Title II-D Ed Tech Grant
Action Plan

Grant Activities

Upon approval of the grant, the Project Director (PD) will recruit and select TLT members. Potential members will include 3rd and 4th grade elementary teachers, middle and high school language arts, social sciences, and math teachers. All participants will be required to sign a memorandum of agreement (MOA) outlining their duties, responsibilities and time commitments to the projects. The MOA will also outline equipment and stipends that the participants will receive.

The PD will acquire the hardware, software, and online resources as outlined in the Budget Narrative. Equipment will be configured and software installed during the spring and summer. All technologies will be ready for distribution and use at the five-day Summer Institute that runs August 23-27. The PD will also work with our partners, OWP (a component of the University of Oregon's Center for Advanced Technology in Education—CATE) and LESD to develop the Summer Institute and ongoing staff development activities. Our partners will provide high quality training resources and personnel to assist in unit development and assessment methods.

The week of August 23-27 TLT members will attend a five-day Summer Institute that will prepare them to use the new equipment. A major emphasis will be on staff development where teachers will acquire skills and strategies to integrate technology into their curriculum. There will be two areas of curricular emphasis: writing across the curriculum and math. This activity supports goal #2 of our Technology Plan (Tech Plan, p. 5).

Research indicates that writing quality and quantity can be increased though the sustained use of technology. Teachers will be introduced to a variety of strategies during the Summer Institute that can be used to increase the amount of student writing. One strategy is through Blogging. A blog is defined as, "A frequent, chronological publication of personal thoughts and Web links." Journal writing is one approach to using blogging with students in which students are writing not only for themselves but also for a much larger audience and can increase motivation. The Write Site is another tool that will be introduced which supports collaborative writing. This tool allows peer review and feedback in an online setting. Another way to use technology in the writing and revision process is by using text-to-speech applications. Students can listen to what they have written (rather than read what they think they have written) and use this audio feedback in a multi-step revision process. In addition, training on how to use graphic organizers to brainstorm and organize student writing will be provided as another tool for students to develop their writing. As mentioned above, student work will be published online as well as in print for classroom, school, and community display.

The math component of this project will focus on two methods of enabling students to visualize complex, abstract mathematical concepts. First, teachers will learn how to use a

classroom set of graphing calculators to teach algebraic and trigonometric concepts. By using graphing calculators, students will better understand connections to abstract concepts and clearly see how small changes in equations result in different graphs. Second, teachers will learn how to integrate interactive teaching tools, including online Java applets and software. The Interactivate site, which contains Java-based courseware to investigate mathematical concepts, supports our goal of improving math achievement as described in our CDIP goal #3. This site contains dozens of applications to aid student understanding through hands-on experimentation. Other interactive sites include AAA Math and Ms. Lindquist which provide problem solving practice, extension activities, and abstract concepts. Using interactive web resources also supports Tech Plan goal #4 that promotes increasing access to technology to students (Tech Plan, p. 17). Providing teachers with access to instructional methodologies, additional tools, online, and other digital resources will make learning come alive for students and will increase student achievement in math.

On the last day of the Summer Institute teachers will reflect on the new tools and strategies that they learned on days 1-4 and begin the process of unit development. Teachers will have time to begin work on their Ed Tech units and/or to receive additional one-on-one assistance with any of the new skills they have learned in the first four days.

To further facilitate a team-based approach for planning technology integration, members of the TLT will attend the Instructional Technology Strategies Conference (ITSC) in February 2005. This opportunity will allow team members to network with colleagues and to gather information and strategies of technology integration to apply to their classrooms instruction.

In an effort to garner community support, open houses will be held at each school during the regularly scheduled fall open house. The main purpose of this open house is to inform the public about the activities of this grant and how it will impact their child's achievement. In addition, there will be a Year-end Open House Technology Celebration to highlight school activities, exhibit student work, and inspire non-participating teachers to use instructional technology in their respective curriculums.

The Family Resource Center (FRC), located at the elementary school, engages in adult education and community services. Onsite staff will be involved in promoting writing skills to the community by using technology equipment provided by this grant and by participating in professional development opportunities related to Writing.

Professional Development

Throughout the year and after the Summer Institute, there will be ongoing professional development for the TLT members through release days and after school training sessions. Detailed in Section F below, research indicates that strong professional development is essential to the success of any technology-enhanced curriculum. The PD will work with TLT members throughout the year as a mentor. He will provide peer coaching and will be available for team teaching activities. In addition, there will be (3) daylong sessions in which teachers will have the opportunity to share, review, and

collaborate on their Ed Tech units and to receive additional training on new and emerging technologies. Because three days isn't enough, TLT members will also meet after school on a periodic basis. There will be six scheduled times during the school year lasting two hours each. Additionally, the TLT will have the flexibility to meet on an ad-hoc basis as needed. TLT members will also have the opportunity to attend a regional technology integration conference (ITSC). All conference attendees will be required to make presentations to their respective staffs about methods and techniques to integrate technology into curriculum.

In order to ensure administrative support, principals will participate in specific segments of the Summer Institute. These segments will focus on teacher activities and the overall objectives of the grant. The goal is to inform and educate them so that they can be knowledgeable advocates about grant activities in order to support teachers and communicate with the school board, parents, and the community at large about grant activities. In addition, the PD will attend Administrator Leadership Team meetings in which periodic status reports to the administrators will be given.

The PD of this grant is also the district's Media Specialist. Library staff will be included in the equipment training at the summer institute as they will be partially responsible for maintaining equipment in the schools. They will also be invited to participate in after school staff development activities. Family Resource Center staff will also be invited to participate in grant activities in order to better facilitate adult and community education opportunities within the context of their program.

Ed Tech Units

All teachers will be required to develop and implement an "Ed Tech" instructional unit to improve student achievement in math or writing through the use of wireless mobile labs and graphing calculators. This process will begin at the Summer Institute and ample time will be provided throughout the school year to both develop and implement high quality units (six after school planning sessions, three daylong collaboration sessions, and ad-hoc sessions). The PD will review and evaluate the Ed Tech lesson plans to ensure that they are aligned to state academic standards in math and writing, Career Related Learning Standards (communication and problem solving), and support the Oregon Technology CCGs. All units will be available through the district web site, the Lane ESD online lesson plan database, and/or ODE web site. It is important to note that the PD will be a licensed teacher with the pedagogical background necessary to provide instructional oversight and assistance to participating teachers. This includes team-teaching, collaborative unit planning and periodic peer evaluation.

The implementation of high-quality Ed-Tech units is the culminating activity of this grant. The adherence to the stated process to achieve this is essential – intensive training, ongoing review, unit submission, unit evaluation, unit implementation, reflection, and revision.

Research

Research has shown that technology has a positive impact in writing improvement. A meta-analysis of the research from 1992-2002 on the impact of technology on student writing indicates that students who use computers when learning to write, write more and their writing is of higher quality than when paper and pencil are used. In addition, there is an increase in student motivation and engagement (Goldberg & Cook, 2003). In an even more recent study, Russell, Bebell, Cowan and Corbelli (2003) found that the quality and quantity of 4th grade student writing is increased when students use computers over an extended period of time. It is important to note that there was a 1:1 ration of students to computers in this study. These findings are consistent with Owston's findings (1997). Fewer mistakes, increased revisions and improved self-attitude are specific improvements made using technology (Kurth, 1987 and Snyder, 1993). Combined with an effective, organized and collaborative teaching strategy, technology enhanced writing instruction can help students achieve at a higher level.

Using interactive web sites and virtual manipulatives are relatively new tools that are available to teachers and students and are valuable tools for helping students acquire higher-order concepts. To support the use of these tools, we are basing the activities of our grant on the results of studies that have documented the use of manipulatives (both at the elementary and secondary levels) as an effect teaching strategy (Leinenbach & Raymond, 1996; Rawl & O'Tuel, 1983). Tracking the manipulatives in a classroom can be difficult (Karp, 1990) and is one reason that virtual manipulatives may be easier to integrate into the classroom.

In the 1996 National Assessment of Educational Progress, student achievement in math was, "related to adequate access to computer technology (hardware, software, and overall infrastructure) in conjunction with teachers trained in technology use and the use of computers to learn new, higher-order concepts." It is important to note that the following conditions must occur for this to happen: (1) students have access to current technologies, (2) technologies are used help students to acquire higher-order concepts, and (3) teachers receive training to help students learn higher-order concepts (Wenglinsky, H., 1998).

The professional development model of this application is supported by the findings of research conducted by SRI International (1999) for the U.S. Department of Education. These findings indicate that the following are characteristics of effective professional development for teachers: provided in study groups, a teacher network, or mentoring relationship focused on authentic reform as opposed to a traditional workshop or conference; "the span of time over which the activity takes place" should be sufficient to result in real change in behavior, not just increased understanding; emphasize the collective participation of groups of teachers from the same school, department, or grade level; and encourage "continued professional communication among teachers." (Donnelly, et al; 2002) The Summer Institute, ongoing training throughout the year, and participation of school-based teams of teachers, are all supported by the above research.