A Mixed Method Case Study Evaluation Model for the WV Technology Integration Specialist (TIS) Program
Introduction and Purpose

The Technology Integration Specialist (TIS) program is intended to provide and coordinate appropriate professional development activities for all teachers and administrators on a school level basis so that they may become proficient in the delivery of 21st Century Learning. The TIS is an individual who assists schools by modeling, coaching and mentoring teachers in using statewide technology resources to meet West Virginia’s Content Standards and Objectives. The TIS also assists in the implementation of county and school technology plans and in the implementation of other county and school software applications. The West Virginia Department of Education (WVDE) piloted the TIS program through Title IID technology funds provided by the United States Department of Education (USDE). The program has now been expanded to include Library Media Specialists, Special Educators, Title I teachers, Career Technical Education teachers and county/school-based TISs who are supported through local/county funds.

Some of the roles of a TIS, as stated in the TIS Assurance Statement and Agreement, include:

- Participate in and successfully complete 40 days (320 hours) of required professional development (including both online and face-to-face sessions);
- Use acquired technology integration skills to improve instruction for both students and educators;
- Use enhanced knowledge and skills to build effective consultative and co-teaching\(^1\) relationships with all teachers;
- Utilize collaborative planning time to assist in integrating technology into the instructional units being planned by teachers;
- Serve as a resource to educators on technology integration, as appropriate, in the implementation of information literacy, independent learning and social responsibility;
- Communicate the importance of developing 21\(^{st}\) Century Skills for all students, including those with disabilities, to improve academic achievement and post-secondary outcomes; and
- Continue to teach students and educators in West Virginia public schools as a TIS in consultative and co-teaching relationships for two years after completion of the 40 days of required professional development (explicitly stated for three of the TIS cases: Title I, CTE, LMS).

Participants in the TIS initiative receive a laptop for their school from WVDE and additional technology resources including white boards, LCD projectors, scanners and color printers from their county office. In addition to these resources, participants receive the equivalent of 40 days (320 hours) of professional development and a $5,000 grant to help defray the costs of the required professional development. Grant funds can be used to pay the costs for stipends, substitute teachers, travel expenses, conference registration fees and other costs associated with the teachers’ participation in the required professional development. Upon completion of the program, participants may apply for a credential in instructional technology integration awarded by the WVDE Office of Professional Preparation.

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\(^1\) The TIS program utilizes Murawski’s (2003) definition of co-teaching: “When two professionals co-plan, co-instruct and co-assess a diverse group of students in the same general education classroom.”
Evaluation Design:

The Office of Assessment, Accountability and Research (OAAR), in collaboration with the Office of Instructional Technology, Office of Special Programs, Extended and Early Learning and the Office of Career and Technical Instruction has developed an evaluation model to assist the WVDE in determining the impact that the TIS program has had on selected applicants (TISs), participating schools, teachers and students. This proposal outlines the evaluation questions, methodology, methods of data collection, data analysis and reporting. Furthermore, this document proposes a timeline for conducting the evaluation during its first year (i.e., school year 2010-2011).

In its essence, the TIS program is a professional development initiative that aims to have an ultimate impact on student achievement. Thomas Guskey (2000) advocated a five level model for the evaluation of professional development programs that target student outcomes. Level One, Participant Reactions, refers to the extent to which participants find the professional development to be of adequate quality, relevance, and usefulness. It is typically measured via event evaluation forms or interviews. Level Two, Participant Learning, acknowledges that participants must effectively learn the intended information in order for the program to create the intended change. Participant Learning is typically measured using surveys or knowledge tests. Level Three, Organizational Support and Learning, assesses the extent to which key stakeholders (e.g., school administrators and district staff) provided adequate support for the initiative. Level Four, Participant Use of New Knowledge and Skills, acknowledges that participants must actively use the information they have gained with fidelity in order to create the intended change. It is typically measured using observation checklists, rubrics, or a variety of other methods. Level Five, Student Learning Outcomes, deals with documenting the extent to which the program results in increased student achievement.

Evaluation Questions

The OAAR has proposed 6 overarching evaluation questions that are aligned with Guskey’s (2000) model described above. These questions will be used as a framework to guide the examination of each TIS case. They are as follows:

**EQ1** To what extent is the training that is provided to participating TISs of adequate quality, relevance, and usefulness? [Guskey Level 1]

**EQ2** To what extent does the TIS program build the capacity of participating TISs to plan and facilitate: (a) teaching and learning, (b) information access and delivery and (c) program administration? [Guskey Level 2]

**EQ3** To what extent do TISs encounter barriers to successful program implementation (e.g., financial, temporal, relational, etc.)? [Guskey Level 3]

**EQ4** To what extent is the level of technology integration in TIS schools positively impacted through participation in the program? [Guskey Level 4]

**EQ5** In what ways have school administrators and teachers leveraged the TIS and the resources provided by the TIS? [Intermediate]

**EQ6** What impact, has the TIS program had on student’s technology literacy in participating schools? [Guskey Level 5]
Methodology

The OAAR proposes to conduct a mixed method descriptive case study evaluation of the impact of the TIS program. A multi-case study design will be utilized due to the presence of multiple TIS cases. Each case will receive its own individual evaluation. However, each evaluation will use the same methodology (see Appendix A). Individual case summaries will be completed for each of the TIS cases (i.e., Library Media Specialists, Special Education, Career Technical Education, Title I and County/School-based), and a cross-case summary will be completed to summarize cohesive themes that span the cases.

The case study design described above is adequate to address evaluation questions one through five, but not to address evaluation question six. To address this question, evaluators will employ a single-group quasi-experimental research design. Shadish, Cook, and Campbell (2002) noted that such designs are appropriate in instances where randomization is not possible or where “assignment to conditions is by means of self selection” (p. 14). Such is the case for the TIS initiative, where schools are included through the voluntary participation of their TIS.

Methods of Data Collection

This evaluation is referred to as “mixed-method” because it will employ a variety of methods of data collection (e.g., surveys, interviews, document review, and extant data). It is posited that such designs are methodologically superior to simpler designs because the weaknesses inherent in each method of data collection are counterbalanced by the strengths of others (Tashakkori & Teddlie, 2003). The following section presents these methods and describes how they will be deployed throughout the course of the project.

TIS Surveys - TIS surveys will be an annual assessment of each TIS’s capacity to meet program goals. These goals include planning and facilitating teaching and learning, information access and delivery and program administration at their assigned schools/sites.

Survey items measuring TIS capacity to plan and facilitate teaching and learning will assess the TISs’ ability to:

- Model the integration of technology in all curriculum areas;
- Assess the learning and information needs of students and school staff;
- Aid in the development of lesson plans that integrate technology into instruction; and
- Conduct staff development in the area of technology integration.

Survey items measuring TIS capacity to plan and facilitate information access and delivery will assess the TISs’ ability to:

- Implement best practices related to technology use in the school;
- Provide access to technology resources and services to those who require them;
- Select appropriate instructional resources that are compatible with school technology infrastructure;
- Assist with the design of the school’s technology infrastructure to ensure the availability of information resources; and
Adhere to and communicate the laws and guidelines pertaining to the distribution and ethical use of all technology resources.

Survey items measuring TIS capacity to plan and facilitate program administration will assess the TISs' ability to:

- As applicable, develop, implement and update a school instructional technology plan aligned with the county-level technology plan;
- Collaborate with school staff and students to evaluate and select resources addressing curricular needs and learning goals;
- Assist the school in budgeting for the instructional technology program to support school-wide goals; and
- Evaluate the effectiveness of the instructional technology program.

Training Logs/Sign In Sheets - A review of key project documents such as enrollment logs and professional development session agendas will be collected and reviewed, as appropriate, by the evaluation team. These forms will be utilized as evidence for EQ1.

Training Feedback - Evaluators and project staff will co-develop feedback surveys to be distributed to participating TISs following each of the face-to-face professional development modules. These surveys will share a common core of items that assess the quality, relevance and usefulness of training. However, additional customized items will be developed and added to each survey to help determine the extent to which each session met its unique goals. Surveys will also solicit recommendations for improving future training events. These surveys will be used as evidence to address EQ1.

TIS End-of-Year Interview – At the end of each program year, a sample of TISs from each case will be asked to participate in a voluntary interview with program staff. Interview items will ask TISs to discuss how what they have learned about planning and facilitating teaching and learning, information access and delivery and program administration. Furthermore, TISs will be asked how they have worked with school administration and teachers in their school to positively impact technology integration, increase access to technology hardware, and share their new knowledge and skills with others in the school. The interview will ask each participating TIS to discuss what they have gained from their participation in the statewide professional learning community with other TISs. Items will also assess the presence of organizational facilitators or barriers to successful implementation (e.g., technology resources/infrastructure, leadership support, etc.). Researchers will also gather participants’ suggestions/comments about potential modifications to the program. Results from these interviews will be used as evidence to address EQs 3 and 4.

School Administrator Pre-/Post-Survey – The school administrator survey will be administered twice annually to assess the extent to which schools have utilized the services of the TIS. During the pre-survey administration, administrators will be asked to respond to items in a prospective manner concerning how they anticipate they will use TIS services and provide a current rating of technology integration in their school. Administrators will also be asked to provide a descriptive account, via open-ended survey items, of the ways in which teachers can benefit from having access to a TIS. For the post-survey,
administrators will be asked to provide a retrospective assessment of TIS services and a current rating of the level of technology integration at their schools. Administrators will also be asked to provide descriptive accounts, via open-ended survey items, of the ways in which teachers have utilized the TIS to accomplish program goals and how they believe the TIS program has impacted teachers and students. On both surveys, researchers will also include items to determine perceived facilitators and barriers to program success. The data from this survey will be used as evidence to address EQs 3, 4, and 5.

**Teacher Pre-/Post-Survey** – A teacher survey will be developed and disseminated at participating schools twice annually to determine the extent to which teachers integrate technology in their instruction and to identify teacher expectations surrounding the use and utility of TIS services. The pre-survey will provide a baseline measure of technology integration and a prospective account of how teachers anticipate utilizing TIS services. The post-test survey will provide comparison measure of technology integration among teachers in participating schools, as well as a retrospective account of how TIS services were used during the academic year. On the post-test surveys teachers will be asked to provide examples of the ways that they have worked with the TIS to increase access to technology hardware and suggestions regarding ways to facilitate or improve the quality of consultative interaction and co-teaching with the TIS. Survey responses will be used as evidence to address EQs 4 and 5.

**Student Pre-/Post-Survey** – Researchers will draw upon available instruments to determine the extent to which students use technology in the classroom. The pre-survey will provide a baseline measure of student’s technology use during the previous academic year. The post-test survey will provide a comparison measure of technology use among students in participating schools during the academic year. Survey responses will be used as evidence to address EQ6.

**TechSteps:** Evaluators will collect TechSteps data for TIS schools and their respective parent districts at two points in time each year. Baseline data for each TIS school will be drawn for the school year prior to participation in the TIS program. Post-assessment data will be drawn at the end of the school year during which the school was assigned a TIS.

Evaluators will collect TechSteps usage statistics, cumulative TechSteps attainment scores for each TIS school, and information regarding the average performance of students in TIS schools relative to the following domains of technology literacy: (a) Communication and Collaboration, (b) Research and Information Fluency, (c) Critical Thinking, Problem Solving, and Decision Making, (d) Digital Citizenship, and (e) Technology Operations and Concepts. This information will serve as a pre- and post-assessment of the extent to which schools used TechSteps during the year they had a TIS and increased students’ cumulative knowledge of related CSOs and the 21st Century Learning Skills and Technology Tools. These data will be used to address EQ6.
Data Analysis

Evaluators will utilize both quantitative and qualitative data analysis techniques to address EQs 1 – 6. The following section provides a broad overview of the analytic techniques that will be used for student achievement data and other program impact data.

Quantitative: Evaluators will conduct statistical analyses of quantitative data. For all survey items, descriptive statistics including frequencies (i.e., percentages) and measures of central tendency and dispersion (i.e., means and standard deviations) will also be calculated and interpreted. Furthermore, tests of statistical significance will be conducted for all pre-/post-assessments. The time of administration will serve as the independent variable in these analyses and scores on each instrument will serve as dependent variables. The change in TechSteps usage and the average cumulative TechSteps attainment scores for each TIS school will also be calculated. This information will be presented descriptively for each TIS school, aggregated for each TIS case and for each of the TIS parent districts as a point of comparison.

Qualitative: Qualitative data will be organized and coded according to broad themes. Subthemes will be identified and explored. These findings will be described in a narrative form and compared/contrasted with quantitative findings when appropriate.
Reporting

Evaluators will provide a summative evaluation report on the progress of the project at the end of each year. Periodic updates will be made available throughout the project to ensure that formative data are utilized to make adjustments to the program. Individual case reports will be aggregated into a broader cross-case summative report to provide a holistic picture of program impact.

**Project Timeline**

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<th>Task</th>
<th>Date</th>
<th>Lead Party</th>
<th>Supporting Party</th>
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<tr>
<td>Quarterly Meeting</td>
<td>January 2010</td>
<td>Program Staff*</td>
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<td>Cohort Identification</td>
<td>March-June 2010</td>
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<td>Quarterly Meeting</td>
<td>April 2010</td>
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<td>Orientation</td>
<td>May 2010</td>
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<td>Training on WV Learns (with relevant training feedback)</td>
<td>May and ongoing 2010</td>
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<td>July 2010</td>
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<td>July 6-7, 2010</td>
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<td>Statewide tech conference (with relevant training feedback surveys)</td>
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<td>Post-Survey Administration (Teacher, Student, Administrator)</td>
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<td>Acquire training logs/sign-in sheets</td>
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*Program staff include staff from all relevant offices, including Office of Instructional Technology, Office of Special Programs Extended and Early Learning, Office of Assessment, Accountability, and Research (Accountability), and Office of Career and Technical Instruction.
Appendix A - Unified Evaluation Model for the TIS Program