Illinois
Enhancing Education
through Technology

Evaluating Progress Integrating Technology

Illinois Enhancing Education through Technology (EETT) Evaluation Brief

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Executive Summary

This evaluation brief summarizes the final evaluation of the Illinois Enhancing Education through Technology (EETT) state, ARRA, and SRTT grants, 2009-2011. The evaluation represented a mixed methods framework that incorporated test, survey, observation, performance tasks, and case study data for the conclusions. The results of the evaluation indicated that, generally speaking, there were not differences across grant types (note that a few districts had grants across programs) in the quality of the technology integration. Most of the Illinois districts were categorized at the level of "Meets" with a few districts achieving the "Fully Integrates" level of implementation. There were no districts categorized at the "Developing" level of technology implementation.

Predictive models for student performance task scores indicated that content area, purpose of the project (entertain, inform, interact, persuade, reflect),gender, grade, grade by collaboration type interaction, and aggregated stakeholder attitudes and practices were significant variables in the model.Reliability estimates between district raters and external raters were low. More study is needed to discern the impact of these differences on the true score interpretation. For 5th grade proficiency tests, the type of EETT grant, gender, and aggregated stakeholder attitudes and practices were significant predictors of the weighted total score. For the 8th grade proficiency test scores, the type of EETT grant, gender, and aggregated stakeholder attitudes and practices were significant predictors of the weighted total score.

Tests of fixed effects for ISAT mathematics showed the test waves, grant type, interaction of grant type and test wave, cohort grade level, interaction of cohort grade level and time, and teacher attitudes and practices were significant indicating these factors are important factors for explaining the variation in students' mathematics achievement. Tests of fixed effects for ISAT reading showed the test waves, grant type, interaction of grant type and test wave, cohort grade level, interaction of cohort grade level and time and student technology use survey results were significant indicating these factors are important factors for explaining the variation in students' reading achievement. Missing data concerns eliminated certain covariates from analyses. While the final adopted models reveal important relationships, causality is not suggested or tested.

The multi-tiered state support model was very successful in promoting the implementation fidelity of the evaluation activities. Participating districts completed on average 85% of the data collection requirements of the grant (includes performance products and surveys across students, teachers, principals, and district staff). Implementation fidelity was consistent across grant types with ARRA grants completed 77%, EETT completing 79%, and SRTT completing 82% of evaluation requirements on average.

Case study analyses indicated that student and teacher access to technology increased in all site visit schools. In all districts, many teachers were observed regularly using technology in instruction. However, a majority of the observed instruction was teacher-led in nature, including use of instructional systems such as interactive whiteboards and clickers. A greater degree of student-led instruction was observed in the districts that had implemented a one-to-one computing program. However, in most districts a very limited number of teachers were observed implementing advanced technology integrations that supported achievement of key student learning outcomes. Districts, grant leaders, and teachers that set high expectations for student digital products appeared to generate the strongest products and student results. Several districts effectively generated parental awareness and support through online access from home to digital student products, or presentations by students at popular community events. Grant leadership significantly affected project outcomes. Grant planning and implementation appeared most effective when the grant leader had strong knowledge of technology integration and curriculum development, in addition to knowledge of technology operations.
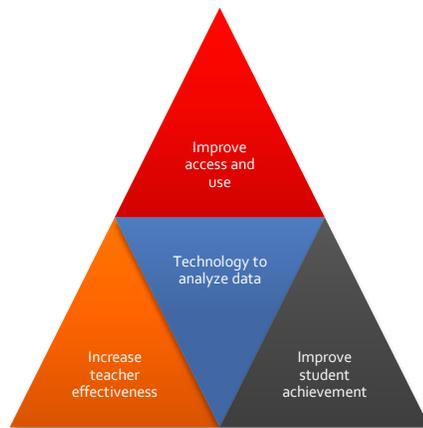
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Purpose of the Evaluation

The purpose of the Illinois EETT state evaluation was to conduct rigorous evaluation of the effectiveness of Title II, Part D competitive grant-funded projects, activities and strategies in integrating technology into curricula and instruction, and to identify effective practices that can be widely replicated by other LEAs in Illinois.

Activities

The Illinois EETT evaluation focused on the progress of the 70 grants toward state level Title II-D and ARRA technology goals. The evaluation was intended to produce tools for EETT and other Illinois State Board of Education (ISBE) programs to build implementation fidelity as well as produce clear statements to guide policies related to technology integration. By improving the capacity of local education agencies (LEAs) to monitor, support, and implement technology initiatives using the statewide data portal and providing new state level functionality for special program reporting, the Illinois EETT evaluation provided benefits at both the local and state levels.

Improve access and use

Technology to analyze data

Increase teacher effectiveness

Improve student achievement

FUNDED ACTIVITIES

▲ CONTENT

English Language Arts, mathematics, and science are the most common content focus across all of the grants

▲ NETS GOALS

Based on grantee logic models, NETS for administrators, teachers, and students are targeted across most grants similarly. Visionary Leadership (for administrators) is a focus for most of the ARRA-SRTT grants and fewer grants focus on digital citizenship for administrators, teachers, and students

▲ ASSESSMENT TOOLS

Most grants have targeted the state tests in their goals for assessment. There is some variability across the grant types related to the focus on formative assessment, RtI systems, and skills assessment

▼ PD FOCUS

ARRA grants are training somewhat less on formative assessment than the EETT and ARRA-SRTT grants. All three grants have a strong focus on technology skill development and peer collaboration.
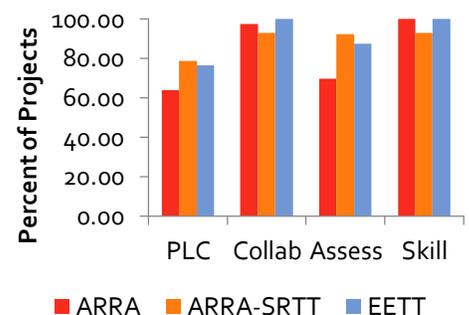
Methodology

Approach. The EETT evaluation plan for managing the data collection and meeting the three Illinois Enhancing Education Through Technology (EETT) project goals leverages resources from the Illinois Data Portal (IDP) and aligns them with Illinois EETT, EETT ARRA, and other state initiatives, including the Partnership for 21st Century Skills.
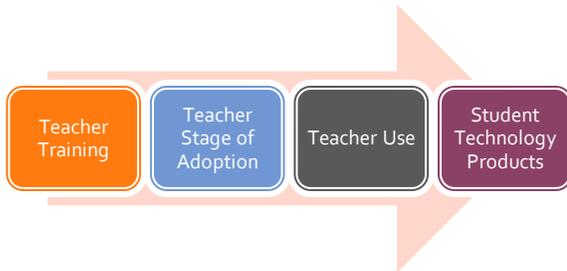
Working in partnership with the Area 5 Learning Technology Center, the EETT evaluation provided intensive training to support the use of the Illinois Data Portal and promote implementation fidelity by EETT grantees while LEAs execute the evaluation framework.

The evaluation data collected through the Logic Model, Action Plan, IDP and Lesson Plan/Student Product analyses was used to address the state and federal reporting requirements for the Illinois EETT program. This report reflects the longitudinal assessment of growth in reaching the program goals.

Tech PD Activities

Percent of Projects

100.00
80.00
60.00
40.00
20.00
0.00

PLC   Collab   Assess   Skill

■ ARRA   ■ ARRA-SRTT   ■ EETT

CASE STUDY MODEL OF TECHNOLOGY INTEGRATION AND OUTCOMES

Teacher Training → Teacher Stage of Adoption → Teacher Use → Student Technology Products

The EETT evaluation also incorporated the development of nine case studies of EETT grantees using classroom observation, interviews, and reviews of extant data.
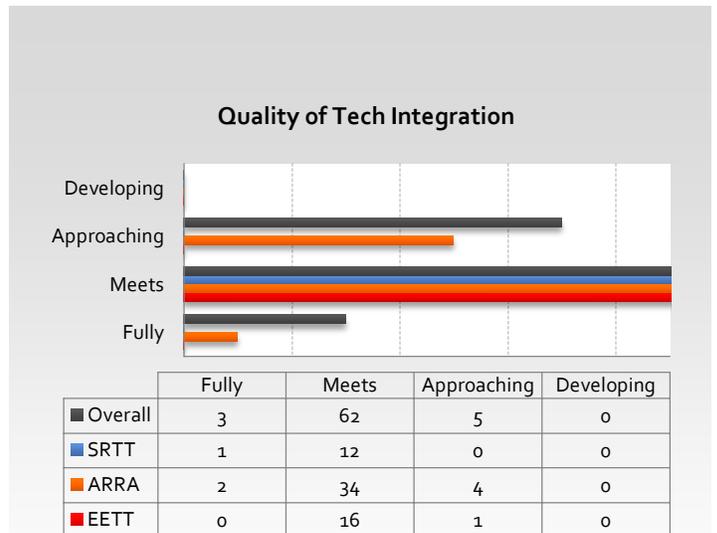
Results & Recommendations

What are model practices and lessons learned that can inform policies in general from the EETT program?

Technology Integration and Support

1. What is the quality of the technology integration and support as measured by teacher, administrator, parent, and student surveys, classroom observations, and lessons focused on student technology products?

Generally speaking, there were not differences across grant types. Most of the Illinois districts were categorized at the level of "Meets" with a few districts achieving the "Fully Integrates" level of implementation. There were no districts categorized at the "Developing" level of technology implementation.

Overall, districts from all of the grants (EETT, ARRA, and SRTT) demonstrated moderately strong technology integration in terms of parents', community members', and principals' reflections on technology integration as well as the articulation and implementation of technology policies and procedures. SRTT grant teacher, students, and community stakeholders reported the strongest technology integration. Grantees were moderately strong in terms of teachers' and students' attitudes and uses of technology. Parents from EETT grant districts were largely positive in their attitudes and experiences with the technology implementation in their districts. Responding community members were also positive about technology integration. At the district level, the state of the policies and procedures was moderately strong. At the building level, responding EETT grant principals reported generally strong attitudes. Responding EETT grant teachers were moderately positive about the overall levels of technology implementation.

Quality of Tech Integration

|	Fully	Meets	Approaching	Developing
Overall	3	62	5	0
SRTT	1	12	0	0
ARRA	2	34	4	0
EETT	0	16	1	0

Predicting Student Outcomes

Reliability estimates between district raters and external raters were low. More study is needed to discern the impact of these differences on the true score interpretation.

Task Quality

Both students and teacher rated the quality of the student technology product highly across most indicators. On average, more teachers agreed or strongly agreed that students were able to make important decisions, collaborate, use information carefully, and use technology as needed in their products. The biggest discrepancies were in the value of collaboration (teachers valued it more frequently than students).

Predictive Models for Performance Product Scores

The type of EETT grant, grade level, collaboration type (individual, paired, or small group) were significant predictors of performance product scores for both external and district rater models. For external raters, content area, and purpose of the project (entertain, inform, interact, persuade, reflect) were also significant variables with the total external rater model accounting for 18.1% (Adjusted R^2) of the variance in the weighted scores overall.
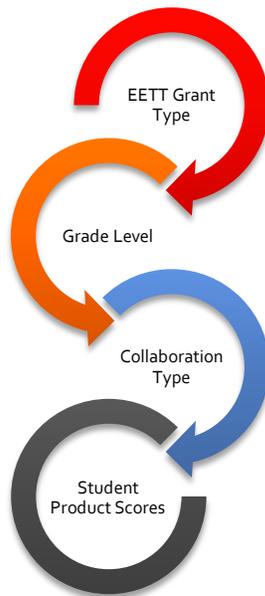
For the district model, gender, grade by collaboration type interaction, and aggregated stakeholder attitudes and practices were also significant variables with the district rater model accounting for 8.0% (Adjusted R^2) of the variance in the weighted scores overall.

For these products, districts with ARRA and SRTT grants were scored the highest by their district raters and SRTT grants were scored the lowest. Female student product scores were higher than male students. Middle schoolers' products scores (5th, 6th, and 7th graders) were rated the lowest overall grades. Products incorporating Art/Music and Health were rated the highest. Products that included the purposes of entertaining were scored highest of all purposes.

Missing data concerns eliminated testing the individual stakeholder survey data. In order to include elements of technology implementation without eliminating districts, the aggregate percentage of responses used to classify districts for the EDEN codes were used in the analyses. This variable is more generalized with less explanatory power. While the final adopted models reveal important relationships, causality is not suggested or tested. It is also important to consider that lower product ratings could indicate districts with more scrutiny of the products.

Proficiency Test Scores

Univariate general linear models were produced separately for 5th and 8th grade proficiency tests to examine the relationship between grant level, district level, and student level variables on the total score. The type of EETT grant, gender, and aggregated stakeholder attitudes and practices were significant predictors of the weighted total score for 5th graders, accounting for 4.1% (Adjusted R^2) of the variance in the weighted scores overall. The type of EETT grant, gender, and aggregated stakeholder attitudes and practices were significant predictors of the weighted total score for 8th graders, accounting for 4.1% (Adjusted R^2) of the variance in the weighted scores overall. Missing data concerns eliminated testing the individual stakeholder survey data. In order to include elements of technology implementation without eliminating

districts, the aggregate percentage of responses used to classify districts for the EDEN codes were used in the analyses. This variable is more generalized with less explanatory power. While the final adopted models reveal important relationships, causality is not suggested or tested.

State Test Scores

Three years (2009, 2010, and 2011) of scale scores for Illinois Standardized Achievement Test (ISAT) data were analyzed for EETT participants to describe growth before and during the grant period. Longitudinal linear models were tested with grant, district, and student level factors and covariates. Content area of students' technology products were used to identify students for analyses in reading, mathematics, and science.

Nested linear models (students nested in districts) were tested to explore the relationships between program variables (EETT grant), district variables (teacher, principal, and district level policy implementation technology attitudes and practices aggregate survey responses), cohort grade level, and grade level interacting with time for student achievement (in reading, mathematics, and science separately) for three years for EETT student participants.
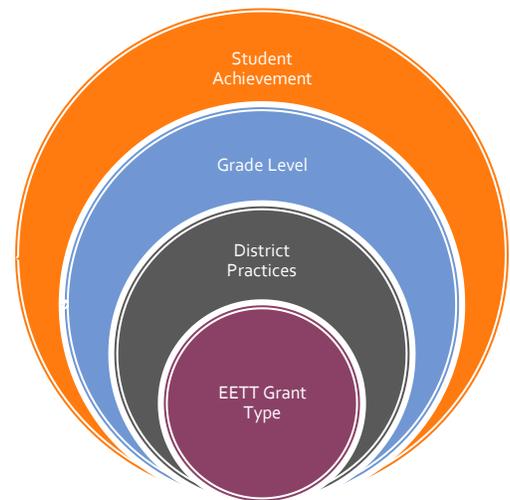
Mathematics

Tests of fixed effects showed the test waves, grant type, interaction of grant type and test wave, cohort grade level, interaction of cohort grade level and time, and teacher attitudes and practices were significant indicating these factors are important factors for explaining the variation in students' mathematics achievement. Results indicated that mathematics scale scores in Year 3 (2011) were significantly higher than Years 1 and 2. ARRA, SRTT, and ARRA+SRTT grant scores were significantly higher than EETT grants. All the grant types showed significant growth from Year 1 to Year 3. ARRA grants showed the greatest change from Year 1 to Year 3. All grade cohorts (5th-8th) showed significant gains from 2009 to 2011. Change in mathematics scale scores from 2009 to 2011 were greater for 5th and 6th grade level cohorts. Higher percentages of teachers who agreed or strongly agreed with survey questions about technology practice, skill and use with were associated with higher mathematics scores.

Reading

Tests of fixed effects showed the test waves, grant type, interaction of grant type and test wave, cohort grade level, interaction of cohort grade level and time and student technology use survey results were significant indicating these factors are important factors for explaining the variation in students' reading achievement. Results indicated that reading scale scores increased significantly from Year 1 to Year 3 (2011). EETT, ARRA, and ARRA+SRTT grant scores were significantly higher than SRTT Only grants. All the grant types showed significant growth from Year 1 to Year 3. This difference was largest for EETT grants. Students were assigned to cohorts based on their grade level during the last year of the EETT program. All grade cohorts showed significant gains from 2009 to 2011. Changes in reading scale scores from 2009 to 2011 were higher for fifth and sixth grade level cohorts. The percent of students who agreed or strongly agreed with survey questions about technology skill and use had a very small, negative relationship with reading scores.

Missing data concerns eliminated policy implementation covariate from the analyses for mathematics. Some students who participated in projects that included mathematics or language arts did not have data for their districts so including the variables in the model would result in the exclusion of student data at the district level. While the final adopted models reveal important relationships, causality is not suggested or tested.

Implementation Fidelity

3. How has the state support impacted the implementation fidelity across grants?

The Illinois EETT model employed three levels of monitoring at the state level to improve the implementation fidelity across grantees. At the level closest to the district contacts, one of three ISBE program consultants was assigned to monitor the fiscal and program evaluation activities of the districts. These consultants used reports generated from the Illinois Data Portal to track the data collection activities at the district and grant program levels. In addition, program consultants completed monitoring visits for a brief view of technology implementation by the districts. At the next level, one ISBE program consultant was designated to monitor and support all of the evaluation requirements of the Illinois EETT program with special focus on the ARRA and SRTT reporting requirements. Finally, an external evaluation staff supported both levels of ISBE program consultants to provide technical and progress reporting support throughout the data collection period. The multi-tiered support model was very successful in promoting the implementation fidelity of the evaluation activities. Participating districts completed overall 85% of the data collection requirements of the grant (includes performance products and surveys across students, teachers, principals, and district staff). Implementation fidelity was consistent across grant types with ARRA grants completed 77%, EETT completing 79%, and SRTT completing 82% of evaluation requirements on average.

Lessons Learned

Student and teacher access to technology increased in all site visit schools. In the majority of schools, staff members were pleased with the technology support provided by grant coordinators, technology support staff, and colleagues. In all districts, many teachers were observed regularly using technology in instruction. However, a majority of the observed instruction was teacher-led in nature, including use of instructional systems such as interactive whiteboards and clickers. A greater degree of student-led instruction was observed in the districts that had implemented a one-to-one computing program. However, in most districts a very limited number of teachers were observed implementing advanced technology integrations that supported achievement of key student learning outcomes.

Professional development systems typically included training in basic technology integration, including use of new grant-funded technologies; training in advanced, student-centered technology integration, including student digital products; training in research-based curriculum models; training in outcomes-based assessment; and training in development of curricular units designed to facilitate student-centered learning around key learning outcomes, as demonstrated and assessed through student digital products. Only a few districts addressed every component.

Many districts sought to incorporate peer teacher leaders into their training and support models. Teacher leaders were used effectively when their peers recognized them as experts and were willing to seek their help. Train-the-trainer models worked best when they followed the organic structure of each school and teachers were selected by peers.

CASE STUDY RESULTS

Results suggest increased student and teacher access to technology, and teacher engagement in professional development related to technology use and integration. Despite the professional development and support provided by technology staff and peers, the majority of the observed technology use was at the Adoption (Low) level, with a minority at the Adaptation (Medium) level. Teachers used document cameras and Smart Boards to present information and incorporated this technology into existing lessons and activities rather than significantly changing their teaching strategies. Student technology products were most often Power Point presentations, slide shows, or movies. In few cases did student products require higher-level engagement with technology.

Peer networking was another important source of learning and support. Some districts formally encouraged peer networking through release time or common planning periods. Training in basic uses of technology and new technologies appeared straightforward and fairly effective. However, training and support of teacher cohorts in technology integration and curriculum development was more challenging to provide, and had mixed results. Additional training, including refresher trainings in advanced technology integration and in development of research-based curricular units, might increase the number of teachers who successfully implement high-level technology integration.

Sustained support is also needed, as teachers refine their technology integration skills over time through repeated classroom integrations. The majority of districts had implemented school wide assessments and parent portals prior to receipt of the grant. Some districts demonstrated effective methods for sharing student progress information with parents via online parent portals.

Districts, grant leaders, and teachers that set high expectations for student digital products appeared to generate the strongest products and student results. Several districts effectively generated parental awareness and support through online access from home to digital student products, or presentations by students at popular community events. Grant leadership significantly affected project outcomes. Grant planning and implementation appeared most effective when the grant leader had strong knowledge of technology integration and curriculum development, in addition to knowledge of technology operations.

Recommendations

What are model practices and lessons learned that can inform policies in general from the EETT program? (See also How Can SEAs Use Digital Technologies in Support of Education Reform? A White Paper: 2009-2011 Statewide Evaluation of the Illinois EETT Program).

The external evaluation of the Illinois EETT statewide program revealed the challenges for rural, suburban and urban schools involved in moving beyond basic technology integration to transformational technology use and provides a lens to consider issues related to effective support of state-level education initiatives. The state EETT program laid out a coherent model for staff development leading to technology-enabled learning, including the development and assessment of student digital products to reflect deep learning. Most grantee districts made earnest efforts to implement the model in practice. Widespread technology integration was observed, and competent instruction with technology was often seen. But highly effective technology integration focused on deeper learning and student artifacts that demonstrate such learning was only seen occasionally within the short (1- to 2-year) district grant timeframes. SEAs need to execute administrative overview effectively to foster more consistent and integrated implementation of grant-funded programs. This is key to leveraging resources and achieving broader program goals.

Acknowledgements