COLORADO DEPARTMENT *of* EDUCATION

Colorado Statewide Evaluation of ESEA Title II, Part D: Enhancing Education Through Technology

Submitted to:
The U.S. Department of Education

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Executive Summary

The State of Colorado Department of Education has been conducting evaluations of the effects of Title IID funded activities on such outcomes as personnel technological proficiency, eighth grade technology literacy, and computer specifications. Analyses of the 2010-2011 and 2011-2012 budgets revealed that approximately 69% of the IID formula funds and 45% of the IID competitive funds were spent on technology-related professional development. As such, professional development activities were clustered together for evaluation purposes.

The primary purpose of the evaluation has been to understand the reach and impact of the Title II, Part D (IID) funds in districts that received a minimum of $25,000.00, a threshold established by the USDE in the IID evaluation guidelines to State Educational Agencies. In order to conduct the evaluation, the district budgets from the Title IID competitive awards and from the consolidated application for funds for the formula portion were coded into specific allowable activities. Second, qualitative analyses of coded data were used to determine any trends in funded activities. Once it was determined that a vast majority of the state's IID funds were used to provide technology-related professional development, the focus of the evaluation was narrowed to any relationship between those activities and the currently available outcomes (eighth grade technology literacy, personnel technological proficiency, and computer specifications, which were all collected to meet federal reporting requirements under Title II, Part D). Any lesser amount was not likely to have a significant effect on the above-stated outcomes. This process narrowed the focus of the evaluation on 23 Colorado Local Educational Agencies.

Due to limitations in the data available, the results of the evaluation did not yield statistically significant results. However, there were some noteworthy trends to consider. First, districts receiving $25,000 or more in Title IID funds have demonstrated high rates of high speed internet access on instructional computers, with 95% of their instructional computers having high speed internet in the 2010-2011 school year. Only 0.5% of instructional computers were reported to lack internet access. High speed internet connectivity on instructional computers can increase the speed with which students can access and download data and materials, improving the opportunities and options for research, online simulations, and other instructional tools and resources. Second, although a large percentage of evaluated districts did not report student

technology literacy data (34.8%), the remaining districts assessed at least 50% of their student populations. Of the districts that provided literacy data, 20% reported over 75% of their eighth graders as technology literate, with a median rating of 47.4% technology literate for all 23 districts in the study.

Most significant, all 23 districts showed large increases in the percent of staff assessed for technological proficiency. In 2009-2010, only 7 of the 23 districts (30.4%) reported assessing their staff, while in 2010-2011 all 23 districts assessed nearly 100% of staff. The lowest percent of staff assessed for any of the 23 districts was 97.7%, with 91.3% of districts assessing all eligible staff. Of the personnel that were assessed by those 23 districts, 40.4% were considered technologically proficient. Although the 2009-2010 results reflect a higher staff proficiency rate (50.7% of the staff that were assessed), the online PTP assessment created is considered to be more rigorous. Furthermore, in 2009-2010, only 522 staff members were assessed from those 23 districts, whereas in 2010-2011 the number increased to 20,966 staff, yielding greater confidence in the proficiency results with the larger sample size.

Although improvements have been made in the data from 2009-2010 to the next year, such as adding the Personnel Technological Proficiency (PTP) Self-Assessment, the online system wherein the PTP data was collected from teachers, and directly auto-populated into the HR system, the data available for this evaluation were still limited in several ways. The most limiting was that the state does not currently collect technology integration data. Additionally, Colorado is a local control state and the selection of eighth grade technology literacy and personnel technological proficiency assessments is in the purview of the districts. In recent years, however, Colorado has undertaken efforts to enhance the quality of this data by developing statewide tools to evaluate both student and staff proficiency. Due to the reliability and validity of these assessments and the increased number of students and staff assessed, data provided in 2010-2011 is assumed to more accurately reflect the current technological proficiency of both students and staff in Colorado. Lastly, the relationships between IID PD funding, personnel technological proficiency, and eighth grade technology literacy were explored. Although some general trends were observed, no statistical analyses could be conducted due to the sample size in the evaluation. Preliminary results show that districts with lower personnel technological proficiency were more likely to allocate higher amounts of their funds to technology-related PD, utilizing the personnel assessment

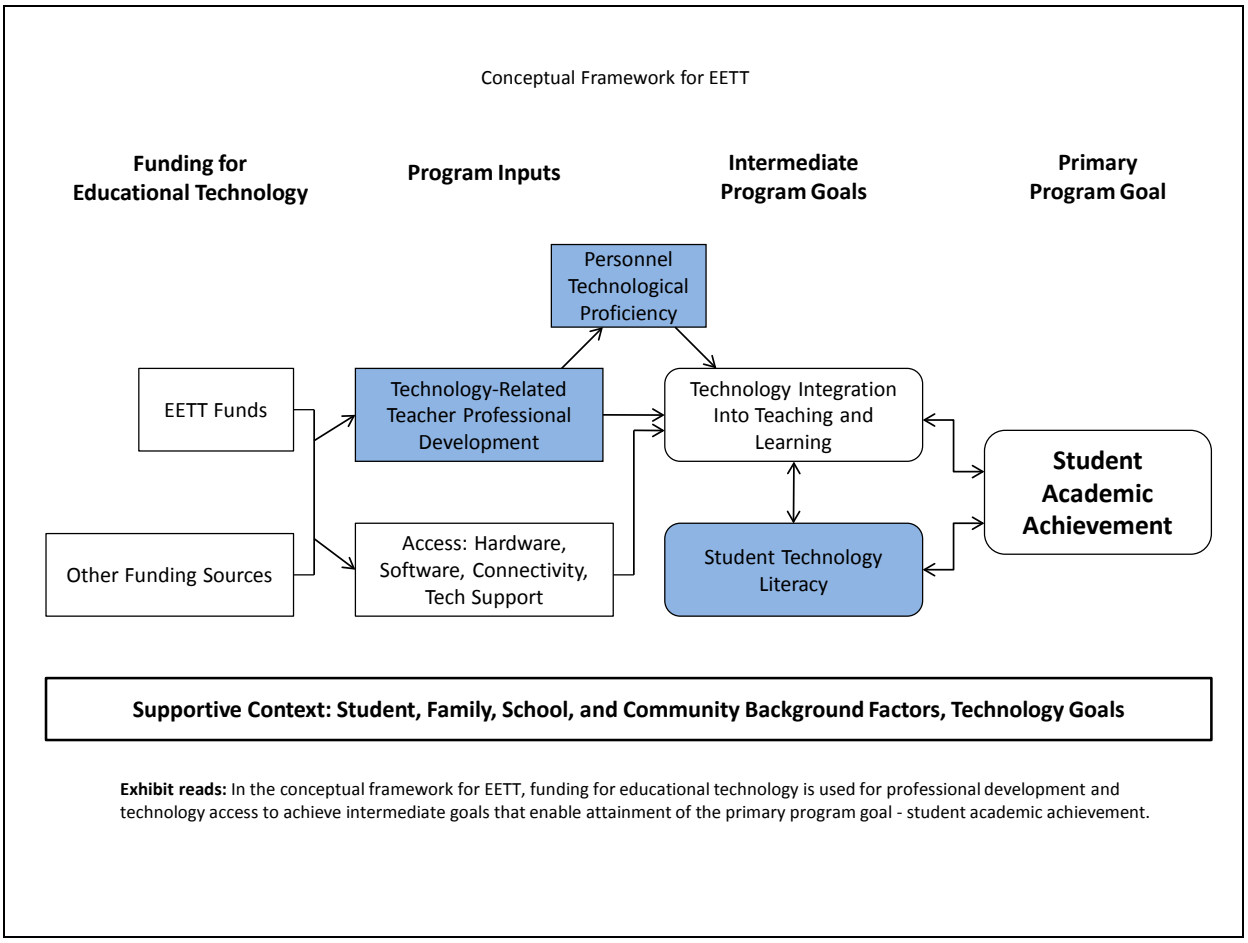
as a needs-assessment. Furthermore, districts with low rates of personnel proficiency also tended to be the districts with low eighth grade technology literacy. These preliminary connections between personnel technological proficiency and eighth grade technology literacy warrant consideration of continued funding for technology-related funding.

I. Introduction

In compliance with the Elementary and Secondary Education Act, reauthorized as No Child Left Behind (2001) §2412, the Colorado Department of Education (CDE), allocates 50 percent of Title II, Part D (IID) funds to Local Educational Agencies (LEAs) through competitive grants, while the remaining funds are allocated to districts on a formula basis. In the 2010-2011 (2011) academic year, a greater percentage of the funds were allocated competitively, which included 2009-2010 (2010) carryover funds. In accordance with ESEA, LEAs that receive formula or competitive funds utilize a minimum of 25% for professional development. Evaluation of funds in the 2010-2011 year, however, revealed that Colorado LEAs have allocated approximately 53% of the IID funds to professional development. To date, all competitive grants have had professional development as a major component. Therefore, professional development activities funded by both the formula and competitive awards of IID were clustered together for the purpose of evaluating the effects of the program in Colorado.

CDE has created a slightly modified version of the U.S. Department of Education's conceptual framework outlining the use and intended impact of IID funds (see Figure 1 below). In brief, IID funds are intended to support technology access and technology-related professional development. These efforts then increase technology integration into teaching and learning to, in turn, improve student technological literacy and eventually student achievement. As such, it was predicted that the IID-funded professional development would benefit Colorado educators by increasing technology skills and knowledge, allowing educators to more effectively integrate technology into the curriculum. This direct effect of the professional development on teachers was predicted to have an indirect effect on student technological literacy. Colorado modified the model to add a proximal outcome, personnel technological proficiency, for the professional development, meaning that the effects of professional development on technology integration could be explained via the effect on personnel proficiency. The primary purpose of the evaluation was to establish any relationships between professional development and teacher and student outcomes. The boxes highlighted in blue (Figure 1) were included in this evaluation report.

Figure 1: Colorado Conceptual Framework for Title IID



CDE had previously evaluated the IID program in collaboration with an external consultant in prior years, but has completed the evaluation internally for 2010-2011 academic year data. Internal evaluation efforts have focused on the development of standardized assessment tools for both student technological literacy and personnel technological proficiency and assessing any relationship between teacher and student technological proficiency. Prior funding was given to a Board of Cooperative Education Services (BOCES) to create an online performance-based assessment for rating eighth graders' technology literacy. This assessment was made available beginning in 2009-2010, at no charge, to districts in the hopes that the assessment would produce better quality data that is comparable across the state. CDE also collaborated with an assessment

expert to create a self-assessment survey that districts can use to rate the technological proficiency of personnel. Follow-up study results indicated that the test is reliable and valid, which is described in detail in Section IV. The assessment was made available online to districts beginning in 2010-2011. Efforts were made to reduce the burden on LEAs in the use of the online assessment to increase the likelihood that the majority of the state's data was based on one assessment tool.

In keeping with prior evaluations of the program, CDE conducted descriptive analyses on the three federal reporting requirements: personnel technological proficiency, eighth grade technology literacy, and computer specifications. Relationships among these outcomes and the various strategies and activities funded by IID were examined. CDE's approach to evaluating the effects of IID-funded professional development was to conduct qualitative analyses of the professional development activities and strategies funded by IID funds (competitive and formula combined). The data was examined to determine if any relationship exists between clusters of professional development activities/strategies and personnel technological proficiency percentages within LEAs. Because the resources available to fund this evaluation were limited, as a result of the elimination of IID-funding in 2011-2012, the evaluation results presented in this report reflect only a small portion of the logic model presented in Figure 1 (boxes highlighted in blue). Specifically, only the relationship between professional development activities and personnel technological proficiency and eighth grade technology literacy are reported herein. The Computer Specification outcomes are also summarized.

This report first describes the IID context, including formula and competitive allocations and award amounts, as well as more detailed descriptions of the activities being conducted within LEAs that received more than $25,000 in IID funding. The following sections describe in further detail the scope, purpose and findings of evaluation activities for the 2010-2011 academic year. Additionally, data from the 2009-2010 academic year was used to look at longitudinal trends in personnel technology proficiency, eighth grade technology literacy, and computer specifications for districts receiving IID funds greater than $25,000.

II. State Ed Tech Program Context

A. Summary: State Ed Tech Allocations and Awards

Colorado's IID allocations awarded to grantees in 2010-2011 totaled $2,566,889. Historically, Colorado has split the IID awards evenly into competitive and formula grants. In the 2010-2011 fiscal year, the competitive award was a larger percentage (81.3% of the awards) due to the 2009-2010 competitive carryover funds. The following tables provide a summary of the grants awarded. A district-level breakdown of the allocations is provided in Appendix A.

Table 1: Total Amount of 2010-2011 Funding for the State

Total FY 2010-2011 Allocation
$2,566,889

Table 2: Number, Percent and Amounts of FY 2010-2011 Grants Awarded

Type of Award	Number of Awards	Percent of Funds	Range of Award Amounts (Lowest –Highest)	Average (Median) Award Amount
Formula	159	18.7%	$30 - $124,314	$461
Competitive	10	81.3%	$91,795 - $499,863	$198,266

Table 3 below reflects the breakdown of allocations for only those LEAs included in this evaluation.

Table 3: FY 2010-2011 Grants Awarded to LEAs included in the Evaluation

Type of Award	Number of Awards	Percent of Total 10-11 Allocation	Range of Award Amounts (Lowest –Highest)	Average (Median) Award Amount
Formula	22[1]	11.9%	$445 - $124,314[2]	$3,183
Competitive	10	81.3%	$91,795 - $499,863	$198,266

[1] Although 23 LEAs were included in the evaluation study, many of the districts that received enough funds to be included in the study received both competitive and formula funds. Therefore, there is overlap in the districts represented in the formula and competitive awardees in this table.

[2] Only LEAs that received a minimum of $25,000 were included in the evaluation. The range presented here includes amounts less than $25,000 because it represents the formula amount awarded to LEAs that had a combined allocation of greater than $25,000. The LEA's formula amounts were less than $25,000 in most cases and only exceeded the threshold when combined with the competitive award to that LEA.

B. Competitive Grant Program Description

The overall goals of the State's competitive grant programs are to:

1. Promote initiatives that provide school teachers, principals, and administrators the capacity to effectively integrate technology into curricula, and
2. Provide instruction that is aligned with challenging state academic standards and improves student academic achievement through the use of high-quality professional development programs.

Furthermore, IID competitive funds are to be used to enhance the ongoing professional development of teachers, principals and administrators by providing consistent access to training and updated research in teaching and learning through electronic means. The objectives of these grants are to build and sustain technology rich 21st Century classrooms led by technology-proficient instructors, which aligns with the State's strategic goals to improve student achievement and prepare students for success after graduation. In 2010-2011, 29.7% of the competitive funds were allocated to professional development activities.

As indicated in the logic model (Figure 1), it is anticipated that there is a direct effect of having technologically proficient instructors on increasing the integration of technology on teaching and learning. Increased technology integration is predicted to be directly related to student academic achievement, with the likelihood of an indirect effect of technology integration on increasing student technology literacy. Therefore, a vast majority of IID competitive funds are used to provide technology-related professional development to improve the technological proficiency of personnel.

C. Formula Grant Program Description

The primary goal of Colorado's IID Formula funds is to improve student academic achievement through the use of technology. Specific goals of this program include ensuring that all eighth grade students are technologically literate by the time the student finishes the eighth grade and to encourage effective integration of technology into curriculum development and instruction. Lastly, the funds are to be used to increase the technological proficiency of instructional personnel by providing high quality, job-embedded, ongoing professional development. The overall objective of the professional development is to increase personnel

proficiency, thereby improving the quality of technology integration. As previously stated, technology integration is predicted to be directly and indirectly related to student technology literacy and student academic achievement as a distal outcome.

In Colorado, analyses of the planned activities for IID formula funds for the 2010-2011 academic year revealed that approximately 94% of the formula funds are allocated to professional development. Overall, for both competitive and formula funds in 2010-2011, 52.6% of Title IID funds were allocated to professional development.

III. The Evaluation

A. Scope

Evaluation activities for the 2010-2011 academic year focused on exploring a cluster of professional development activities across districts receiving at least $25,000 in IID funds (including both competitive and formula awards) for the 2010-2011 school years. This activity cluster was selected based on the previous finding that the majority of IID funding across the state was allocated to district level professional development (PD) activities.

Evaluation activities were tailored to address multiple components of the state's conceptual framework (see Figure 1, page 8). To date, activities have been conducted to assess district level and statewide progress relative to some of the key components of that model. For this report and consistent with the model, key outcomes are:

- The number and percent of students assessed as being technologically literate;
- The number and percent of staff assessed as being technologically proficient; and
- The number and percent of instructional computers with high speed internet access.

The parameters, objectives, and methods used in the evaluation are detailed in the following sections.

B. Objectives and Questions

With the recent termination of IID funding, few districts received substantial award amounts, thus limiting the scope of this evaluation. Evaluation activities are intended to understand the purposes for which IID funds were allocated and assess the effects of IID funds on two proximal outcomes, namely personnel technological proficiency and eighth grade technology

literacy. This report does not address performance in the areas of technology integration[3] or overall student achievement[4]. Specifically, the following evaluation questions were addressed:

1. To what extent do eight grade students in districts receiving $25,000 or more in IID funds demonstrate technological literacy?
2. To what extent does staff from districts receiving $25,000 or more in IID funds demonstrate technological proficiency?
3. To what extent have districts receiving $25,000 or more in IID funds established access to high speed internet via instructional computers available to students?
4. To what extent can relationships among key variables be identified?
    a) Is there a relationship between personnel technological proficiency and the IID PD allocation?
    b) Is there a relationship between personnel technological proficiency and eighth grade technology literacy?

C. Evaluation Methods

The evaluation utilized a mixed methods approach, including qualitative analysis of budget descriptions as well as quantitative analysis of district level data on student technology literacy, staff technological proficiency, and access to high speed internet. This section first presents the criteria used to select the districts to be included in evaluation activities, then explores each of the data sources and analyses used, and concludes with a discussion of key methodological limitations. The evaluation matrix, presented in Table 4 below, provides a brief overview of the evaluation questions addressed.

[3] At present, evaluation of technology integration is not possible because Colorado, like most states in the nation, did not define and establish appropriate standard indicators of integration at the district level (U.S. Department of Education, Evaluation of the Enhancing Education Through Technology Program: Final Report, 2009) before the termination of the Title II, Part D program. Therefore, Colorado did not collect any such data, even in the final year of the program.

[4] While the state's conceptual model does articulate that activities supported by Title IID funds will positively impact overall student achievement, it is believed that insufficient time has elapsed to produce measurable results on this distal outcome.

Table 4: Colorado Title IID 2010-2011 Evaluation Matrix

Key Questions	Data Sources	Data collection Methods / Instruments	Performance Indicators / Success Standards	Methods for Data Analysis
1. To what extent do eight grade students in districts receiving $25,000 or more in IID funds demonstrate technological literacy?	District reported results from student technological literacy assessments		Proportion of students demonstrating technological literacy	District-level descriptive analyses of the proportion of students assessed, as well as the proportion of students assessed who were deemed literate
2. To what extent do staff from districts receiving $25,000 or more in IID funds demonstrate technological proficiency?	District reported results from staff technological proficiency assessments		Proportion of staff demonstrating technological proficiency	District-level descriptive analyses of the proportion of eligible staff assessed, as well as the proportion of staff assessed who were deemed proficient
3. To what extent have districts receiving $25,000 or more in IID funds established access to high speed internet via instructional computers available to students?	District reported counts of instructional computer with: high speed internet access, dial-up internet access, and no internet access		Proportion of instructional computers with high speed internet access	District-level descriptive analyses of the proportion of instructional computers with high speed internet access
4a. Is there a relationship between personnel technological proficiency and the IID PD allocation?	Data source listed for item 2 and Title IID formula and competitive budgets		Relationship between Title IID PD allocation (per eligible staff member) and proportion of staff demonstrating technological proficiency	Identification of trends in relationship between amount of Title IID funds allocated to professional development and the proportion of staff who were deemed technologically proficient.
4b. Is there a relationship between personnel technological proficiency and eighth grade technology literacy?	Data sources listed for items 1 and 2 above			Identification of relationship between proportion of staff deemed proficient and proportion of 8th grade students deemed literate

District Selection Criteria

All LEAs that accepted IID formula funds in 2010-2011 were initially included in the data file. The IID formula and any competitive awards to each LEA were added in separate columns. Based on guidance from the USDE, the data file was filtered to only include those LEAs that received a combined allocation exceeding $25,000.00. Based on these criteria, 12 districts were selected for inclusion. Two of the 12 LEAs signed over their competitive funds to Board of Cooperative Education Services (BOCES). In Colorado, LEAs that receive a small allocation may sign over their IID funds to BOCES, which often provide collective services to all member LEAs. Although several BOCES were awarded IID funds in 2010-2011, they were not included in the

evaluation because it is not feasible to ascertain the impact of the IID funding on *each* LEA that is a member of the BOCES[5].

Lastly, 20 LEAs participated in a 2-year competitive grant, allocated in the 2009-2010 academic year. Six of these LEAs are already represented in the above 12 LEAs and one LEA is a BOCES which was not included in the evaluation. The remaining 13 LEAs will be evaluated in order to look at potential longitudinal effects of the 2-year grant. A total of 23 districts were therefore included in the following analyses.

Data Sources and Analysis

All data were summarized to provide descriptive information reflecting district level activities in each outcome area. For all quantitative data, a series of steps were taken to clean and merge data from the multiple data sources.

a. District-level IID Allocations

IID formula allocations were retrieved from the ESEA program allocations calculated by CDE based on the awards to the state. Competitive allocations were retrieved from CDE files tracking IID competitive awards. This data was compiled into one file for all award recipients and filtered to only include those LEAs that were awarded a combined amount exceeding $25,000.00 in the 2010-2011 academic year or those districts who received allocations from the 2-year competitive grant in 2009-2010.

Many districts participating in the 2-year competitive grant beginning in 2009-2010 had carryover IID funding being used in 2010-2011 in addition to their 2010-2011 allocation. As such, 2009-2010 carryover funding was not included in the 2010-2011 allocation analyses since the funding was already included in the prior year's analyses. Budget data from the 2010-2011 were used to understand the planned IID-funded activities.

[5] One of the BOCES provided services statewide to all districts electing to participate (competitive allocation of $499,863). Another BOCES served 21 districts with a total IID funding amount of $200,000 to the BOCES. Since the services are provided at the BOCES level, the per LEA distribution of services is unknown. Calculating an estimate by dividing the total amount of funds to the BOCES by the number of LEAs served would yield an average less than $25,000 per LEA.

b. Professional Development Activities

CDE analyzed district-level budget data to provide a picture of the professional development (PD) activities allocated by IID funding. Qualitative analysis was conducted using 2010-2011 IID consolidated application budgets, which provide district level data on IID funding allocations submitted by LEAs to, and approved by, the state. Although budgeted amounts are an estimation of the funds to be used during the year, budgets from consolidated applications provide the detail needed for the qualitative coding whereas the actual expenditure reports to the CDE from LEAs do not include that level of information to be able to code activities into various levels. Therefore, budgets were used to ascertain the level of PD activities planned for the LEA.

For formula funds, the budget information provided by CDE included all funded activities (ESEA Budget Sheet 3a), including if the LEA used the funds to support salary and benefits (ESEA Budget Sheet 4a). In addition, requests for equipment (ESEA Budget Sheet 5a) were also coded. For competitive funds, items from district competitive budgets were coded and analyzed. Open-ended line-item descriptions from districts (ESEA budget descriptions) were analyzed using a detailed coding scheme that CDE and OMNI developed collaboratively in prior years, with the addition of a few categories within Levels 1 and 2 (see Appendix B for the coding assumptions and structure). Items were double-coded (two separate individuals from CDE blind coded the budgets, and discrepancies were reviewed by a third reviewer). Once coding was complete, budget data were cleaned and prepared for analysis. Formula and competitive coding results were then merged together for analysis. A total of 424 items were coded as outlined in Table 5 below.

Table 5: Budget Line Items Included in Qualitative Coding, by Funding Type

Budget Type	Number of Items
Regular IID Formula Budgets	256 (133 from Budge Sheet 3a; 41 from Budget Sheet 4a; 82 from Budget Sheet 5a)
Competitive IID Budgets	168

Data were then aggregated and restructured to enable analysis at the district level, rather than the line-item level. Coded data were then analyzed to identify patterns of funding activities across the 23 selected districts.

c. Student Technological Literacy

In the state of Colorado, LEAs determine the assessment to be used to gauge eighth grade technology literacy. Districts can choose the type of assessment (e.g., on-line, paper and pencil, performance based) as well as the criteria for deeming a student technologically literate. Districts administer technology literacy assessments to eighth graders in order to measure progress towards meeting the goals of the IID program. Districts provide CDE with data on the type of technology literacy assessment administered to their eighth grade students, the number of students assessed, and the number determined to be literate. CDE used data from the 2009-2010 school year, in addition to data from the 2010-2011 school year. In order to evaluate Title IID program effectiveness, these data were analyzed for rates of eighth grade technology literacy in each year. Patterns of literacy were also explored by the type of assessment tool that districts employed. Prior to analysis, data were converted from raw numbers of students into percentages in order to facilitate comparisons across districts. The number of eighth grade students assessed was converted into a percentage by dividing the number of eighth grade students assessed by the total number of eighth grade students in a district. The percent of technologically literate eighth grade students was calculated by dividing the number of literate eighth grade students by the number of eighth grade students assessed.

As previously stated, one of the competitive grant awards was given to a BOCES to create a reliable and valid online assessment (Technology Literacy Assessment Program , TLAP) that has been offered to LEAs at no charge with the hopes of increasing consistency of assessment type used across the state, thereby allowing statewide comparisons. In 2009-2010, the online assessment was still being piloted. The data included in this evaluation includes multiple assessment types, though many districts have moved towards using the TLAP. Appendix D details the type of assessment each of the 23 districts used. It is hoped that in future years even more LEAs will be using the online assessment. As a result of more districts using this standardized form of technology literacy assessment, evaluation results in the 2010-2011 academic year show an increase in the percent students being assessed.

d. Personnel Technological Proficiency

Colorado LEAs also select the assessment to be used to assess personnel technological proficiency. To provide a consistent, no cost, statewide assessment option, CDE hired an assessment expert to create an assessment tool for personnel proficiency. This assessment (Personnel Technological Proficiency, PTP), which is based on the technology standards developed by the International Society for Technology in Education, was made available to LEAs starting in fall 2010. Study results suggest the assessment is a reliable and valid measure. All the estimates of internal consistency exceeded the minimum alpha of .70, and were in the "high reliability" range of .85 and above. Factor analysis showed that the items, as hypothesized, fell into the five distinct dimensions identified in both the administrators' and teachers' assessment, indicating strong construct validity. In addition, an analysis of criterion validity revealed moderate and strong positive correlations between the assessment and external predictors of technological proficiency.

The personnel technological proficiency data was collected as part of the LEAs' Human Resources reports to the state. For LEA ease and in the hopes of increasing the likelihood of use, the online assessment merged the data from the online assessment tool directly into the HR data collection after the assessment has been taken by personnel. Due to the termination of the IID funding, the state will no longer collect the personnel proficiency ratings in the HR collection; however, the PTP online assessment tool will continue to be available to LEAs at no charge. For the current evaluation, the data from district-selected assessments is included. Many LEAs did not have an assessment available in 2009-2010; therefore, those LEAs were not able to report personnel technological proficiency to the state. The evaluation data for this outcome includes the LEAs that were able to report proficiency ratings in 2009-2010 or 2010-2011.

CDE used data on personnel technological proficiency for the 2010-2011 school year, in addition to referencing data from the previous year. These data were analyzed to evaluate the extent of personnel technological proficiency in each district. Patterns of proficiency were also explored by individual staff role (i.e., teacher, media specialist, or administrator). Prior to analysis, data were aggregated and restructured to enable analysis at the district level, rather than the individual staff level. These district level totals were then converted from raw counts into percentages in order to allow for comparison across districts. The proportion of staff assessed was

calculated by dividing the total count of staff assessed by the total count of eligible staff within the district. The proportion of staff deemed technologically proficient was calculated by dividing the count of staff assessed as proficient by the count of staff assessed.

e. Technology Infrastructure (High Speed Internet Access)

In the fall of each year, LEAs report to the CDE in a separate online collection, the number of instructional computers with internet access. This data, like the eighth grade technology literacy and the personnel technological proficiency, is collected for the purpose of meeting IID federal reporting requirements. However, this data collection is strictly a computer count and does not require an assessment instrument.

CDE used district level data reflecting the number of instructional computers with the following characteristics:

- those that have high speed internet access;
- those that have dial-up internet access; and
- those that have no internet access.

These data were then used to calculate the percentage of instructional computers in each category, in order to allow for comparisons across districts. The percentage of instructional computers in each category was calculated by dividing the count of computers in that category by the sum of computers across all three categories.

Methodological Limitations

Several methodological limitations to this evaluation should be noted. First, the sample of districts included in analysis reflects only those districts receiving at least $25,000 in IID funds in 2010-2011, as well as those districts who were allocated funds as part of the 2-year 2009-2010 competitive grant. Thus, it excludes districts receiving smaller shares of funding. Funds allocated to BOCES were also not included for reasons previously explained. Therefore, results are not representative of the entire population of LEAs receiving IID funds in the state and findings should not be generalized beyond this sample. Second, the evaluation did not include a comparison group and, as such, it was not possible to control district characteristics that may have impacted the outcomes of interest. Third, with respect to access to technology, the evaluation focused on

computer specifications. It is worth noting that high speed internet access is only one form of technology access.

Other limitations rest in the data collections themselves. First, CDE, like many other states, did not collect technology integration data, which would have been helpful as an outcome measure for the PD. Second, the budget data used for analyses are estimations of the amounts to be used in the upcoming academic year; they are not reflective of the actual expenditures. CDE's current expenditure collection lacks the details needed for evaluation purposes. And lastly, the funding amounts and the plans for the funds were used as a proxy for the PD that was to be implemented. There was no data collected for actual PD implementation, implementation fidelity, or the effectiveness of the PD.

IV. The Results

A. Findings

Available data was used to assess the reach and impact of the IID funds and to address each evaluation question. First, the funded activities are summarized. Then results regarding student technological literacy are explored, followed by personnel technological proficiency, and high speed internet access. This section concludes with a discussion of the relationships among outcomes.

Title II, Part D-Funded Activities

CDE evaluated the technology-related PD funded by both formula and competitive funds for the 23 LEAs selected based on the selection criteria described above. IID-funded PD is intended to increase the technology knowledge and skills of instructors in integrating technology into the classroom, instruction, and curriculum. Therefore, the expected outcome of these services is increased personnel technological proficiency. Various PD strategies utilized by LEAs, which are summarized later in this report, include hiring external consultants to provide in-house training to personnel, sending personnel to various external PD opportunities (e.g., conferences), or subscribing to an online PD provider.

Resources Allocated, Scale, and Complexity

In order to obtain a more detailed understanding of the PD for which districts allocated Title IID funds, the previously-described qualitative coding was used to delineate the 2010-2011 PD activities into one of nine key activity categories:

1. Internal Trainers
2. Conferences (Out of District)
3. External Consultants
4. Internal Trainings & Workshops
5. Subscriptions & Licenses
6. Online (Software-Driven)
7. Supplies
8. Personnel
9. Multiple Categories.[6]

Overall, $1,799,372 was allocated to PD activities across the 23 districts in the 2010-2011 academic year. The top three funded-strategies were online professional development (software-driven) (31.8%, $572,000), external consultants (24.4%, $439,311), and internal trainings and workshops (19.6%, $353,338) (See Figure 2). There were differences as a function of funding type; almost half of formula funds (47.7%) were allocated to online (software-driven) professional development, whereas the percentage of competitive funds was heavily allocated towards external consultants (43.2%) (See Figure 3). It is important to note that competitive budget amounts may not align with allocation amounts, as a significant portion of the funding from the 2-year grant was distributed in 2009-2010. Furthermore, although the larger portion of IID funds in 2010-2011 were competitively awarded, a smaller percentage of the competitive funds were allocated to PD.

[6] Coding methodology is discussed in further detail in the Evaluation section of this report, and the coding structure and assumptions are available in Appendix E.

Figure 2: Professional Development Allocations 2010-2011, by Activity Category

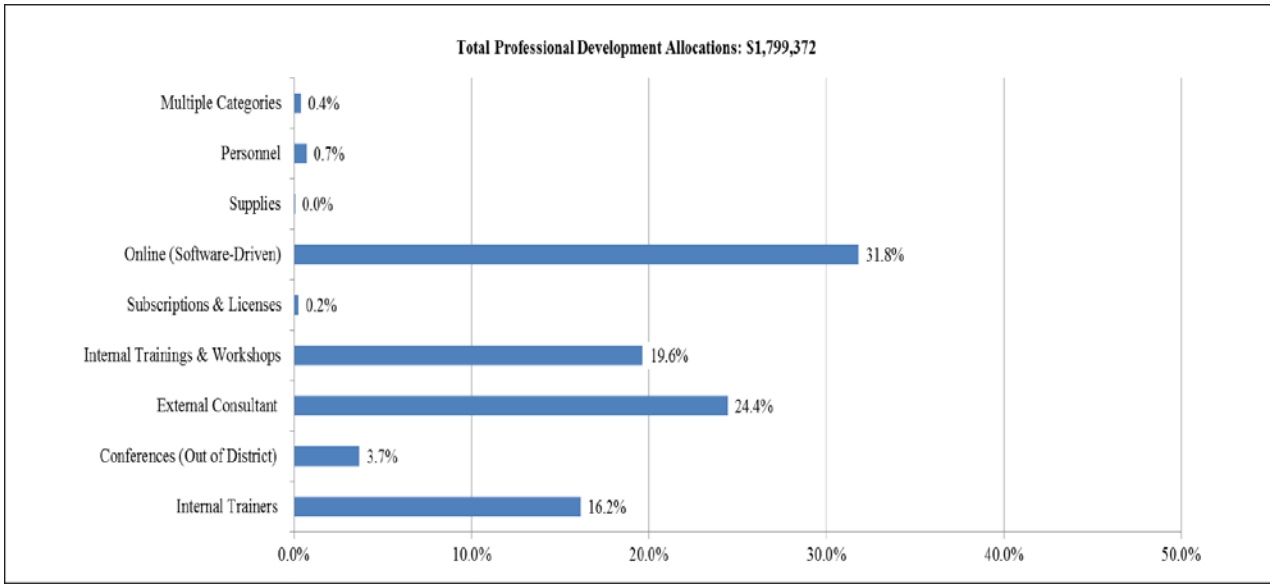
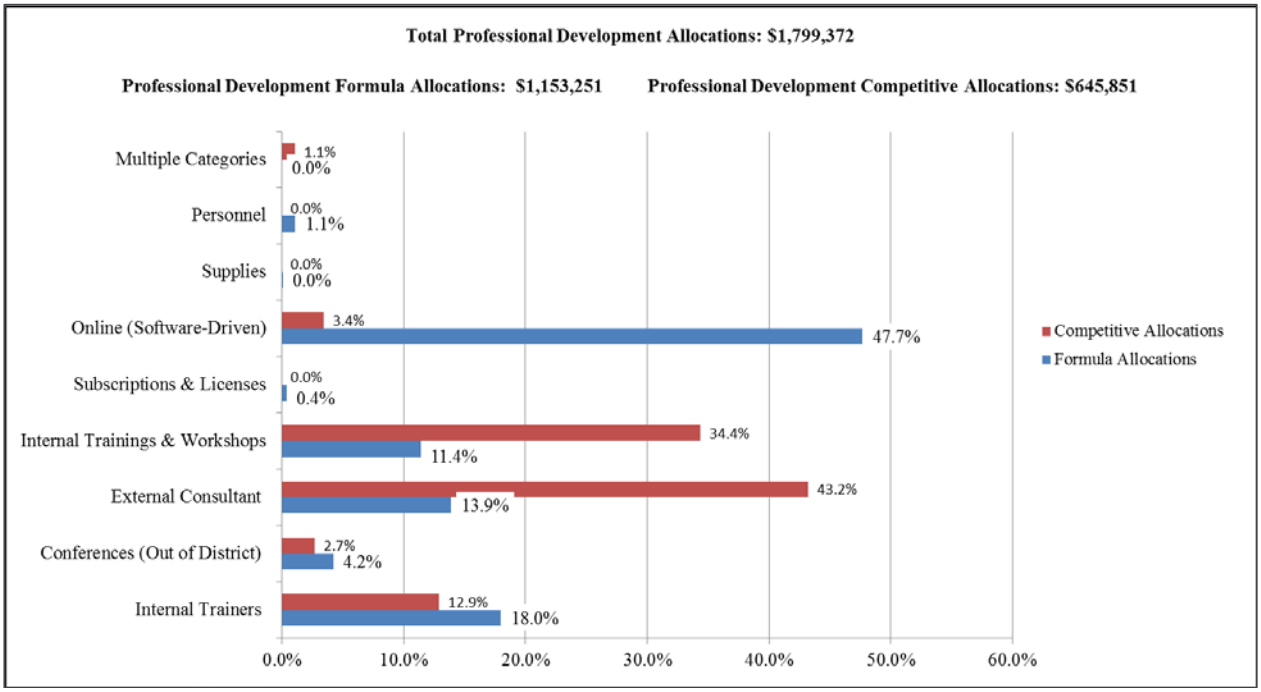


Figure 3: Professional Development Allocations 2010-2011, by Activity Category and Funding Type



Although the largest number of districts allocated funds to internal trainers (N = 14),

external consultants (N = 12), and internal trainings and workshops (N = 12), a greater amount of the funds were allocated to online PD ($572,000) by only 3 districts (See Table 6).

Table 6: Districts Allocating at Least One Line-Item to Each PD Activity Category 2010-2011

Category	Number of LEAs that allocated funds to this category	Total Allocation Amount
Internal Trainers	14	$290,655
Conferences (Out of District)	5	$66,111
External Consultant	12	$439,311
Internal Trainings & Workshops	12	$353,338
Subscriptions & Licenses	1	$4,358
Online PD (Software-Driven)	3	$572,000
Supplies	1	$500
Personnel	1	$12,591
Multiple Categories	1	$7,000

The LEA with the largest allocation ($810,987), Denver County 1, allocated 69% of its funds to online PD. The LEA with the second largest allocation ($246,229), Adams 14 allocated 52% to internal trainings and workshops and 39% to internal trainers. The LEA with the third largest allocation ($131,230), Greeley 6, allocated majority (96%) of its funds to external consultants (See Table 7).

Table 7: District-level Professional Development Allocations 2010-2011, by Activity Category

District Name	District Number	Allocation to Conferences (Out of District) (%)	Allocation to External Consultant (%)	Allocation to Internal Trainers (%)	Allocation to Internal Trainings & Workshops (%)	Allocation to Online (Software-Driven) (%)	Allocation to Multiple Categories (%)	Allocation to Subscriptions & Licenses (%)	Allocation to Supplies	Allocation to Personnel	Total Allocation to Professional Development
Adams County 14	0030	$ - (0%)	$ 10,000 (4%)	$ 96,288 (39%)	$ 126,941 (52%)	$ 13,000 (5%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ 246,229.00
Adams-Arapahoe 28J	0180	$ - (0%)	$ - (0%)	$ 12,310 (25%)	$ 37,525 (75%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ 49,835.00
Boulder Valley Re 2	0480	$ 7,440 (5%)	$ 59,000 (41%)	$ 46,447 (33%)	$ 38,588 (27%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ 142,266.00
Brighton 27J	0040	$ - (0%)	$ - (0%)	$ - (0%)	$ 10,472 (100%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ 10,472.00
Burlington Re-6J	1500	$ - -	$ - -	$ - -	$ - -	$ - -	$ - -	$ - -	$ - -	$ - -	$ -
Centennial R-1	0640	$ - (0%)	$ 1,455 (23%)	$ - (0%)	$ 5,000 (77%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ 6,455.00
Colorado Springs 11	1010	$ - (0%)	$ 1,173 (2%)	$ 72,429 (98%)	$ 158 (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ 73,760.00
Denver County 1	0880	$ 37,628 (4%)	$ 144,358 (17%)	$ 3,442 (0%)	$ 30,193 (4%)	$ 550,000 (66%)	$ - (0%)	$ - (0%)	$ - (0%)	$ 12,591 (2%)	$ 836,749.00
Douglas County Re 1	0900	$ - (0%)	$ - (0%)	$ 4,843 (100%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ 4,843.00
Eagle County Re 50	0910	$ - (0%)	$ - (0%)	$ 1,467 (100%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ 1,467.00
East Otero R-1	2520	$ - (0%)	$ - (0%)	$ 13,383 (589%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ 2,274.00
Edison 54 Jt	1120	$ - -	$ - -	$ - -	$ - -	$ - -	$ - -	$ - -	$ - -	$ - -	$ -
Fort Morgan Re-3	2405	$ 7,848 (77%)	$ 600 (6%)	$ 1,736 (17%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ 10,184.00
Greeley 6	3120	$ - (0%)	$ 126,184 (96%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ 131,230.00
Harrison 2	0980	$ 5,100 (38%)	$ - (0%)	$ - (0%)	$ 1,876 (14%)	$ - (0%)	$ - (0%)	$ 4,358 (32%)	$ 500 (0%)	$ - (0%)	$ 13,531.00
Huerfano Re-1	1390	$ - (0%)	$ 298 (100%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ 298.00
Jefferson County R-1	1420	$ - (0%)	$ 500 (0%)	$ 129,944 (60%)	$ 25,559 (12%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ 215,967.00
Keenesburg Re-3(J)	3090	$ - (0%)	$ 46,743 (87%)	$ - (0%)	$ - (0%)	$ - (0%)	$ 7,000 (13%)	$ - (0%)	$ - (0%)	$ - (0%)	$ 53,743.00
Littleton 6	0140	$ 15,813 (52%)	$ - (0%)	$ - (0%)	$ 14,540 (48%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ 30,353.00
Monte Vista C-8	2740	$ - (0%)	$ - (0%)	$ 1,061 (100%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ 1,061.00
Montrose County Re-1J	2180	$ - (0%)	$ 48,000 (48%)	$ 4,095 (4%)	$ 38,163 (38%)	$ 9,000 (9%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ 99,258.00
Poudre R-1	1550	$ - (0%)	$ 1,000 (2%)	$ 7,145 (14%)	$ 41,520 (83%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ 49,885.00
Weld County Re-8	3140	$ 17,350 (52%)	$ - (0%)	$ 3,488 (10%)	$ 12,650 (38%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ - (0%)	$ 33,488.00

B. Evaluation Questions Addressed

Three outcome variables, eighth grade technology literacy, personnel technological proficiency, and computer specifications of the 23 selected districts, were analyzed. Based on the available data and the findings of the qualitative analyses of LEA allocations and the quantitative analyses of the outcome variables, evaluation questions were developed to investigate the relationships between PD funding, eighth grade technology literacy, and personnel technological proficiency.

1. To what extent do eighth grade students in districts receiving $25,000 or more in IID funds demonstrate technological literacy?

Student technology literacy was examined for two school years: 2009-2010 (2010) and 2010-2011 (2011). District-level data were analyzed to identify the assessment types that were implemented by districts, the percent of eighth grade students assessed, and the percent of assessed students deemed technologically literate.

Districts used a variety of assessment tools to measure eighth grade literacy in 2010 and 2011. Of the 23 districts included in this evaluation, 21 reported eighth grade Technology literacy data to CDE for 2010 and 15 for 2011. With the availability of the TLAP assessment created in conjunction with CDE, more districts used online assessments in 2011 than in previous years. The most commonly reported assessments in both years were online assessment programs, which were used by 60.9% in 2010 and 43.5% in 2011 (See Table 8). Program-based assessments also were relatively common across the years, with 26.1% of districts using them in 2010, and 8.7% in 2011. Declines in the percent of districts using the above assessments in 2010-2011 might be an artifact of many districts not reporting technological literacy data due to the termination of funding. Individual district assessment types in each of the two school years can be found in Appendix C.

Table 8: District-level Student Technological Literacy Assessment Types 2009-2011

N=23	2009-2010	2010-2011
Assessment Type	Count (%)	Count (%)
Online Assessment Program	14 (60.9%)	10 (43.5%)
Performance Based	- (0.0%)	1 (4.3%)
Program Based	6 (26.1%)	2 (8.7%)
Projects	2 (8.7%)	- (0.0%)
Portfolio	- (0.0%)	1 (4.3%)
Other	1 (4.3%)	1 (4.3%)
Unknown	2 (8.7%)	9 (39.1%)

Colorado districts report to CDE student membership count in October and there is some mobility throughout the year. The eighth grade technology literacy is assessed in the spring and the participation rate reported to CDE is an estimated figure since student membership count (or enrollment) is reported in October and not on date of assessment. Using this estimated student enrollment for each district, six districts assessed 90% or more of their eighth grade students in the 2010-2011 school year, while the median proportion of students assessed was 84.3% across all 23 districts in that year (See Table 9). The proportion of eligible students assessed has declined since 2009-2010. It is believed this is due to the termination of IID funding in 2011-2012, which is when the 2011 eighth grade technology literacy data was collected. Of the 15 districts that reported 2010-2011 eighth grade technology literacy, only four deemed greater than 70% of their students as technology literacy (See Table 9). Only six of the districts with data for both years showed an increased in the percentage of the students proficient.

Table 9: District-level Assessment Rates 2009-2011, by Category[7]

		2009-2010				2010-2011			
District Name	**District Number**	**Students Assessed N / %**		**Assessed Students Proficient N / %**		**Students Assessed N / %**		**Assessed Students Proficient N / %**	
Adams County 14	0030	97	21.18%	3	3.09%	-	-	-	-
Adams-Arapahoe 28J	0180	1542	62.23%	1375	89.17%	-	-	-	-
Boulder Valley Re 2	0480	1928	87.52%	1406	72.93%	1976	92.42%	1880	95.14%
Brighton 27J	0040	962	98.06%	912	94.80%	887	91.07%	249	28.07%
Burlington Re-6J	1500	-	-	-	-	43	84.31%	34	79.07%
Centennial R-1	0640	10	83.33%	0	0.00%	-	-	-	-
Colorado Springs 11	1010	1830	89.44%	689	37.65%	1779	86.99%	594	33.39%
Denver County 1	0880	4227	86.46%	960	22.71%	4232	88.24%	892	21.08%
Douglas County Re 1	0900	3746	85.94%	1790	47.78%	3663	81.56%	1801	49.17%
Eagle County Re 50	0910	368	87.2%	292	79.35%	354	88.28%	170	48.02%
East Otero R-1	2520	87	100%	87	100.00%	-	-	-	-
Edison 54 Jt	1120	6	33.33%	6	100.00%	-	-	-	-
Fort Morgan Re-3	2405	201	93.93%	69	34.33%	226	97.%	46	20.35%
Greeley 6	3120	1099	89.28%	607	55.23%	-	-	-	-
Harrison 2	0980	565	82.72%	139	24.60%	582	85.97%	153	26.29%
Huerfano Re-1	1390	30	71.43%	10	33.33%	19	67.86%	9	47.37%
Jefferson County R-1	1420	5922	95.84%	4124	69.64%	5859	92.99%	4238	72.33%
Keenesburg Re-3(J)	3090	-	-	-	-	147	89.63%	57	38.78%
Littleton 6	0140	1143	101.24%	1055	92.30%	1084	101.59%	998	92.07%
Monte Vista C-8	2740	70	92.11%	16	22.86%	59	78.67%	15	25.42%
Montrose County Re-1J	2180	394	80.08%	79	20.05%	-	-	-	-
Poudre R-1	1550	3578	92.77%	2409	67.33%	-	-	-	-
Weld County Re-8	3140	159	99.38%	143	89.94%	159	99.38%	97	61.01%

Eighth grade literacy data for 2010 and 2011 were used to assess rates of literacy across the districts that received greater than $25,000 in Title IID funding, as well as to compare changes over time. In the 2009-2010 school year, five districts had 90 percent or more of their eighth grade students assessed as technologically literate. Of note, the median literacy rate was lower in 2010-2011, at 47.4%, than in the preceding year. The decline in literacy rate over time may be due to more districts using the more rigorous online assessments, such as the TLAP.

[7] One district (Littleton) reported assessing more students than their 8th grade pupil count, resulting in a percentage of students assessed greater than 100%. The percentage is likely a result of the mobility of students, and additional students having transferred in at the time of assessment. In 2009-2010 Poudre was transitioning their computer technology classes to 6th grade that year, and was approved to assess 6th and 7th grade students for their student technology literacy data.

Table 10: District-level Student Technological Literacy Rates 2009-2011, by Percent of Students Technologically Literate

	Proportion Literate by Category	
N=23	2009-2010	2010-2011
Category	Count (%)	Count (%)
Less than 10%	2 (8.7%)	0 (0.0%)
10 - 24%	3 (13.0%)	2 (8.7%)
25 - 49%	5 (21.7%)	8 (34.8%)
50 - 74%	4 (17.4%)	2 (8.7%)
75 - 89%	2 (8.7%)	1 (4.3%)
90% or greater	5 (21.7%)	2 (8.7%)
Unreported	2 (8.7%)	8 (34.8%)
Mean/Median	55.1%/55.2%	49.2%/47.4%
Range	0.0%-100.0%	20.4%-95.1%

Technological literacy was also explored by assessment type for both years. In 2009-2010, median literacy was highest when program-based (91.1%) was used and lowest when online assessment programs were used (33.8%). The median literacy rate for online assessments in 2010-2011 was 36.1%, which was slightly higher than the previous year (See Table 11). The percentage of students deemed proficient using online assessments increased from 33.8% in 2009-2010 to 36.1% in 2010-2011. However, with an increase in the number of districts not reporting this data (2 in 2009-2010 up to 8 in 2010-2011) limits the ability to interpret these changes.

Table 11: District-level Student Technological Literacy Rates 2009-2011, by Assessment Type

N=23	2009-2010			2010-2011		
Assessment Type	N	Median	Range	N	Median	Range
Online Assessment Program	14	33.8%	0.0%-100.0%	10	36.1%	20.4%-72.3%
Performance Based	0	--	--	1	20.9%	N/A
Portfolio	0	--	--	1	39.0%	N/A
Program Based	6	91.1%	67.0%-100.0%	2	6.4%	4.9%-7.9%
Other	1	69.6%	N/A	1	25.4%	N/A
Unreported	2	--	--	8	--	--

Limitations

Colorado relies on districts to assess student technological literacy and as such, eighth grade technological literacy assessments vary across districts. Although the cut-points or actual assessments might vary, all assessments should be based on the International Society for Technology in Education (ISTE) standards for students, which were adopted by Colorado. Nonetheless, the variance in measurement should be considered when interpreting analyses of statewide literacy rates. The development and implementation of TLAP (discussed above) may provide greater standardization of assessments and increase the rigor of those assessments, resulting in more meaningful and comparable data on student technology literacy. With so many districts not reporting student technological literacy data in 2010-2011, the results are not comparable across the years.

2. To what extent do staff from districts receiving $25,000 or more in IID funds demonstrate technological proficiency?

District-level data reflecting the results of personnel technological proficiency assessments were used to assess the extent to which school staff have demonstrated technological proficiency. Data on personnel technological proficiency were available for the 2009-2010 (2010) and 2010-2011 (2011) school years. Of the 23 districts included in this analysis, only seven reported having assessed any of their staff in 2009-2010. Results show that between 99.7% and 100% of eligible staff were assessed in districts in 2010-2011, while in 2009-2010 the lowest reported percent of staff assessed was only 1.0% (See Table 12). Rates of personnel technological proficiency ranged from 7% to 100% in 2010-2011, while the lowest percent reported in 2009-2010 was 32%. With the implementation of the new PTP assessment, lower percentages of staff were deemed proficient possibility as a result of this assessment being more rigorous than other assessments previously used. These proficiency rates are consistent with the U.S. Department of Education (EETT Final Report, 2009) nationwide finding that the percentage of teachers meeting technological proficiency standards ranged from 8% to 100%.

Table 12: District-level Staff Technological Proficiency Results 2009-2011

		2009-2010		2010-2011	
District Name	**District Number**	**Staff Assessed N (%)**	**Assessed Staff Proficient N (%)**	**Staff Assessed N (%)**	**Assessed Staff Proficient N (%)**
Adams County 14	0030	305 (73.0%)	122 (40.0%)	347 (97.7%)	147 (42.4%)
Adams-Arapahoe 28J	0180			1135 (100.0%)	1127 (99.3%)
Boulder Valley Re 2	0480			565 (100.0%)	539 (95.4%)
Brighton 27J	0040			127 (100.0%)	127 (100.0%)
Burlington Re-6J	1500	56 (100.0%)	55 (98.0%)	52 (100.0%)	52 (100.0%)
Centennial R-1	0640			14 (100.0%)	7 (50.0%)
Colorado Springs 11	1010			1296 (100.0%)	346 (26.7%)
Denver County 1	0880			4286 (100.0%)	417 (9.7%)
Douglas County Re 1	0900			2944 (100.0%)	1434 (48.7%)
Eagle County Re 50	0910			379 (100.0%)	60 (15.1%)
East Otero R-1	2520			86 (100.0%)	13 (15.1%)
Edison 54 Jt	1120	2 (13.0%)	2 (100.0%)	13 (100.0%)	7 (53.8%)
Fort Morgan Re-3	2405			211 (100.0%)	161 (76.3%)
Greeley 6	3120			732 (100.0%)	82 (11.2%)
Harrison 2	0980			774 (100.0%)	189 (24.4%)
Huerfano Re-1	1390	53 (98.0%)	17 (32.0%)	47 (100.0%)	7 (14.9%)
Jefferson County R-1	1420			4956 (100.0%)	874 (17.6%)
Keenesburg Re-3(J)	3090			145 (99.3%)	22 (15.2%)
Littleton 6	0140			807 (100.0%)	729 (90.3%)
Monte Vista C-8	2740	90 (100.0%)	53 (59.0%)	82 (100.0%)	69 (84.1%)
Montrose County Re-1J	2180	15 (4.0%)	15 (100.0%)	387 (100.0%)	27 (7.0%)
Poudre R-1	1550			1440 (100.0%)	276 (19.2%)
Weld County Re-8	3140	1 (1.0%)	1 (100.0%)	141 (100.0%)	57 (40.4%)

For those districts reporting personnel technological (PTP) assessment data, proficiency levels were also examined by assessment type (See Table 13) and by staff role (See Table 14). For the 2010-2011 school year, the median staff proficiency rate for the PTP assessment was only 16.0%, while for all other assessments the median rate was 51.9%, indicating the PTP is a more

rigorous assessment. These results again support the decline in staff proficiency rates in 2010-2011.

As previously stated, all 23 districts assessed personnel technological proficiency and reported such data to the CDE for the 2010-2011 academic year. Of those districts, 8 reported over 70% of their personnel to be technologically proficient (See Table 13).

Table 13: District-level 2010-2011 Staff Technological Proficiency Results, by Assessment Type

District Name	District Number	Staff Assessed N (%)	Assessed Staff Proficient N (%)	Staff Proficient on PTP Assessment N (%)	Staff Proficient on All Other Assessments N (%)
Adams County 14	0030	347 (97.7%)	147 (42.4%)	--	147 (42.4%)
Adams-Arapahoe 28J	0180	1135 (100.0%)	1127 (99.3%)	--	1127 (99.3%)
Boulder Valley Re 2	0480	565 (100.0%)	539 (95.4%)	--	539 (95.4%)
Brighton 27J	0040	127 (100.0%)	127 (100.0%)	--	127 (100.0%)
Burlington Re-6J	1500	52 (100.0%)	52 (100.0%)	--	52 (100.0%)
Centennial R-1	0640	14 (100.0%)	7 (50.0%)	--	7 (50.0%)
Colorado Springs 11	1010	1296 (100.0%)	346 (26.7%)	336 (26.1%)	10 (100.0%)
Denver County 1	0880	4286 (100.0%)	417 (9.7%)	415 (23.8%)	2 (0.1%)
Douglas County Re 1	0900	2944 (100.0%)	1434 (48.7%)	--	1434 (48.7%)
Eagle County Re 50	0910	379 (100.0%)	60 (15.1%)	60 (16.0%)	0 (0.0%)
East Otero R-1	2520	86 (100.0%)	13 (15.1%)	13 (15.1%)	--
Edison 54 Jt	1120	13 (100.0%)	7 (53.8%)	--	7 (53.8%)
Fort Morgan Re-3	2405	211 (100.0%)	161 (76.3%)	--	161 (76.3%)
Greeley 6	3120	732 (100.0%)	82 (11.2%)	82 (11.3%)	0 (0.0%)
Harrison 2	0980	774 (100.0%)	189 (24.4%)	171 (22.6%)	18 (100.0%)
Huerfano Re-1	1390	47 (100.0%)	7 (14.9%)	7 (14.9%)	--
Jefferson County R-1	1420	4956 (100.0%)	874 (17.6%)	874 (20.4%)	0 (0.0%)
Keenesburg Re-3(J)	3090	145 (99.3%)	22 (15.2%)	22 (15.2%)	--
Littleton 6	0140	807 (100.0%)	729 (90.3%)	--	729 (90.3%)
Monte Vista C-8	2740	82 (100.0%)	69 (84.1%)	--	69 (84.1%)
Montrose County Re-1J	2180	387 (100.0%)	27 (7.0%)	17 (5.0%)	10 (20.0%)
Poudre R-1	1550	1440 (100.0%)	276 (19.2%)	276 (22.5%)	0 (0.0%)
Weld County Re-8	3140	141 (100.0%)	57 (40.4%)	--	57 (40.4%)
Median				16.0%	51.9%

Median values indicate that Library/Median Specialists tend to have the highest rates of technology proficiency (63.8%), compared to only 38.9% of Teachers and 24.1% of Administrators (See Table 14).

Table 14: District-level Staff Technological Proficiency Results 2010-2011, by Staff Role

District Name	District Number	Staff Assessed N (%)	Assessed Staff Proficient N (%)	Number of Teachers Assessed	Teachers Proficient N (%)	Number of Library/ Media Specialists Assessed	Library/ Media Specialists Proficient N (%)	Number of School Administrators Assessed	School Administrators Proficient N (%)
Adams County 14	0030	347 (97.7%)	147 (42.4%)	325	129 (39.7%)	3	1 (33.3%)	19	15 (78.9%)
Adams-Arapahoe 28J	0180	1135 (100.0%)	1127 (99.3%)	1062	1054 (99.2%)	4	4 (100.0%)	69	69 (100.0%)
Boulder Valley Re 2	0480	565 (100.0%)	539 (95.4%)	488	463 (94.9%)	25	25 (100.0%)	52	51 (98.1%)
Brighton 27J	0040	127 (100.0%)	127 (100.0%)	94	94 (100.0%)	1	1 (100.0%)	32	32 (100.00%)
Burlington Re-6J	1500	52 (100.0%)	52 (100.0%)	49	49 (100.0%)	1	1 (100.0%)	2	2 (100.0%)
Centennial R-1	0640	14 (100.0%)	7 (50.0%)	13	7 (53.8%)	-	-	1	0 (0.0%)
Colorado Springs 11	1010	1296 (100.0%)	346 (26.7%)	1179	302 (25.6%)	47	30 (63.8%)	70	14 (20.0%)
Denver County 1	0880	4286 (100.0%)	417 (9.7%)	3972	399 (10.0%)	48	16 (33.3%)	266	2 (0.8%)
Douglas County Re 1	0900	2944 (100.0%)	1434 (48.7%)	2764	1329 (48.1%)	28	18 (64.3%)	152	87 (57.2%)
Eagle County Re 50	0910	379 (100.0%)	60 (15.1%)	350	55 (15.7%)	5	2 (40.0%)	24	3 (12.5%)
East Otero R-1	2520	86 (100.0%)	13 (15.1%)	81	12 (14.8%)	-	-	5	1 (20.0%)
Edison 54 Jt	1120	13 (100.0%)	7 (53.8%)	13	7 (53.8%)	-	-	-	-
Fort Morgan Re-3	2405	211 (100.0%)	161 (76.3%)	198	149 (75.3%)	1	1 (100.0%)	12	11 (91.7%)
Greeley 6	3120	732 (100.0%)	82 (11.2%)	670	72 (10.7%)	12	4 (33.3%)	50	6 (12.0%)
Harrison 2	0980	774 (100.0%)	189 (24.4%)	715	175 (24.5%)	3	1 (33.3%)	56	13 (23.2%)
Huerfano Re-1	1390	47 (100.0%)	7 (14.9%)	43	6 (14.0%)	-	-	4	1 (25.0%)
Jefferson County R-1	1420	4956 (100.0%)	874 (17.6%)	4536	779 (17.2%)	135	79 (58.5%)	285	16 (5.6%)
Keenesburg Re-3(J)	3090	145 (99.3%)	22 (15.2%)	139	21 (15.1%)	1	1 (100.0%)	5	0 (0.0%)
Littleton 6	0140	807 (100.0%)	729 (90.3%)	759	683 (90.0%)	6	6 (100.0%)	42	40 (95.2%)
Monte Vista C-8	2740	82 (100.0%)	69 (84.1%)	74	62 (83.8%)	3	2 (66.7%)	5	5 (100.0%)
Montrose County Re-1J	2180	387 (100.0%)	27 (7.0%)	364	22 (6.0%)	4	2 (50.0%)	19	3 (15.8%)
Poudre R-1	1550	1440 (100.0%)	276 (19.2%)	1356	255 (18.8%)	19	9 (47.4%)	65	12 (18.5%)
Weld County Re-8	3140	141 (100.0%)	57 (40.4%)	126	49 (38.9%)	4	1 (25.0%)	11	7 (63.6%)
Median					38.9%		63.8%		24.1%

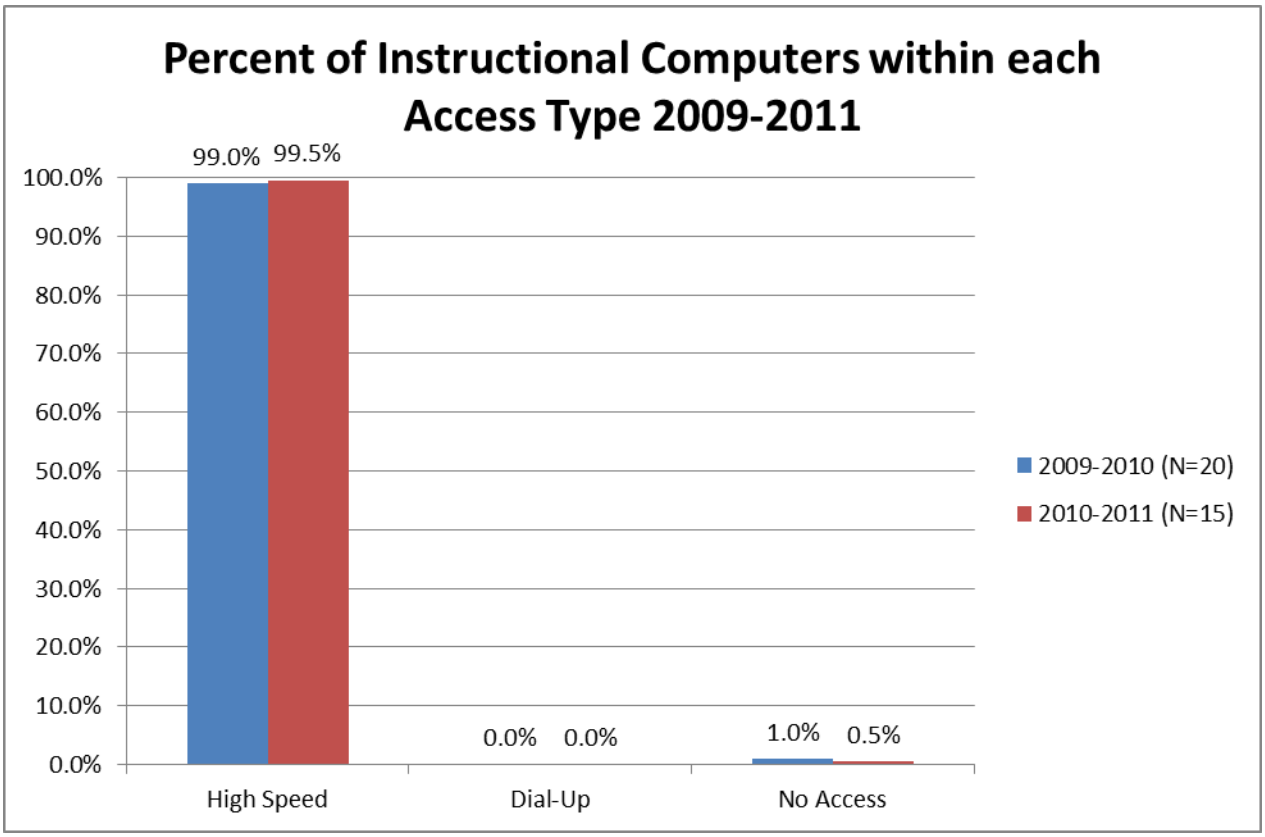
Limitations

While Colorado recently implemented the PTP Self-Assessment Survey System (for the 2010-2011 school year), only a small portion of districts have relied on this measure. Furthermore, at present, assessment types vary both across and within districts in Colorado, creating similar limitations to those outlined for student technology literacy. Finally, data collected from districts does not indicate which staff members participated in IID professional development activities and which did not. As such, evaluation activities have not yet explored the extent to which IID-funded PD activities can be linked to actual improvement in staff technological knowledge and skills. The only conclusion that can be drawn thus far is that districts that have allocated IID funds for PD activities have variability in the levels of personnel technological proficiency.

3. To what extent have districts receiving $25,000 or more in IID funds established access to high speed internet via instructional computers available to students?

Figure 4 presents the percentage instructional computers across all 23 districts with high speed internet access, dial-up, and no access. As the data shows, no districts report having instructional computers with dial-up access. In addition, the majority of computers (99.5% in 2010-2011) all have high speed internet access. Only the remaining 0.5% of instructional computers do not have any form of access, which has declined from 1.0% in 2009-2010. Only 5 of the 15 districts reporting computer specifications in 2010-2011 have computers with no access.

Figure 4: Mean (Average) Percent of Instructional Computers for each Access Type from 2009-2011



Limitations

No significant limitations were identified for the district level data on computer specifications. Nonetheless, with so little variability in the number of instructional computers at high speed, it was not feasible to test any associations between this outcome and other outcomes.

4. To what extent can relationships among key outcomes be identified as measured by the evaluation questions 4a and 4b?

4a. To what extent are Professional Development allocations related to the percent of Personnel that are Technologically Proficient in these districts?

As a next step, analyses were conducted to examine any relationships between district level IID allocations and personnel technological proficiency rates, examining only IID allocations intended for PD activities. In order to control for the LEA size in the analyses, a "Per Personnel Allocation" was calculated by dividing the total allocation by the number of personnel that was eligible for PTP assessment. Due to data limitations in 2009-2010 (only 7 of the 23 districts provided personnel technological proficiency data), it was not feasible to assess longitudinal trends. In the 2010-2011 data, the sample size is not large enough to conduct statistical analyses to test the correlation between the LEA's allocation and the percent of personnel that were deemed technologically proficient. Nonetheless, the trends indicate a negative relationship between the two variables, meaning that the lower the percentage of personnel that were technologically proficient, the more IID funds that were allocated towards technology-related professional development (See Table 15).

Of the 15 districts that reported personnel technological proficiency at less than 50% proficient, 7 districts allocated to PD an amount that calculated to greater than $100 per personnel, whereas 8 districts allocated an amount that was less than $100 per personnel. Conversely, of the 6 districts that reported a greater than 50% proficiency rating, 5 had allocated an amount that calculated to less than $100 per personnel, implying a negative relationship between funding and percentage of personnel that are technologically proficient (See Table 15). Since 2008-2009, Colorado has been encouraging its LEAs to utilize the personnel proficiency assessment as a needs assessment to determine how much IID funding to allocate towards PD. The trends observed in 2010-2011 might be explained by LEAs using their rates of personnel proficiency to determine how much to allocate towards PD. Unfortunately, with the cessation of funding, it will not be

possible to determine if the increased IID PD allocations would result in an increase in the percentage of personnel that are technologically proficient.

Table 15: Personnel and Student Technological Proficiency in 2010-2011, by district, as a product of Title IID funds allocated towards Professional Development

District Name	District Number	Allocation Towards PD	Eligible Staff in District	Per Staff Allocation	Assessed Staff Proficient N / %		Assessed Students Proficient N / %	
Adams County 14	0030	$ 246,229	355	$ 693.60	147	42.36%	-	-
Adams-Arapahoe 28J	0180	$ 49,835	1135	$ 43.91	1127	99.30%	-	-
Boulder Valley Re 2	0480	$ 130,925	565	$ 231.73	539	95.40%	1880	95.14%
Brighton 27J	0040	$ 10,472	127	$ 82.46	127	100.00%	249	28.07%
Burlington Re-6J	1500	$ -	52	$ -	52	100.00%	34	79.07%
Centennial R-1	0640	$ 6,455	14	$ 461.07	7	50.00%	-	-
Colorado Springs 11	1010	$ 73,760	1296	$ 56.91	346	26.70%	594	33.39%
Denver County 1	0880	$ 810,987	4286	$ 189.22	417	9.73%	892	21.08%
Douglas County Re 1	0900	$ 4,843	2944	$ 1.65	1434	48.71%	1801	49.17%
Eagle County Re 50	0910	$ 1,467	379	$ 3.87	60	15.10%	170	48.02%
East Otero R-1	2520	$ 2,274	86	$ 26.44	13	15.12%	-	-
Edison 54 Jt	1120	$ -	13	$ -	7	53.85%	-	-
Fort Morgan Re-3	2405	$ 8,684	211	$ 41.16	161	76.30%	46	20.35%
Greeley 6	3120	$ 131,230	732	$ 179.28	82	11.20%	-	-
Harrison 2	0980	$ 13,531	774	$ 17.48	189	24.42%	153	26.29%
Huerfano Re-1	1390	$ 298	47	$ 6.34	7	14.89%	9	47.37%
Jefferson County R-1	1420	$ 40,594	4956	$ 8.19	874	17.64%	4238	72.33%
Keenesburg Re-3(J)	3090	$ 53,743	146	$ 368.10	22	15.17%	57	38.78%
Littleton 6	0140	$ 30,353	807	$ 37.61	729	90.33%	998	92.07%
Monte Vista C-8	2740	$ 1,061	82	$ 12.94	69	84.15%	15	25.42%
Montrose County Re-1J	2180	$ 99,258	387	$ 256.48	27	7.00%	-	-
Poudre R-1	1550	$ 49,885	1440	$ 34.64	276	19.17%	-	-
Weld County Re-8	3140	$ 33,488	141	$ 237.50	57	40.43%	97	61.01%

4b. To what extent is personnel technological proficiency related to student technological proficiency?

As stated above, the sample size in this evaluation is not large enough to statistically test the correlation between personnel technological proficiency (PTP) and eighth grade technology literacy (8^{th} TL). Although only 15 of the 23 districts reported both PTP and 8^{th} TL, some preliminary trends indicate a positive relationship between these two outcomes (as one variable gets higher, so does the other variable). As delineated in Table 15 above, three out of the 15 districts that reported both PTP and 8^{th} TL had ratings above 50% proficient for both personnel and eighth graders. Likewise, seven out of the 15 districts had less than 50% proficiency rating for both outcomes. This indicates that districts that have over 50% of personnel as technologically proficient also tend to have over 50% of the eighth graders as technology literate and districts that have low PTP also tend to have low 8^{th} TL. One plausible explanation would be that districts that use a rigorous measure of personnel technological proficiency also tend to use a more rigorous 8^{th} TL assessment. Of the districts that reported both a low rate of PTP and 8^{th} TL, 6 had used the CDE developed-online PTP assessment.

Limitations

Due to the data and methodological limitations outlined previously, correlations among the 2010-2011 data were the only analyses appropriate, though sample sizes were still small and should be interpreted with caution.

V. Conclusions

Colorado has made some significant strides toward understanding the reach and impact of the Title IID program in the state. First, districts receiving $25,000 or more in Title IID funds have demonstrated high rates of high speed internet access on instructional computers. It stands to reason that this access has provided students with enhanced opportunities for learning. Second, in 2010-2012, 13% of the districts that received $25,000 or more in IID funds, reported over 75% of their eighth graders as technology literate (with a median of 47.4% technology literate for all 23 districts). Results are likely to have been even higher if the eight districts not reporting data had submitted student technological literacy. Based on the variability and lower rates of eighth grade

technology literacy in the districts evaluated, it stands to reason that further work and funding towards increasing technology of students is warranted. While it is difficult to analyze the trends in personnel technological proficiency due to a lack of PTP data in 2009-2010, all 23 districts in 2010-2011 submitted proficiency data, and 21 of those districts assessed all of their eligible staff. Due to the rigorous nature of the online developed PTP assessment, it is promising that the median proficiency rate in 2010-2011 was 40.4%. This number is likely to increase as additional professional development in technology integration continues. Therefore, additional technology-related PD would be beneficial.

Additionally, the state has undertaken major efforts to enhance the collection of data on both student technology literacy and staff technological proficiency. Both tools, the TLAP and the PTP Self-Assessment Survey Systems, will provide more rigorous and more standardized assessments of technological skills and knowledge on the part of both students and staff. Although Colorado has encouraged districts to continue to assess both students and personnel on the technology assessments, the reporting of this data to the state is no longer mandated due to the termination of the Title II, Part D funding.

VI. Recommendations and Lessons Learned

As noted in each Results section, the data for this evaluation were limited in various ways. Steps were taken to correct some of the limitations, and there has been an increase in the data available for 2010-2011 in comparison to 2009-2010 data, specifically for PTP. For example, the state funded the creation of two assessments that were used by districts to increase the reliability and validity of this data. Even in a local control state, such as Colorado, providing reliable and valid measures for districts to use to assess personnel and student technological proficiency increased the likelihood that districts would rely on such measures. In developing and rolling out these reliable and valid measures, CDE worked with field experts to obtain input and feedback, which led to higher buy-in from district personnel and increased use of the measures. CDE also highlighted the importance and benefits of having comparable data, which could be used for statewide evaluation of the effectiveness of programs. There is anecdotal evidence that, even though CDE is not requiring or collecting the data from these assessments, some districts will

continue to use the PTP and 8th TL for district purposes, such as determining the amount and type of technology-related PD district staff require. In upcoming years, CDE will conduct a survey to formally study how many districts do continue to use the PTP and 8th TL.

The quality of any evaluation rests upon the reliability, validity, and comparability of assessments used by schools and districts. National support or increased funding to states for the creation of and implementation of assessment tools and resources would be beneficial for testing the relationships between technology funding, technology-related PD, proficiency of personnel, technology integration, and student technology proficiency. Just as Colorado developed, in collaboration with districts and field experts, PTP and 8th TL assessment and made such tools available at no charge to the districts, other technology assessment tools could be developed nationally in collaboration with states, tested for reliability and validity, and made available to states to increase the comparability of nationwide data.

The evaluation results would be improved by the collection of additional data that can be used to evaluate the impact of other aspects of the USDE's conceptual model. Specifically, collecting technology integration data would allow further testing of the logic model. Prior to the termination of the program, Colorado had started collaborating with districts to define and identify ways of measuring technology integration. However, this work was in preliminary stages and no data were available for the evaluation. Without the technology integration data, it was not possible for Colorado to test any direct effects of professional development on technology integration, the mediational effect of personnel technology proficiency, or any relationship between technology integration and student technology literacy. Collaboration among states and at the national level on the definition and measurement of technology integration would be beneficial to schools and districts, not only in identifying areas of need, but also in tracking changes in technology integration longitudinally.

Colorado's evaluation yielded preliminary results supporting the relationship between personnel and student technological proficiency. Regardless of the funding source for the work, it is important for LEAs to continue to provide professional development and technology integration, and to continue assessing student and personnel technological proficiency, in order to promote and create successful 21st Century classrooms. Nationally comparable data on technology integration,

student technology literacy, and personnel technological proficiency could inform and improve the quality of technology programs, especially if future federal funds are earmarked for such purposes.

Appendix A: District-level Allocations 2010-2011, by Funding Type

District Name	District Code	Formula 2010-2011 $ (%)	Competitive 2010-2011 $ (%)	Signed Over to BOCES	Total Allocation 2010-2011
Academy 20	1040	$ 1,722.11 (100%)	$ - (0%)		$ 1,722.11
Adams County 14	0030	$ 8,165.23 (4%)	$ 181,582.00 (96%)		$ 189,747.23
Adams-Arapahoe 28J	0180	$ 39,370.91 (100%)	$ - (0%)		$ 39,370.91
Agate 300	0960	$ 93.62 (100%)	$ - (0%)		$ 93.62
Aguilar Reorganized 6	1620	$ 359.33 (100%)	$ - (0%)		$ 359.33
Alamosa Re-11J	0100	$ 2,722.35 (100%)	$ - (0%)		$ 2,722.35
Archuleta County 50 Jt	0220	$ 1,202.12 (100%)	$ - (0%)		$ 1,202.12
Arickaree R-2	3040	$ 91.88 (100%)	$ - (0%)		$ 91.88
Arriba-Flagler C-20	1450	$ 108.87 (100%)	$ - (0%)		$ 108.87
Ault-Highland Re-9	3145	$ 290.45 (100%)	$ - (0%)		$ 290.45
Bayfield 10 Jt-R	1530	$ 325.50 (100%)	$ - (0%)		$ 325.50
Bennett 29J	0050	$ 259.54 (100%)	$ - (0%)		$ 259.54
Bethune R-5	1490	$ 151.15 (100%)	$ - (0%)		$ 151.15
Big Sandy 100J	0940	$ 378.31 (100%)	$ - (0%)		$ 378.31
Boulder Valley Re 2	0480	$ 8,412.67 (4%)	$ 199,980.00 (96%)		$ 208,392.67
Briggsdale Re-10	3146	$ 50.90 (100%)	$ - (0%)		$ 50.90
Brighton 27J	0040	$ 2,307.25 (100%)	$ - (0%)		$ 2,307.25
Brush Re-2(J)	2395	$ 631.19 (100%)	$ - (0%)		$ 631.19
Buena Vista R-31	0490	$ 359.57 (100%)	$ - (0%)		$ 359.57
Burlington Re-6J	1500	$ 444.81 (%)	$ 200,000.00 (100%)	East Central	$ 200,444.81
Byers 32J	0190	$ 227.10 (100%)	$ - (0%)		$ 227.10
Calhan RJ-1	0970	$ 260.25 (100%)	$ - (0%)		$ 260.25
Campo Re-6	0270	$ 88.20 (100%)	$ - (0%)		$ 88.20
Canon City Re-1	1140	$ 2,481.85 (100%)	$ - (0%)		$ 2,481.85
Centennial R-1	0640	$ 504.57 (100%)	$ - (0%)		$ 504.57
Center 26 Jt	2810	$ 1,938.42 (100%)	$ - (0%)		$ 1,938.42
Cheraw 31	2560	$ 157.25 (100%)	$ - (0%)		$ 157.25
Cherry Creek 5	0130	$ 15,085.28 (100%)	$ - (0%)		$ 15,085.28
Cheyenne County Re-5	0520	$ 125.13 (100%)	$ - (0%)		$ 125.13
Cheyenne Mountain 12	1020	$ 854.45 (100%)	$ - (0%)		$ 854.45
COLORADO SCHOOL DEAF/BLIND	X030	$ 538.20 (100%)	$ - (0%)		$ 538.20
Colorado Springs 11	1010	$ 24,247.16 (100%)	$ - (0%)		$ 24,247.16
Consolidated C-1	0860	$ 374.26 (100%)	$ - (0%)		$ 374.26
Cotopaxi Re-3	1160	$ 263.13 (100%)	$ - (0%)		$ 263.13
Creede Consolidated 1	2010	$ 59.30 (100%)	$ - (0%)		$ 59.30
Cripple Creek-Victor Re-1	3010	$ 173.67 (100%)	$ - (0%)		$ 173.67
Crowley County Re-1-J	0770	$ 838.06 (100%)	$ - (0%)		$ 838.06
CSI	8001	$ 2,241.86 (100%)	$ - (0%)		$ 2,241.86
De Beque 49Jt	1980	$ 96.17 (100%)	$ - (0%)		$ 96.17
Deer Trail 26J	0170	$ 112.05 (100%)	$ - (0%)		$ 112.05
Del Norte C-7	2730	$ 914.89 (100%)	$ - (0%)		$ 914.89
Delta County 50(J)	0870	$ 2,917.24 (100%)	$ - (0%)		$ 2,917.24
Denver County 1	0880	$ 124,313.63 (58%)	$ 91,795.00 (42%)		$ 216,108.63
Dolores County Re No.2	0890	$ 150.73 (100%)	$ - (0%)		$ 150.73

District Name	District Code	Formula 2010-2011 $ (%)	Competitive 2010-2011 $ (%)	Signed Over to BOCES	Total Allocation 2010-2011
Dolores Re-4A	2055	$ 390.40 (100%)	$ - (0%)		$ 390.40
Douglas County Re 1	0900	$ 3,182.71 (100%)	$ - (0%)		$ 3,182.71
Durango 9-R	1520	$ 1,414.07 (100%)	$ - (0%)		$ 1,414.07
Eads Re-1	1430	$ 78.73 (100%)	$ - (0%)		$ 78.73
Eagle County Re 50	0910	$ 1,540.73 (100%)	$ - (0%)		$ 1,540.73
East Grand 2	1350	$ 347.20 (100%)	$ - (0%)		$ 347.20
East Otero R-1	2520	$ 3,138.17 (100%)	$ - (0%)		$ 3,138.17
Eaton Re-2	3085	$ 497.06 (100%)	$ - (0%)		$ 497.06
Elizabeth C-1	0920	$ 175.03 (100%)	$ - (0%)		$ 175.03
Ellicott 22	1050	$ 727.70 (100%)	$ - (0%)		$ 727.70
Englewood 1	0120	$ 3,019.83 (100%)	$ - (0%)		$ 3,019.83
Falcon 49	1110	$ 1,582.47 (100%)	$ - (0%)		$ 1,582.47
Florence Re-2	1150	$ 1,546.05 (100%)	$ - (0%)		$ 1,546.05
Fort Morgan Re-3	2405	$ 2,059.45 (%)	$ 499,863.00 (100%)	Centennial	$ 501,922.45
Fountain 8	1000	$ 3,340.52 (100%)	$ - (0%)		$ 3,340.52
Fowler R-4J	2540	$ 422.34 (100%)	$ - (0%)		$ 422.34
Garfield 16	1220	$ 342.40 (100%)	$ - (0%)		$ 342.40
Garfield Re-2	1195	$ 1,018.92 (100%)	$ - (0%)		$ 1,018.92
Genoa-Hugo C113	1780	$ 204.20 (100%)	$ - (0%)		$ 204.20
Gilcrest Re-1	3080	$ 1,137.86 (100%)	$ - (0%)		$ 1,137.86
Gilpin County Re-1	1330	$ 71.66 (100%)	$ - (0%)		$ 71.66
Granada Re-1	2650	$ 329.77 (100%)	$ - (0%)		$ 329.77
Greeley 6	3120	$ 15,614.44 (7%)	$ 200,000.00 (93%)		$ 215,614.44
Gunnison Watershed Re1J	1360	$ 619.83 (100%)	$ - (0%)		$ 619.83
Hanover 28	1070	$ 137.89 (100%)	$ - (0%)		$ 137.89
Harrison 2	0980	$ 11,407.37 (100%)	$ - (0%)		$ 11,407.37
Hayden Re-1	2760	$ 111.60 (100%)	$ - (0%)		$ 111.60
Hinsdale County Re 1	1380	$ 68.77 (100%)	$ - (0%)		$ 68.77
Hi-Plains R-23	1460	$ 105.80 (100%)	$ - (0%)		$ 105.80
Hoehne Reorganized 3	1600	$ 90.82 (100%)	$ - (0%)		$ 90.82
Holly Re-3	2670	$ 399.50 (100%)	$ - (0%)		$ 399.50
Huerfano Re-1	1390	$ 1,080.21 (100%)	$ - (0%)		$ 1,080.21
Idalia RJ-3	3220	$ 49.60 (100%)	$ - (0%)		$ 49.60
Ignacio 11 Jt	1540	$ 695.93 (100%)	$ - (0%)		$ 695.93
Jefferson County R-1	1420	$ 36,787.12 (100%)	$ - (0%)		$ 36,787.12
Karval Re-23	1810	$ 68.80 (100%)	$ - (0%)		$ 68.80
Keenesburg Re-3(J)	3090	$ 739.61 (%)	$ 200,000.00 (100%)		$ 200,739.61
Kiowa C-2	0930	$ 36.04 (100%)	$ - (0%)		$ 36.04
La Veta Re-2	1400	$ 135.96 (100%)	$ - (0%)		$ 135.96
Lake County R-1	1510	$ 877.87 (100%)	$ - (0%)		$ 877.87
Lamar Re-2	2660	$ 1,934.45 (100%)	$ - (0%)		$ 1,934.45
Las Animas Re-1	0290	$ 835.74 (100%)	$ - (0%)		$ 835.74
Lewis-Palmer 38	1080	$ 518.68 (100%)	$ - (0%)		$ 518.68
Liberty J-4	3230	$ 66.84 (100%)	$ - (0%)		$ 66.84

District Name	District Code	Formula 2010-2011 $ (%)	Competitive 2010-2011 $ (%)	Signed Over to BOCES	Total Allocation 2010-2011
Limon Re-4J	1790	$ 258.23 (100%)	$ - (0%)		$ 258.23
Littleton 6	0140	$ 5,179.46 (100%)	$ - (0%)		$ 5,179.46
Manitou Springs 14	1030	$ 524.01 (100%)	$ - (0%)		$ 524.01
Manzanola 3J	2535	$ 471.76 (100%)	$ - (0%)		$ 471.76
Mapleton 1	0010	$ 3,859.36 (100%)	$ - (0%)		$ 3,859.36
Mc Clave Re-2	0310	$ 144.03 (100%)	$ - (0%)		$ 144.03
Meeker Re1	2710	$ 184.81 (100%)	$ - (0%)		$ 184.81
Mesa County Valley 51	2000	$ 11,481.57 (100%)	$ - (0%)		$ 11,481.57
Miami/Yoder 60 Jt	1130	$ 413.81 (100%)	$ - (0%)		$ 413.81
Moffat 2	2800	$ 475.85 (100%)	$ - (0%)		$ 475.85
Moffat County Re:No 1	2020	$ 780.70 (100%)	$ - (0%)		$ 780.70
Monte Vista C-8	2740	$ 1,060.69 (100%)	$ - (0%)		$ 1,060.69
Montezuma-Cortez Re-1	2035	$ 2,870.76 (100%)	$ - (0%)		$ 2,870.76
Montrose County Re-1J	2180	$ 4,260.98 (2%)	$ 196,472.00 (98%)		$ 200,732.98
Mountain Valley Re 1	2790	$ 380.88 (100%)	$ - (0%)		$ 380.88
North Conejos Re-1J	0550	$ 1,071.92 (100%)	$ - (0%)		$ 1,071.92
North Park R-1	1410	$ 179.54 (100%)	$ - (0%)		$ 179.54
Northglenn-Thornton 12	0020	$ 15,191.93 (100%)	$ - (0%)		$ 15,191.93
Norwood R-2J	2840	$ 134.67 (100%)	$ - (0%)		$ 134.67
Ouray R-1	2580	$ 65.88 (100%)	$ - (0%)		$ 65.88
Park (Estes Park) R-3	1570	$ 243.53 (100%)	$ - (0%)		$ 243.53
Park County Re-2	2610	$ 519.28 (100%)	$ - (0%)		$ 519.28
Pawnee Re-12	3148	$ 259.46 (100%)	$ - (0%)		$ 259.46
Peyton 23 Jt	1060	$ 293.45 (100%)	$ - (0%)		$ 293.45
Plateau Valley 50	1990	$ 294.66 (100%)	$ - (0%)		$ 294.66
Platte Canyon 1	2600	$ 335.37 (100%)	$ - (0%)		$ 335.37
Platte Valley Re-7	3130	$ 461.13 (100%)	$ - (0%)		$ 461.13
Poudre R-1	1550	$ 9,068.80 (5%)	$ 192,163.00 (95%)		$ 201,231.80
Prairie Re-11	3147	$ 29.94 (100%)	$ - (0%)		$ 29.94
Primero Reorganized 2	1590	$ 162.38 (100%)	$ - (0%)		$ 162.38
Pritchett Re-3	0240	$ 55.73 (100%)	$ - (0%)		$ 55.73
Pueblo City 60	2690	$ 21,960.73 (100%)	$ - (0%)		$ 21,960.73
Pueblo County Rural 70	2700	$ 3,452.33 (100%)	$ - (0%)		$ 3,452.33
Rangely Re-4	2720	$ 110.80 (100%)	$ - (0%)		$ 110.80
Ridgway R-2	2590	$ 113.79 (100%)	$ - (0%)		$ 113.79
Roaring Fork Re-1	1180	$ 1,861.27 (100%)	$ - (0%)		$ 1,861.27
Rocky Ford R-2	2530	$ 2,079.00 (100%)	$ - (0%)		$ 2,079.00
Salida R-32	0500	$ 823.64 (100%)	$ - (0%)		$ 823.64
Sanford 6J	0560	$ 255.40 (100%)	$ - (0%)		$ 255.40
Sangre De Cristo Re-22J	0110	$ 495.69 (100%)	$ - (0%)		$ 495.69
Sargent Re-33J	2750	$ 266.45 (100%)	$ - (0%)		$ 266.45
Sheridan 2	0123	$ 3,135.20 (100%)	$ - (0%)		$ 3,135.20
Sierra Grande R-30	0740	$ 492.26 (100%)	$ - (0%)		$ 492.26
Silverton 1	2820	$ 61.37 (100%)	$ - (0%)		$ 61.37

District Name	District Code	Formula 2010-2011 $ (%)	Competitive 2010-2011 $ (%)	Signed Over to BOCES	Total Allocation 2010-2011
South Conejos Re-10	0580	$ 652.47 (100%)	$ - (0%)		$ 652.47
South Routt Re 3	2780	$ 114.70 (100%)	$ - (0%)		$ 114.70
Springfield Re-4	0250	$ 244.54 (100%)	$ - (0%)		$ 244.54
St Vrain Valley Re 1J	0470	$ 7,731.29 (100%)	$ - (0%)		$ 7,731.29
Strasburg 31J	0060	$ 248.66 (100%)	$ - (0%)		$ 248.66
Stratton R-4	1480	$ 87.64 (100%)	$ - (0%)		$ 87.64
Summit Re-1	3000	$ 739.61 (100%)	$ - (0%)		$ 739.61
Swink 33	2570	$ 82.88 (100%)	$ - (0%)		$ 82.88
Telluride R-1	2830	$ 162.14 (100%)	$ - (0%)		$ 162.14
Thompson R-2J	1560	$ 4,933.72 (100%)	$ - (0%)		$ 4,933.72
Trinidad 1	1580	$ 1,236.67 (100%)	$ - (0%)		$ 1,236.67
Valley Re-1	1828	$ 1,453.50 (100%)	$ - (0%)		$ 1,453.50
Walsh Re-1	0230	$ 162.43 (100%)	$ - (0%)		$ 162.43
Weld County Re-8	3140	$ 1,368.42 (1%)	$ 125,000.00 (99%)		$ 126,368.42
Weld County SD Re-5J	3110	$ 589.00 (100%)	$ - (0%)		$ 589.00
Weldon Valley Re-20(J)	2505	$ 54.06 (100%)	$ - (0%)		$ 54.06
West End Re-2	2190	$ 306.86 (100%)	$ - (0%)		$ 306.86
West Grand 1-Jt.	1340	$ 201.50 (100%)	$ - (0%)		$ 201.50
Westminster 50	0070	$ 11,717.65 (100%)	$ - (0%)		$ 11,717.65
Widefield 3	0990	$ 3,582.83 (100%)	$ - (0%)		$ 3,582.83
Wiggins Re-50(J)	2515	$ 414.37 (100%)	$ - (0%)		$ 414.37
Wiley Re-13 Jt	2680	$ 174.18 (100%)	$ - (0%)		$ 174.18
Windsor Re-4	3100	$ 724.64 (100%)	$ - (0%)		$ 724.64
Woodland Park Re-2	3020	$ 936.68 (100%)	$ - (0%)		$ 936.68
Woodlin R-104	3070	$ 53.36 (100%)	$ - (0%)		$ 53.36
Wray RD-2	3210	$ 260.66 (100%)	$ - (0%)		$ 260.66
Yuma 1	3200	$ 615.83 (100%)	$ - (0%)		$ 615.83

Appendix B: Title IID Budget 3a/4a/5a Coding Assumptions and Coding Structure

The assumptions and coding structure used to guide coding of district consolidation budget information is outlined below. Given the focus on professional development activities in this report, only items coded as "Professional Development" at Level 1 were used in the evaluation, coded down to Level 2. For past years' analyses, items were coded at all six levels to provide a more detailed picture of district activities.

1. **Assumptions**
   - **a. General**
     - i. The coding structure will be used for a content analysis of IID page 3a, 4a, and 5a data in the 10-11 and 11-12 consolidated budgets.
     - ii. During the coding period, CDE will have two members separately code both the competitive and formula budgets. Any discrepancies in coding will be looked at by an additional evaluator, and narrative applications will be used to help resolve these situations.
     - iii. If a description appears to be a duplicate of another item and a review of all other variables of interest (i.e. cost, budget object, Title II Part D Budget Statutory Requirement, and district number) verifies that the description is a duplicate item, the item will be removed from analysis as a duplicate.
     - iv. The variables 'Title I Part A or Title II Part D Budget Statutory Requirement' and 'Budget Code' should be used as a first point of reference for coding level 1 as 'PD' and level 2 as 'External Consultants'. However, if the description provides information indicates that coding should be different, the description should be used to determine coding.

   - **b. Level 1 (Broad Category)**
     - i. The variable 'Title I Part A or Title II Part D Budget Statutory Requirement' will be used as a first pass in coding to determine whether Level 1 should be 'Professional Development.'
       1. If 'Title I Part A or Title II Part D Budget Statutory Requirement' = 'PD' then the description should be coded as 'Professional Development'.
       2. If 'Title I Part A or Title II Part D Budget Statutory Requirement' = 'N/A' or is blank, the description may be either 'Professional Development' or 'Other Activities'.
       3. After using 'Title I Part A or Title II Part D Budget Statutory Requirement' to inform Level coding, CDE will always refer to the description to verify coding (i.e. if the description provides information indicates coding should be different, the description should be used to determine coding).

ii. If a description contains multiple categories for Level 1 and the descriptions provide budget amounts for each category, CDE will split the budget description accordingly.
iii. When a description refers to books and manuals purchased in the absence of a particular professional development activity, the appropriate code for Level 1 is 'All Other Activities'.

c. Level 2 (What)

i. When a description is Level 1 "Professional Development", but it does not mention a particular activity, the default Level 2 category for this code will be 'Unspecified'.
ii. The following assumptions provide the appropriate coding of 'Conferences' and 'Internal Trainings/Workshops' in Level 2:
    1. If a code contains information regarding 'Internal Trainings/Workshops', and 'Conferences (Out of District)':
        a. The coder will use context from the description to determine if staff attended activities onsite or offsite.
        b. If activities are outside of a given district or the term 'conference' is used, the appropriate option for Level 2 is 'Conferences'.
        c. If a description contains information about 'workshops', and the activity takes place onsite within a school district, the appropriate option for Level 2 is 'Internal Trainings/Workshops'.
        d. If the context does not clarify whether activities took place outside of a given district, the item will be coded as 'Unspecified'.
iii. When a teacher receives a stipend to attend a training session in order to provide training for other teachers in their school district, this activity will be coded as 'Internal Trainers' in Level 2.
iv. When a description mentions extra duty pay, the appropriate code for Level 2 is 'Internal Trainers'.
v. Descriptions accompanied by '0300' in the object code should have 'External Consultant' in Level 2 of the coding structure unless the description indicates otherwise.
    1. Descriptions that have been split to code various professional development activities do not all have to be coded to correspond to the object code '0300' External Consultant.
    2. If the description provides information indicating that coding should be different, the description should be used to determine coding.
vi. If a description appears to mention what seems like an external consultant the coder will verify if the budget object code contains (0300). If the budget code is for employee benefits (0200), this description should be coded as 'Internal Trainer'.

Title IID Budget Item Coding Structure

Level 1	Level 2	
Broad Category	**What**	
Professional Development	Internal Trainers, External Consultant, Internal Trainings/Workshops, Conferences (Out of District), Multiple Categories,	Online (Software-driven), Unspecified, Supplies, Subscriptions/Licenses
All Other Activities	Software, Hardware (Infrastructure)/Network Equipment (Servers, Routers, Hubs), Subscription/Licenses, Supplies, Charter Schools, Other Activities, Carryover Funds , Personnel, Multiple Categories, Unspecified, Computer,	Projector, iPod, Camcorder (Video Camera), Palm Pilot (PDA), Interactive White Board, Student Responses Systems (Clickers), Televisions/Monitors, Document Camera, Computer Accessories (Speakers, Headphones, External Drivevs), Mobile Carts
Unspecified	Unspecified, Supplies	
Program Evaluation	External Evaluator, Internal Evaluator	

Appendix C: District-level Student Technological Literacy Assessment 2009-2011

District Name	District Code	Assessment Type 2009-2010	Assessment Type 2010-2011
Adams County 14	0030	Online Assessment Program	Unknown
Adams-Arapahoe 28J	0180	Online Assessment Program	Unknown
Boulder Valley Re 2	0480	Program Based	Program Based
Brighton 27J	0040	Program Based	Online Assessment Program
Burlington Re-6J	1500	Unknown	Performance Based
Centennial R-1	0640	Online Assessment Program	Unknown
Colorado Springs 11	1010	Online Assessment Program	Online Assessment Program
Denver County 1	0880	Online Assessment Program	Online Assessment Program
Douglas County Re 1	0900	Online Assessment Program	Online Assessment Program
Eagle County Re 50	0910	Online Assessment Program	Online Assessment Program
East Otero R-1	2520	Program Based	Unknown
Edison 54 Jt	1120	Online Assessment Program	Unknown
Fort Morgan Re-3	2405	Online Assessment Program	Online Assessment Program
Greeley 6	3120	Online Assessment Program	Unknown
Harrison 2	0980	Online Assessment Program	Online Assessment Program
Huerfano Re-1	1390	Online Assessment Program	Online Assessment Program
Jefferson County R-1	1420	Other	Online Assessment Program
Keenesburg Re-3(J)	3090	Unknown	Online Assessment Program
Littleton 6	0140	Program Based	Program Based
Monte Vista C-8	2740	Online Assessment Program	Other
Montrose County Re-1J	2180	Online Assessment Program	Unknown
Poudre R-1	1550	Program Based	Unknown
Weld County Re-8	3140	Program Based	Portfolio

Appendix D: References

U.S. Department of Education, Evaluation of the Enhancing Education Through Technology Program: Final Report, 2009, submitted to the U.S. Department of Education Office of Planning, Evaluation and Policy Department Policy and Program Studies Service by SRI International