Vermont's Title II-D *Enhancing Education Through Technology* Program Fall 2010 Interim Report

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Interim Report on Evaluation of Vermont's Ed-Tech Program

Introduction

The federal Enhancing Education Through Technology (Ed-Tech) program provides grants to state education agencies. The goal of these grants is to improve student achievement by using technology in elementary and secondary schools. Administered by the U.S. Department of Education's Office of School Support and Technology Programs, the program is a funding source authorized under Title II, Part D, of the No Child Left Behind Act (NCLB, 2002). In Vermont, Ed-Tech funds have been allocated to local school districts by both formula (on the basis of their proportional share of Title I funding

The eLearning Project assists teachers and school leaders, through research-based professional development, to become more proficient in effective student-centered, technology-rich teaching and learning. Through the eLearning Project, participants also have access to an interactive network of resources that supports their ongoing work, with

surveys and interviews, as well as extant data about program participation, to arrive at summative conclusions about the entire program.

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each grant program. The sections addressing the CBTG Program, the eLearning Project, and LNV are organized as follows:

Program Design (aligned to evaluation question 1). In the context of this report, Program Design addresses the purpose of technology integration—the intended impact of the integration and the acquisition of resources by schools.

Professional Development. This section summarizes findings related to professional development, including the following evaluation subquestions:

1b: What trainings and other program activities are being offered?

2a: What is the extent of teacher (and other staff) participation in program activities?

2b: What are the opinions of these participants about the quality and effectiveness of professional development?

School Support for Technology Integration. This section focuses on the following subquestions related to opportunities for teacher collaboration, administrative support and direction, and technology support:

2c: To what extent are teachers provided opportunities to collaborate on implementing program objectives for technology integration?

2d: To what extent do administrators support, advocate, and encourage technology integration?

2e: To what extent and from what sources do teachers receive technology support?

Impact on Instruction (aligned to evaluation question 3). This section focuses on the extent to which teachers are integrating technology in designing and assessing student-centered learning experiences.[5] Additionts

Interviewers took notes during the interviews, and all interviews were audio recorded, with the participant's consent, and transcribed for analysis.

Interview Analysis

The analysis of qualitative data employed an inductive approach that incorporated systematic methods of managing data through reduction, organization, and connection (Dey, 1993; LeCompte, 2000). This process relied on systematic procedures for coding and categorizing the data to recognize patterns within and across schools. The evaluation team inductively analyzed interview transcripts by scanning the data for categories of phenomena and relationships among such categories.

The analysis of the interviews employed a two-step process. First, the evaluator developed site profiles based on the responses of all individuals from each school. (For LNV participants, there was one profile that summarized responses across all six interviews from the five schools.) These profiles were organized according to the topics included in the evaluation questions. Second, a cross-site analysis was conducted for three programs (the CBTG Program, the eLearning Project, and VTVLC) to identify themes across school profiles.

Observations

An observation protocol was developed after reviewing commonly used observation protocols for technology programs and adapting items from those protocols to align to our evaluation questions. Specifically, the observation protocol used in this evaluation was based on the content of the Classroom Instruction Scoring System (CLASS; Pianta, La Paro, and Hamre, 2008), the Reformed Teaching Observation Protocol (RTOP; Piburn et al., 2000), and the Local Systemic Change observation protocol (Horizon Research, 2005). The observation protocol is presented in Appendix A. The observation protocol was designed to address (1) the level of use of technology and the type of technology being used and (2) the instructional purposes and formats of technology use.[6]

Prior to using the observation protocol in classroom observations, all site visitors participated in an initial discussion and review of the instrument and coded two training videos. For each video, variations among ratings were discussed as a group to clarify the definitions of different ratings. Disagreements between raters were discussed until consensus was met.

Members of the evaluation team observed teachers during one class period during the school day and completed one observation protocol for the time period observed. Eighteen classroom observations were conducted at seven schools participating in the CBTG Program and the eLearning Project to determine the impact of the grant programs on instruction.

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Of the 18 classrooms observations, 11 were conducted in classrooms of teachers participating in the eLearning Project and 7 were conducted in classrooms of CBTG participants. Findings from the observations of the CBTG Program and the eLearning Project are reported together because there was no variation observed between the two programs.

Content-Based Technology Grant Program

This section summarizes the findings related to the CBTG Program and is based on interviews with teachers, grant managers, and principals from four schools. According to records from VTDOE, this grant awarded 39 schools with 53 grants in the amount of $2,000 to $10,000 each to develop programs integrating technology based on specific content areas. The following grants were received by the

One school acquired six document cameras that are being shared by 15 teachers across grades K–5. The document cameras are used in all subject areas—beyond the grant-funded area of mathematics.

Three teachers at one school received 64 Netbook computers dedicated to three content areas, software, headsets with microphones, projectors, digital flip cameras, and Netbook carts. An

Reactions to Professional Development. Teachers from all four schools typically reported that professional development increased their capacity to incorporate technology into their curriculum and also promoted technical proficiency with the technology acquired from the grant, such as through hands-on learning. One teacher specifically noted, "The grant paid for a three-credit course on using the Smart Board and that was really important to the implementation. I couldn't be implementing it without that course." In one school, staff reported that one limitation of professional development was that it was not specific to their subject area.

Additionally, at three schools, teachers indicated that professional development provided opportunities for collaboration and peer learning. In the words of one teacher, "Mostly I enjoyed talking to other people because it gives different ideas from what I might be thinking about."

School Support for Technology Integration

Schools were expected to support technology integration through three strategies: opportunities for teacher collaboration, administrative support and guidance, and technology support.

Collaboration. All four schools reported having both formal and informal opportunities for collaboration, although variations were found in the amount of time and frequency of collaboration across the schools. Two schools were characterized as having high levels of collaboration; respondents consistently indicated that there were frequent opportunities for teachers to collaborate. Two schools had moderate levels of collaboration; respondents from these schools indicated that such opportunities existed but were not sufficient to support technology integration.

Teachers in all schools indicated that formal collaboration occurs in the form of regularly scheduled, common planning time for teachers and during staff meetings. At two schools (one with strong and one with moderate levels of collaboration), respondents also indicated that teachers and other staff participate on schoolwide technology teams or committees that function specifically for planning purposes. As one principal explained,

> We have a building-based technology team that meets once a month …It's also a sharing [process]…That team has a representative from each grade level so they can go back to the grade level teams and share.

Teachers and principals also reported frequent opportunities for informal collaboration, including discussions at lunch or in classo o   ET   Q   qs6T   /F3ec6 0 0 1 333.84 253.92 T6   q   BT   /F3 12-20(i)-27(ng

One school had high levels of administrative support. Teachers there reported that the principal had set teaching goals and expectations for technology integration—for both instructional and noninstructional purposes. To that end, teachers also indicated that the principal scheduled classroom observations to follow up on these goals. The principal explained,

> Part of our observation process has to do with technology use and . . . there's a rubric that when I go in and observe, I look for the level of usage. So, through that process, I think people are beginning to realize what the expectation is. It's also giving me a way to see who is using technology, who isn't, and to what level.

Two schools were characterized by moderate levels of support, as indicated by minimal or unclear communication to teachers about expectations for changes in practice (other than to carry

Fifth- and six-grade students used their iPod Touch devices for a unit on U.S. history covering decades from the 1920s to the 1970s. Students used their Touches to research and download information, images, music, and video clips on their assigned decade. Students also used the devices and microphone-capable headsets to record interviews with community members who lived during a particular decade. Students demonstrated a deeper understanding of this "decades" unit because of their use of multimedia and interactive resources.

Teachers from another school appreciate how their new document cameras facilitate the ease of students sharing their work, such as drawings, writing and poetry, information on topics researched, and model examples of homework. By using the document cameras, all teachers noted that students share their work in front of the class on a daily basis. This more rigorous practice of sharing has helped students become more comfortable with public speaking, become more motivated to do well on assignments, gain confidence in their work, and become more receptive to critique. Teachers from three schools said that these new experiences have increased students' use and understanding of technology. Because students use technology regularly in the classroom, they are more technically proficient and more responsible for the proper ca32(o)-20(r)-7(t6a0e)3( )] T

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of software, observed in 3 or fewer classrooms, included presentation, online social networking, database, audio or video image editing, and web authoring software.

Technology used by teachers. Teachers in half of the 18 classrooms visited used laptop computers, LCD projectors, and/or document readers. Teachers used desktop and interactive whiteboards in 4 classrooms and Internet browsing software in 3 classrooms. In 3 classrooms, teachers used no technology.

In summary, the observations of the 18 classrooms in the seven schools visited supports interview findings that the use of technology at schools receiving CBTGs and eLearning Project grants

th[e feedback] to improve their work. And without the document camera to be able to get their work up, it would be very difficult to see students go through that process and have an improved piece of writing at the end.

Barriers and Challenges. Although the schools noted that they have benefited from technology integration through grant funding, three common difficulties emerged that limit teachers' technology integration practices. Each school referenced issues with the technology itself, such as technology or applications not working properly or as advertised by the manufacturer, software capabilities not adequately meeting teachers' expectations, and the limited capacity of school servers for file storage. At all schools, teachers also reported time constraints as a limiting issue. For example, teachers who collaborate across subject areas often have limited shared planning time to meet for projects. Another teacher had a hard time leaving her classroom to observe other classrooms at her school because of the cost of a substitute teacher and the time needed to prepare a lesson plan for a substitute to cover. Teachers from three schools also voiced frustration with failed network connections, slow Internet connections, and limited broadband access at both the school and students' homes. As one teacher explained,

There are some students, and even staff members in our community, that don't have access to the Internet at home or have only access to low-speed or dial-up connections. Our one-to-one initiative is only as successful as the number of (up)af src

Respondents from two schools also commented that they have observed the expansion of student skills, such as learning how to use a new piece of equipment to complete an assignment or how to solve a math problem using an interactive whiteboard, because of greater access to technology and effective integration in the classroom. One teacher noted that because her students share their work with the class on a daily basis, students have improved their listening, critical thinking, reflection, and critiquing skills.

Classroom observations are consistent with the interview findings regarding the positive impact of technology integration on student engagement and motivation. have increased as a result of. Observers rated the whether students in the class exhibited high, moderate, or low levels of engagement with the lesson. In 10 of the 18 classrooms visited, high levels of student engagement was observed (i.e., students typically maintained high academic focus for most of the lesson); in six classrooms, moderate levels of student engagement were evident (i.e., students maintained a high academic focus for some but not a ahT Q q BT / hJ ET Q0 1 J ET Q0g 0.998 0 55

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Staff at each school expressed plans to expand their programs to additional classrooms and teachers within the school. However, a common barrier to program expansion at all schools is the lack of interest or resistance from certain teachers to shift toward technology integration. In addition, three schools noted that other schools in their district have plans to integrate technology into classrooms based on the experiences of these grant-funded programs.

Promotion of Technology Integration. All four schools indicated that they either have promoted or will promote their technology integration programs and prepare presentations for the general public, the school board, and/or parents. Examples of events where both student work and teacher and student testimonials have been showcased include community open houses,

At the four schools visited, there was increased collaboration, student engagement, and opportunities for student-centered project-based learning within the schools.

eLearning Project

According to program documents, the goal of the eLearning Project is to assist teachers and school leaders, through research-based professional development, become more proficient in student-centered, technology-rich teaching and learning. Six schools, in different regions of the state, are participating as demonstration sites, with the intention that they will promote technology integration in their region. Participating educators at these schools receive intensive coaching and professional development. Through the eLearning Project, participants also have access to an interactive network of resources that supports their ongoing work, with the ultimate goal of establishing a statewide communication network to support educators. Technology was not distributed at the school level as part of this grant program, with the exception of each site receiving a flip camera for documenting and reflecting on their work throughout the year.

This section summarizes findings related to the eLearning Project, including interviews with teachers, grant managers, and principals from the four schools visited.

Program Design

Overall Purpose. At each eLearning Project grant site, respondents were asked to describe the

whereas in the other two schools, respondents described broader technology goals rather than the specific eLearning Project. Although one goal of the program for eLearning Project schools is to become regional demonstration sites to promote technology integration in neighboring schools, interviewees did not explicitly state this as a goal of the program. All teachers viewed their schools as more advanced in terms of technology access and integration compared to other schools; however, the site visitor speculates that teachers may not yet view themselves as "model" schools because they are still building confidence in their own skills and abilities.

Participation and Resources Gained. Schools reported sending teams of three to six teachers to attend the eLearning Project Institute held in January 2010 at the University of Vermont (UVM). The eLearning Project grant program did not fund technology acquisition, however; this grant provided training and education for teachers to build their skills and better engage students with the preexisting technology program. All schools visited appeared to integrate technology into the classroom to some degree, and interactive whiteboards and LCD projectors are in most—if not all—classrooms. Two schools have one-to-one schoolwide computing initiatives. One school has one-to-one programs in five classrooms and a 2:1 ratio of computers per student. The other school uses shared resources, such as two mobile laptop carts with 18 units, a computer lab with 9 desktop units, and 45 Netbooks dedicated for seventh- and eighth-grade students.

Professional Development

Each school's eLearning Project team expressed strong commitment to gaining skills and resources from professional development received through this grant and investment in strengthening their schoolwide technology integration initiative by sharing their skills gained. The eLearning Project's primary purpose was to provide teachers with two resources for professional development: attending a one-time institute and ongoing coaching with an expert consultant. At each school included in the evaluation, between three and six teachers reported attending the three-day eLearning Project Institute held at UVM. Program sessions were facilitated by university staff and teachers experienced in technology integration. Attendees from three schools also indicated that they observed technology integration initiatives in classrooms at other schools as part of the institute's program.

Grantee schools also worked with eLearning Project coaches on an ongoing and as-needed basis. Schools reported that coaches visited their schools approximately three days per month and were also available for e-mail and telephone consultation. Interviewees from all schools also reported working with coaches in the classroom to initiate new teaching methods that further integrate technology into their instruction. As one principal commented,

> The eLearning grant funded our consultant who really was the person who [provided] that extra helping hand in the classroom that got teachers off the ground with new ideas, new resources that are web based, those sorts of things.

In addition to the eLearning Project Institute and coaches, the schools reported other professional development activities of varying lengths, ranging in duration from a few hours to semester-long courses. These opportunities included in-service days and short workshops after school hours with colleagues, self-study, and graduate level university courses.

Interviewees from two schools indicated training they received at the eLearning Project Institute has since been integrated throughout most of the school by way of teacher sharing and collaboration. The eLearning Project coach paired with one school worked with almost all the teachers at the school, individually and as a group, who were interested in improving their technology integration strategies. This school has since hired this coach as a consultant subsequent to grant funding for the 2011–12 school year. It is not clear to what extent eLearning Project coaches at other schools work with teachers beyond the initial team. Staff from two other schools acknowledged plans for eLearning Project teachers to provide professional development for the rest of the school in the near future.

One school reported receiving limited support from its eLearning Project coach, who became ill and was not replaced by the program. In addition, teachers in this school did not receive the expected graduate credits for participating in the institute and the grant program.

Reactions to Professional Development. Teachers from all four schools reported that the professional development increased their capacity to incorporate technology into the curriculum. Additionally, respondents from three schools noted that opportunities to collaborate with other teachers and gain resources for specific content areas at the institute and hands-on sessions held at the institute increased teachers' technical proficiency with using technology and Web 2.0 applications. In the words of one teacher,

> [A helpful aspect of the institute] was seeing [the] practical applications of Web 2.0 programs. I knew the blogs were out there. I knew the Google Apps were out there. But I hadn't sat down before and had the time to come up with a realistic way to use it with the kids. [At the institute] we had what they called the "sandbox time," so that we could sit down and [play around with] applications.

Along with the eLearning Project Institute, interviewees from two schools indicated that they found visiting and observing model classrooms to be useful for demonstrating schoolwide technology integration. A principal explained,

> One of the most beneficial things that we did was [visiting] Edmunds [Middle School] to see what they were doing . . . [we learned] a bunch of stuff from them and really took off with our own [one-to-one initiative], both the physical management of it, online infrastructure, and the professional development related to rolling something like this out.

The four schools consistently indicated that they found the professional development to be a valuable experience. Even with the loss of their eLearning Project coach, teachers from that school found the institute and the work they did with their coach in the fall of 2010 to be useful experiences.

> I find that kids are e-mailing me a lot more . . . [for example,] when they're home. So I know immediately what a kid is struggling with on the assignment. I don't have to wait until the next day. I can either help them immediately or it helps me plan [for] tomorrow.

Three schools reported that the eLearning Project grant program has provided new learning opportunities through technology integration that were not previously available. A commonly noted new learning opportunity is teacher use of a class website or a Wiki to post lecture notes and assignments and the use of programs, such as Google Docs, that enable students to create, store, and share work online with other students. A number of teachers noted that these programs take group work and peer editing to a level not previously possible with traditional methods. As one school principal explained,

> [Some] teachers are completely redesigning how they approach their curriculum because they have this sort of technology access, redesigning how kids are sharing their written work, how students are engaging with DNA or any of that other stuff, because those weren't resources that were available two years ago. So they're recognizing that their students are becoming more adept at using computers, more engaged by using computers, and therefore needing to redesign what they're doing to funnel that through those technological resources.

Based on the extent to which teachers reported integrating technology into their lessons and assessments, three schools demonstrated strong use of digital learning experiences and assessments because of technology integration and professional development. One teacher from one school noted students' limited access to computers during class instruction as a shortcoming of this grant-funded program.

Promoting Student-Centered Instruction. As a result of the eLearning Project grant, all four schools reported an increase in project-based learning and student collaboration. For example, one teacher noted using Web-based applications to increase collaboration among students, explaining,

> Google Docs [and] some of the technology resources allow for greater [student] collaboration. For instance, the MindMeister [program that] we use [in class]. If I assign a group project, kids could share a Mind App with one another and all three or four students could edit it.

Three schools also indicated that the eLearning Project allows teachers to create more hands-on and authentic learning opportunities for students. Teachers spoke of an increase in their use of interactive and hands-on presentation materials, such as document cameras and interactive

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Administrative support and guidance for technology integration programs at eLearning Project grantee schools appears to be moderate to high. Teachers feel encouraged by their administrators to try new practices, and, at two schools with high administrative support, principals set expectations for technology integration and follow-up with teachers through classroom observations. Teachers also have frequent opportunities to collaborate on implementation, although teachers from one school voiced the need for more collaboration time.

All four schools have integrated technology into the classroom to some degree. This finding is consistent with classroom observations that show technology was prevalent and well used by students during observed classes. Teachers from the four schools have increased project-based learning, student collaboration, and diverse assessment tools as a result of eLearning Project training. Overall, these grantees appear to be pleased with the program's progression, as evidenced by school plans to expand technology integration to additional classrooms by using school budget and external funds. Additionally, schools in the districts of two grantee schools have plans for similar integration programs based on grantee experiences.

Learning Network of Vermont

This section summarizes the key findings from six interviews conducted with teachers from five schools participating in LNV. According to interviews with program administrators, the LNV program is a video-

Five interviewees stated that two to three teachers at their schools have used the LNV system so far. Additionally, a teacher who works at a larger school with multiple classes per grade level said that about 15 kindergarten and third/fourth-grade teachers, in total, have used the LNV program with their students.

Extant data on the level of usage of CILC credits per school was requested by the evaluator but not amenable to analysis at the time of this report.

Professional Development

Between two and four teachers from each school received professional development in the form of two- to three-hour workshops held with their LNV equipment. The workshops were hosted by the program's former director and provided information on how to use LNV equipment and the CILC database.

These workshops enabled teachers to become technically proficient in using LNV equipment and the CILC website. Two teachers also indicated that the workshops provided an opportunity to refine their skills in searching the CILC database and better match programs with their

conferencing technology. For these events, schools used their acquired LNV equipment to participate, but the events did not involve using CILC credits or grant funds.

Administrative Support and Guidance. Although all teachers indicated that school administrators are aware of the LNV program equipment and credits to access the CILC content, four teachers specifically felt encouraged by administrators to try new practices with the LNV program. One teacher explained that the LNV program is teacher driven. Only two teachers noted that their administrators all

teachers noted the importance of connecting students with an expert resource. In the words of one teacher,

> [It's] something engaging, interesting, not me talking for forty-five minutes. What I like about it is it's having an expert in your room who knows a ton about that one thing.

Understanding of Academic Content. Approximately half of the teachers interviewed indicated that the LNV program supports differentiated instruction by providing students with an alternate way to receive information, communicate, interact, and learn. One teacher explained,

> "I think that just that alternative means of delivery of content reaches more kids, rather than having a child read an article out of a magaz0( )] TJ   ET   Q2(l)152ta

Six teachers from five schools use LNV equipment and CILC programming to supplement existing curriculum, as students participate in field trips, cultural exchanges, classroom-to-classroom collaboration, and expert lectures through videoconferencing. The use of LNV equipment and CILC programming appears to be teacher driven. Teachers take the initiative to work with each other and technology staff to search and register for CILC programs, set up equipment and conduct test runs, and establish network connections. An unintended outcome of this program is that LNV equipment at schools seems to facilitate professional development and collaboration among teachers and professionals throughout the state. Schools with LNV equipment should be encouraged by the LNV program director to explore uses of LNV equipment beyond classroom instruction.

The use of LNV equipment and CILC programming in the classroom offers new learning opportunities because students engage in two-way, interactive, and hands-on learning with people and resources other than their teachers and friends. This program provides students of all ages and learning levels with an alternate way to receive information, communicate, and learn from a wider source of resources. Teachers who use this program as a supplement to their instruction report positive student outcomes. However, all schools are challenged by low teacher engagement with the program in general, possibly resulting from limited technical support for program setup and troubleshooting. Teachers who have pioneered the use of LNV are persistent in helping their colleagues use the program and plan to continue using CILC programs and classroom-to-classroom collaboration. To promote sustainability, the evaluators recommend that the LNV program director work with these teachers to enhance their usage of the program and develop strategies to encourage others to use the program at their schools. The LNV program director should encourage teachers to explore no-cost ways to use LNV equipment as part of instruction, such as classroom-to-classroom connections.

Given the confusion expressed by most interviewees over CILC credits, the evaluators recommend that the LNV director clarify for teachers how these credits are managed, distributed, and paid for, including the cost. Teachers expressed concern about the ability to pay for CILC credits once grant funds are no longer available and doubt school budgets will cover this expense over other teaching methods. However, several teachers said their schools are looking for outside funding to purchase future credits because they value these experiences.

Vermont Virtual Learning Cooperative

This section presents the findings from interviews with teachers, guidance counselors, principals, and student focus groups at four schools participating in VTVLC. The VTVLC program partners with schools across the state to offer online programs and courses to K–12 students in a wide variety of subject areas. Schools receive seats for their students in courses being offered through VTVLC in exchange for providing a teacher to teach an online course. Additionally, VTVLC offers professional development for teachers, guidance counselors, and administrators on topics that involve online education and learning. Through the Ed-Tech grant, this program employs Web 2.0 technology to create a distance-learning portal and support program that are intended to lead to a statewide system of infrastructure and professional preparation for the teachers, guidance, and administrative personnel in Vermont.

The VTVLC program launched in the summer of 2010 across 14 schools, with 75 students enrolled in full-credit math, science, social studies, or English/language arts courses. In the fall of 2010, 147 students across 19 schools enrolled in VTVLC online courses, which were expanded to include art and technology courses. Each course offered in the fall was a two-semester course, with the exception of the art courses that were one semester in duration. The distribution of enrollment by course area is presented in Appendix C.

During the summer, the majority of students enrolled in math or English/language arts courses, whereas during the fall, the most highly enrolled courses were social studies, English/language arts, and foreign language. Overall, course completion was much lower during the summer session compared to the first semester of the regular school year. Course completion was about 50 percent for summer school courses, whereas several course areas (science, foreign language, art, and technology) retained greater than 75 percent of their students in the first semester. Retention rates in math (64 percent) and social studies (50 percent) courses were, however, similar to retention seen in the summer. A chart describing these findings may be found in Appendix C.

The VTVLC Program Model and Evaluation Questions

The evaluation of VTVLC addresses two settings: (1) the local school in which online learning is supported and (2) the online course itself, where instruction and learning occur.

The individual schools and districts participating in the VTVLC program provide support for online learning. They are responsible for supporting both the student and the teacher. Each school designates someone (usually a guidance counselor) who registers students and maintains the roster, serves as a liaison between a student and the online teacher, and monitors a student's progress. Schools may also choose to assign a staff person to supervise assigned online work periods. In most cases, the school is responsible for providing students with the time, computer resources, supervision, and technical support necessary to foster a successful learning experience.

The other setting encompassed by the program model is the online course itself. The evaluation examines teacher facilitation, course content, and student interactions. Instructors lead the courses in the VTVLC program. Specific assignments are due at the end of each week, and teachers are expected to answer questions that students send through e-mail or post to a private discussion thread. Course quality is expressed as the educational value of the topics, the materials, and the assignments. Student discussions are expected to be part of every course, and teachers are expected to monitor and facilitate these discussions. Finally, courses should provide assessment of and feedback on student work.

Based on this model, the evaluation of the VTVLC program addresses the following questions:

1. Why do schools and students participate in VTVLC?

2. What is the impact of school participation in VTVLC on the availability of courses not offered by a local school, the accessibility of courses to eliminate scheduling conflicts, and the flexibility of learning opportunities?

3. How satisfied are school personnel with VTVLC administrative support and professional development?

4. To what extent are schools supporting the participation of teachers and students in VTVLC?

5. What are the opinions of students and teachers regarding the quality of VTVLC courses?

6. To what extent are students enrolling in and passing VTVLC courses? How do these rates vary by curriculum area or student characteristics?

7. What are the barriers to participation?

Reasons for Participation

The four visited VTVLC schools had a variety of motivations for taking part in this grant program. All four schools expressed an interest in expanding learning opportunities for students. One guidance counselor said,

> It just seems like a really fantastic opportunity for students. We're a small school in a rural part of the world, and it seemed a way to provide more opportunity.

Three schools mentioned that they were also motivated to provide their staff members with an opportunity to learn how to become online educators, a skill set that these schools thought would be highly valuable to the future careers of their teachers. Two schools mentioned that VTVLC would provide an additional opportunity for their teachers to maintain a full course load. Two schools also mentioned that being able to provide access to courses that were otherwise unavailable was a major contributing factor in their decision to participate in this program. Finally, one school mentioned that course credit recovery was a major reason for participating.

Teacher Participation. All schools recruited their teacher or teachers through a general announcement targeted at teachers interested in learning to become an online teacher. However, one school used the position of online teacher as a means to provide a full-time position for teachers whose positions could be reduced. None of the schools visited mentioned any barriers to teacher recruitment.

Impact on Course Availability, Accessibility, and Flexibility

Each school discussed a variety of factors that motivated students to participate in VTVLC. Each school mentioned that students were enrolling in VTVLC courses to obtain credit in courses they were interested in but were not offered at their schools. These courses ranged from Advanced Placement courses in science and mathematics to advanced art courses in photography and

Two schools mentioned credit recovery as a factor motivating students to enroll. One of these schools targeted a select number of students to enroll in VTVLC courses during the summer months to recover credit in courses in which they had previously earned failing grades. As one guidance counselor stated, "[VTVLC] gives a student hope that okay, I screwed up, I don't have to be punished for a whole year or maybe my whole career for that matter."

Professional Development and Administrative Procedures

The VTVLC program offers a series of four professional development courses designed to prepare teachers in the practice of online course facilitation and prepare them for the technical and administrative functions of the online course. Each school found the professional development courses to be useful with respect to navigating the learning management system (Moodle). However, teachers from two schools reported that they were not fully prepared to administer an online course. Common problems related to the transfer of typical classroom operating procedures to the online environment (e.g., keeping a grade book up-to-date). One teacher said,

> I had to do a lot of the sort-of back end stuff myself, figuring out how to use the grade book and the real nuts and bolts of administering a course. I wish I'd had a little more training before I started.

Administrative procedures refer to the management of the online program by school staff, particularly the interface with VTVLC processes for enrollment and grade reporting. Each school mentioned that it was happy with the overall procedures used to enroll students in the fall. However, three schools mentioned they would be modifying some aspects of their enrollment procedures next year. For example, two schools expressed interest in developing additional procedures that would help identify students who were prepared for online learning (i.e., to work independently).

Communication between the VTVLC program directors and the schools was typically perceived as positive. Three schools mentioned that communication between VTVLC and their schools was strong and positive. One guidance counselor said,

> Well, [VTVLC administrator] is amazing and I think you'll

online courses. One school had a course advisor work intensively with their summer school credit recovery students. In discussing the role of the course advisor, one guidance counselor explained, "I can picture her, when I would go into the room this summer, sitting right there with the kids, helping them through it." This school also employed existing school staff to monitor (to

between peers was vastly limited. Dissatisfied with the current course structure, one teacher explained,

> I don't think it utilizes the forums very well. So, all the students are really independent in the course right now, which is ok, they're all doing their own work, but they might not even be aware that there are other students. . . . I don't think the forum has been used very well.

It appeared that teachers were aware of the forums but may not have been using them because there were several other online course elements to which they and their students were adjusting. One teacher said, "I do want to incorporate more of the online discussions, but I'm not working that in until we were more comfortable." Students also mentioned that peer-to-peer interactions were rare except in the situation in which multiple students from a single school were enrolled in a course. In this scenario, students tended to work together in person when possible.

Assessment. In three schools, based on the student focus groups, there was no evidence of

Appendix A. Observation Protocol

Preobservation Form

Date	School Name	Grade(s)	Subject(s)	Position/Specialty Area

Observation Protocol

Name of the competitive Ed-Tech program under which your grant was awarded (if there are more than one, complete a separate survey for each):

CBTG Program

eLearning Project

Section I. Contextual Background and Activities

I. Classroom Demographics and Context

2. Classroom space:

1 (crowded)

2

3

4

5 (adequate space)

3. Room arrangement:

1 (inhibited interactions among students)

2

3

4

5 (facilitated interactions among students)

II. Lesson Description

In a paragraph or two, describe the lesson you observed. Be sure to include enough detail to provide a context for your ratings of this lesson and also allow you to recall the details of this lesson when needed in future years for longitudinal analysis. Please provide any information you consider necessary to capture the activities or context of this lesson.

III. Purpose of Lesson

A. What is the lesson focus?

Reading

Mathematics

English/language arts

Science

Social studies

Arts

Physical education/health

World languages

Career and technical education

Other (describe briefly): _____

B. Indicate the primary intended purpose(s) of this lesson or activity based on the pre-

F. What is the purpose of student use of technology?

Additional practice or skill reinforcement

Online communication

Analyzing or displaying data

Sorting or categorizing information

Writing a paper

Making a presentation

Other (describe briefly): _____

G. What is the teacher's use of technology?

Technology resources used by teachers:

Laptop computer

Desktop computer

Interactive whiteboard

E-mail

Internet

Electronic curriculum resources

Other (describe briefly): _____

Purpose of teacher technology use:

Presentation of instructional content (e.g., lecture format)

Display noninstructional information (e.g., homework problems, writing prompt, quiz questions)

Grading or attendance

II. Lesson Content

1. Students are presented with challenging open-ended problems.
2. Students explore real-world issues and solve authentic problems by using digital tools and resources.

Evidence Statement:

_____

_____

_____

_____

_____

III. Classroom Culture

1. The teacher acted as a resource person, working to support and enhance student projects or investigations.
2. The teacher consistently provides support for student autonomy and leadership by offering meaningful student choice, responsibilities, and/or leadership. [*Guiding features of this item:* student autonomy is encouraged; student input in the design and implementation of the lesson is valued (e.g., tasks, group or individual work); student responsibility for and leadership of classroom activities is encouraged]
3. The teacher promotes opportunities for meaningful peer-to-peer interactions that serve an integral role within the lesson. [*Guiding features of this item:* students are encouraged to work together on common tasks and assignments; students engage each other in academic discussion; there is a significant amount of student academic exchange]
4. The teacher consistently uses and encourages the sharing of student ideas and opinions and flexibly follows and responds to student comments. [*Guiding features of this item:* the teacher genuinely respects and encourages the presentation of student perspectives; the teacher allows student feedback and interaction to guide the lesson (not adhering rigidly to a schedule or agenda) without losing track of the overall purpose of the lesson]

Evidence Statement:

_____

_____

_____

_____

_____

IV. Student Engagement

1. There is a high level of student attention, interest, and engagement [*Guiding features of this item:* the typical student's level of engagement and attention is high for most of the lesson].

2. Estimate the percentage of the time the lesson focused on or used technology:

   0%–10%

   10%–20%

   20%–30%

   30%–40%

   40%–50%

   50%–60%

   60%–70%

   70%–80%

   90%–100%

Appendix B. Observation Frequency Tables

This appendix contains descriptive statistics (i.e., frequency distributions) corresponding to the findings of the classroom observations conducted in 18 classrooms at seven schools that were recipients of either a CBTG, a eLearning Project grant, or both.

Background

Table 1. Grade Level Observed, *N* = 18

Grade	Number of Observations
4	2
5	2
6	3
7	1
8	4
9	0
10	1
11	2
12	1
Mixed	2

Promoting Student-Centered Instruction

Table B-10. Instructional Grouping, *N* = 18

Student Use of Technology	Percentage of Observations
Used by individual students	77.8%
Used in pairs or small groups	50.0%
Used in whole class activity	38.9%
Technology not used by students	0.0%

Table B-11. Lesson Purpose, *N* = 18

Purpose of Lesson	Percentage of Observations
Developing or deepening conceptual understanding	77.8%
Learning vocabulary or specific facts	50.0%
Identifying prior student knowledge	38.9%
Assessing student understanding	33.3%

Appendix C. VTVLC Enrollment and Course Retention

Table C-1. VTVLC Enrollments by Term and Subject Area, 2010

	Math	Science	Social Studies	