between ISDs and the TEA critical. Regional ESCs can serve as middlemen, but this is not always effective. Often the larger districts that do not need to be served by ESCs are not receiving a strong enough message from the state.

Leadership

One of the major shifts for Texas was that the Senior Trainers were positioned at ESCs, rather than being national trainers as in the past. To supplement the two national trainers based in Texas in the old system, eight new STs were trained, all of whom hold positions in technology professional development at ESCs across Texas. The state has two additional leaders for Intel Teach: the Project Coordinator, who is the main ITA contact at Region 10, and the State Educational Technology Director, who champions the program at the state level. Leading this program takes place in a team atmosphere. The State Educational Technology Director works through policy building and communication, along with several departments in the TEA. The Program Coordinator uses two of the eight recently trained STs to support her and employs the other STs to help run the program regionally through the ESCs.

Although data on the effectiveness of this leadership strategy are limited by the recency of the ITA's development, both the TEA and Region 10 believe that the new STs will have an intimate sense of the regions and their districts and will lead the regional program effectively. An additional perceived benefit is that STs who are either serving as LEAs themselves or working closely with them will make the communication and processes around holding a training much more efficient, since STs can both recruit for and facilitate their own trainings.

Purpose and Goals

State-level educators see Intel as strongly aligned with their technology and professional development goals in terms of leadership, pedagogy, and standards. Texas has TAKS (Texas Assessment of Knowledge and Skills), which are study guides designed to help students perform on TEKS[19] (Texas Essential Knowledge and Skills) standardized tests. TEKS drives a need to help students use technology and become proficient. The SBEC (State Board of Educator Certification) has parallel standards. The State Education Technology Director stated that Intel really supports Texas standards, for both teachers and students, and that "SBEC standards scream Intel."

[19] See TEKS Learning Standards for Texas Children: A Summary for Parents. Texas Education Agency, 2001. Online at http://www.tea.state.tx.us/

TEA is emphasizing the leadership component in its most recent Long Range Plan[20], which was rewritten in 2006, with an emphasis on leadership training and buy-in for technology at the district and regional level. Three major goals are articulated in this plan:

(1) Technology proficiencies: All teachers must be proficient in SBEC and students in TEKS. Core content areas must have technology literacy and proficiency integrated into their curricula.
(2) Professional development: A long-range goal is to prepare all teachers to use technology in the classrooms to model use for students and for their own use in lesson planning, administrative tasks, etc. "A comprehensive professional development program is imperative."[21]
(3) Technology planning and resources: Provide hardware, software, support, technical assistance, and advanced tools for data-driven decision-making.

To promote this sort of ideological shift, the TEA develop frameworks that detail how to meet the standards that schools may choose to embrace. The frameworks recommend implementing professional development that has a leadership component, is research-based, and emphasizes implementation and strategies for evaluation. Ideologically and logistically, Intel is aligned with these frameworks and also with the standards, which may benefit Intel's longevity in Texas.

Professional Development

Intel's alignment with standards and Texas's emphasis on technology[22] make Intel an ideal fit into Texas's array of professional development offerings. Intel has even become aligned with the Technology Immersion Program (TIP), which will provide strong momentum for the Essentials program in the future. In their grant for ITA status, Region 10 describes their relationship with the TEA, which includes contract work providing technical assistance, as it relates to Title II Part D of NCLB, through the provision of tools and resources for schools to meet technology standards. Part of this work includes support for the TIP program and other, similar initiatives. The professional development offerings from Intel have become a significant piece of this partnership.

A major impetus for this application was the TEA's desire to have a high-quality professional development experience that could support both teachers who were already adept with technology and those who were not. TIP, a one-to-one laptop program, which is taking place in middle schools across the state, required professional development around technology that emphasized pedagogy, general technology skills, and leadership. Region 10 decided it needed a standardization of professional development for the TIP

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[20] *Long Range Plan for Technology, 2006–2020: A Report to the Texas Legislature from the Texas Education Agency*, online at http://www.tea.state.tx.us/technology/etac

[21] *TEA*, Long Range Plan for Technology, *2006–2020*.

[22] Professional Development Framework for Texas Schools for the Effective Use of Educational Technology, Texas Education Agency, 2007.

campuses. Due to local control, as discussed above, the degree to which a standard can be imposed is generally linked to grant funding or to a specific program. In the case of TIP, Intel professional development may become linked to the program only insofar as schools elect to participate by training an MT for their campus. The fact that schools electing this particular professional development receive stipends for both MTs and PTs provides additional incentive to add Essentials.

Findings around the TIP program suggest that many teachers in under-resourced schools in Texas still need basic technology proficiency training. TIP schools will be receiving Essentials courses to address the basic technology skills that many of the teachers lack, as well as pedagogy to support their immersion program. TIP is a large priority for the TEA and Intel's alignment, given the opportunity for capacity building, including stipends.

Organized Growth and Experimentation

Texas aims to improve its professional development programs through research, growth, and experimentation. Combining two of their major initiatives based on previous research is an innovative move for Texas that shows its ambition for making the most of any professional development opportunity. Texas is also considering the incorporation of more online professional development. The State Educational Technology Director stated this would address many problems, including the huge distances trainers and teachers must travel to meet for face-to-face professional development, the need for substitutes, and the difficult scheduling process. However, some Senior Trainers said they are not convinced that Texas teachers are ready for online professional development. The lack of structure, the need for personal motivation, the fact that teachers are already using their free time, and the desire for an in-person connection are seen as challenges by STs and might be obstacles for change.

Financing and Time

Senior Trainers in Texas are not paid for facilitating trainings as part of their salaries, unless grant funds are specifically earmarked for that purpose. In some cases, the new STs may be funded to train, but not to do the administrative work associated with the trainings. Thus, most Intel training work is compensated with matching funds from the ESCs themselves; in some cases, trainers expend personal time to perform Intel activities and are not compensated for this work because it is outside their technical job descriptions. "In grant work, as in education in general, this needs to be ironed out," observed one Texan educator, who expressed high hopes that coalition with other ITAs might help to brainstorm possible solutions, noting that Intel is always willing to help in that way.

Teachers in Texas are seldom able to use classroom time to participate in professional development, primarily because of the cost of getting substitutes. Summers are a crucial time for professional development; some after-school time is used. In some cases, teachers are paid stipends of up to $20 per hour to participate, but many teachers are still reluctant to give up free time in summers and after school.

West Virginia

> *"Just because of the way our state is set up, the pathways from state to local are clearly defined, where in other places the control is more at the local level. But our infrastructure made it easy to ramp it up fast."*
> --Thinking with Technology MT/Essentials ST

Intel in West Virginia

The West Virginia Department of Education (WVDE) began participating in Intel Teach in 2007. The Office of Technology Instruction, one of four offices within the Division of Curriculum and Instruction (DCI), is responsible for overseeing the ITA. It is working with the state's eight Regional Educational Service Agencies (RESAs), each of which is responsible for professional development in five or six counties (districts). The state's educational technology director and assistant director initially spearheaded the Intel Teach initiative until August 2007, when they appointed a coordinator who at the time was an MT for Thinking with Technology.

West Virginia is a small, rural state with fewer than 300,000 K-12 students. West Virginia's small size and state-centered control of education have contributed to its history of success with prior statewide technology initiatives. The WVDE also has a history of being an early adopter of educational technologies. These attributes have contributed to the development of a rich technology infrastructure and established networks of professional communication among educational institutions that will likely help the Intel Teach program to thrive in this state.

Leadership & Purpose and Goals

Intel Teach and the ITA approach were a solid match in West Virginia because of its strong structure and long history for implementing statewide technology-based professional development programs. In addition, the WVDE had already begun a comprehensive reworking of state standards because of its involvement as Partnership for 21st Century Skills state, so there was immediate state-level support for Intel Teach. While professional development initiatives typically are bound within individual offices, leaders at the Division of Curriculum and Instruction were able to transcend some of those boundaries to work with leadership across the WVDE during the initial roll out of Intel Teach because of the fact that state leadership viewed Intel Teach as being a vehicle for delivering the state education superintendent's message about the importance of the 21st Century Learning initiative.

Educators at the WVDE are proud of their commitment to standards-based education and technology integration. According to the WVDE website, Education Week's *Quality Counts 2006*, "ranked West Virginia as second in the nation for its cumulative average in standards and accountability, teacher quality, school climate, equity and spending."[23] In

[23] See West Virginia Department of Education Website: http://wvde.state.wv.us/

addition, Education Week's report *Technology Counts 2006* ranked West Virginia as the top state[24] for computer access, data use, and technology capacity in schools across the state.

One of the Thinking with Technology STs commented, "I am sold on the program…I believe that technology just for the sake of technology is a huge waste of finances but when you can embed it in instruction, and in quality instruction, then it is a grand slam. And I believe in Intel's strong instructional design piece. They don't start with the tools, but they slide them in later on; that is how technology integration should be."

Infrastructure and Organization

Typically the WVDE delivers professional developments training by request from the state counties but a high demand for Intel Teach programs already began exceeding the ITA's capacity. Therefore, the ITA has focused on recruiting and training MTs. The RESAs will work together with the Office of Technology Instruction; there will be a Thinking with Technology MT based each of the eight RESAs. RESAs will help to identify candidates for MT training and will hold trainings for their respective counties at their headquarters. Even with these structures in place, the state office plans to simultaneously reach out to county heads to ensure that every county is represented at Intel trainings.

In addition, some Technology Integration Specialists (TISs) have already been trained in Thinking with Technology. The charge of TISs is to provide support to classroom teachers around effective integration of technology into the curriculum. TISs are usually assigned to schools, although several are based at the county level. Some TISs are teachers and others have full time, year-long positions as a result of federal Enhancing Education Through Technology (EETT) funding. TISs undergo forty days of training that includes Teaching Thinking With Technology, so as more TISs receive training and return to their counties and schools, there will be increased support for individual teachers who implement instructional units they have developed through Intel Teach trainings. While both classroom teachers and TISs have already been trained as MTs, the ITA plans to encourage more training of TISs because they have more flexibility during the school day than classroom teachers.

West Virginia schools are very limited in terms of job opportunities. Teachers who find a full-time teaching position in a desirable location are reluctant to leave for a one-year position as a TIS, because there is no guarantee that their job will be waiting for them upon their return. Therefore, the TIS training program consists of new teachers who can't find a job or teachers just about ready to retire who want to do something different for the final year. This makes for an interesting challenge for TIS training, as there is often a great divide between new and senior teachers in their approach to both technology and pedagogy.

[24] See: http://www.edweek.org/ew/toc/2006/05/04/index.html

Organized Growth and Experimentation

The executive director of the Office of Technology Instruction spoke about how the degree of the alignment between Intel and the state's educational goals had implications for the roll-out of all technology professional development across the state: "As we have gotten into it, our vision changed a bit and we are using Intel as the overarching professional development design for the state. All of the other partnerships have to fit under what Intel provides and have to figure out a way to become a resource for Intel."

Because of the technology infrastructure as well as the professional development delivery networks in place in the state, the DCI was able to ramp up Intel Teach extraordinarily quickly. The ITA initially focused on group-specific trainings for state department coordinators, division heads, and professional development coordinators from the Regional Educational Service Agencies (RESAs), while at the same time holding state-wide teacher and principal leadership institutes.

The West Virginia ITA's initial emphasis was on the Teaching Thinking with Technology course, because of what they perceive as the "seamless" alignment with 21st Century Skills; the ITA planned to roll out Essentials 10 in January 2008. However, a pilot MT training of Essentials 10 conducted by the state's two Essentials STs for TISs prompted plans to re-think what the Essentials implementation. According to the STs, despite the advanced technology experience of the TISs there were still varying degrees of understanding of and buy-in for the program. In addition, instructional goals related to 21st century skills have not yet permeated teaching and professional development practices in the state. STs and MTs alike have a concern about both the amount and level of pedagogical learning expected of PTs within the constraints of the training period as well as addressing the wide range of education technology experiences of PTs.

Financing

The ITA model fits nicely within West Virginia's structure: a small state where people know each other and the limited funding at the district level requires that districts work through the state to implement professional development.

In West Virginia education technology is funded by the legislature, and thus all of the money comes first to the WVDE, which is only allowed to provide funding to the districts in terms of allocations. Then the WVDE, with input from the counties and schools, makes decisions about appropriate educational technology purchases. While counties have ultimate decision-making power over how their allocations should be spent, all purchasing has to be done through the state office. This provides the leadership at the state level with a vantage point from which to see all professional development underway in the state and respond accordingly by filling gaps where necessary. In addition, instead of each district reproducing professional development efforts, which might happen in states with more local control, this coordination at the state level helps the state avoid "reinventing the wheel a hundred times," as the state educational technology director put it.

Despite the state control, there is a degree of district independence with regard to which technology initiatives the districts request. Each district has different allocations from the state for professional development spending and makes its own decisions about what professional development to offer based on its needs and funding. However, all requests must be approved by the state, and all purchases are funneled through the state, thereby ensuring that the WVDE retains a certain amount of say in the final decision.

There is no monetary incentive for MTs at the state level, although the Office of Technology Instruction can cover the cost of county-level trainings. In addition, the office will work with schools to identify funding sources to enable individuals at the school level to go through the training. One MT took it upon herself to find funding and arranged for West Virginia University to offer a Teaching Thinking with Technology summer course for credit, and pay her to teach this course. She said in response to being asked about incentive, "I'm not sure I would invest that much time unless I get paid. There must be a pot of money that our county has to help people earn college credit…so usually there is money to pay me if I want to do a college class. [I teach] at least one class during the school year and one during the summer."

The counties will be largely responsible for making decisions about how their teachers will be able to do the training, which may pose an issue for the counties that have less funding. The more well-funded counties don't have this issue, and can afford to pay for substitute teachers when teachers are training, for example. However, in some of the more financially strapped districts the state can use Intel resources to provide state-level trainings as well as send trainers to the districts themselves.