A Project-based Approach to Technology Staff Development

"Technology should be the caboose, not the engine in the educational value train" – Frank Betts

"Typically, technology staff development in schools today is a series of single session activities in which computer literacy is the basis for activity-based learning" (Williams, 1998, p. 43).

All too often technology staff development is delivered in a style in which the attendees are comfortable and familiar, without modeling changes in the classrooms to which attendees will return. "Educators (usually teachers) sit relatively passively while an 'expert' exposes them to new ideas or 'trains' them in new practices, and the success of the effort is judged by a 'happiness quotient' that measures participants' satisfaction with the experience and their off-the-cuff assessment regarding its usefulness" (Sparks & Hirsch, 1997, p. 1).

In order to create change in the classroom, staff development opportunities must be created to model non-transmittal environments. The success of these opportunities “will be judged not by how many teachers and administrators participate in staff development programs or how they perceive its value, but by whether it alters instructional behavior in a way that benefits students” (Sparks & Hirsch, 1997, p. 5).

The question presents itself: How do we create a major shift in staff development and create an environment where educators collaborate to improve the teaching and learning process?

A project-based approach to technology staff development

A project-based approach to technology staff development lends itself to creating technologically literate educators and provides a replicable classroom model that is fundamentally different from traditional transmittal staff development models. Using a project-based approach for teaching technology provides the opportunity to learn both how and when to use a skill. This environment also provides an opportunity for educators to work in a collaborative group with their peers and experience the same successes, failures, and frustrations their students will encounter in this type of classroom environment. Trainers must model the coaching, facilitation, and assessment skills the participating educators will need in order to lead successful projects in their classrooms.

The project approach provides a way to introduce a wider range of learning opportunities and contexts in professional development. Creating a project-based learning environment for educators provides them with valuable first-hand knowledge and experience of this type of learning, improving the likelihood of success in the classroom.

Project-based learning

A project-based environment emphasizes learning activities that are long-term, interdisciplinary, student-centered, and integrated with real world activities. Project-based learning "provides opportunities for students to make decisions about how they will find answers and solve problems" (San Mateo County Office of Education [SMCOE], 1998).

The project-based approach provides a way to introduce a wider range of learning opportunities and contexts into the classroom. Using a project-based approach for teaching technology provides the opportunity for students to learn a skill at the moment they need it. Students learn for themselves the contexts in which the skill will be useful and the purposes that it can most appropriately serve (Chard, 1998).

A project-based approach to curriculum instruction creates an environment where students learn "many of the skills... desired by today’s employer, including the ability to work well with others, make thoughtful decisions, take initiative, and solve complex problems" (SMCOE, 98). Project-based learning environments also provide many "unique opportunities for teachers to build relationships with students. Teachers may fill the varied roles of coach, facilitator, and co-learner. Finished
products, plans, drafts, and prototypes all make excellent ‘conversation pieces’ around which teachers and students can discuss the learning that is taking place" (SMCOE, 1998).

Goals of project-based learning

Sylvia Chard defines four basic goals of a project-based environment in the classroom (Chard, 1998):

Knowledge: in a project-based environment, curriculum content is the primary focus of the learning taking place.

Skills: "skills are relatively small, clearly defined, observable units of behavior or action. In addition to learning basic skills [such as talking, reading and writing] and how to apply these, children need to learn social and personal skills" (Chard, 98). A project-based environment includes a focus on learning how to work in a group, identify and overcome conflict, and succeed with a variety of experience levels.

Dispositions: learners develop processes for addressing new issues. Learners approach challenges positively, with the confidence that success is achievable.

Feelings: in project work, unpredictable results create challenges that result in feelings of elation and disappointment. With success, and the achievement of goals, learners develop confidence, self-esteem, and an increasing sense of their own potential.

The components of a project-based learning environment

The San Mateo (CA) County Office of Education, in their Challenge 2000 Multimedia Project, defined several essential components of a project-based learning environment. The include:

Content: projects must be based on solid curriculum content and have clearly articulated goals.

The Real World: projects must have a strong real-world context and connection. Depending on the goal of the project, connections may address issues that are relevant to the lives of students, may use the methods and practices of real professions, and may communicate with the outside world (SMCOE, 98).

Student Direction: projects must require thoughtful student decision-making through all phases of the project, from the selection of the project topic to design, production and presentation of the project. Opportunities should be provided for revision based on reflection and peer feedback.

Collaboration: projects should require students to work in heterogeneous groups "to give students opportunities to learn collaborative skills, such as group decision making, relying on the work of peers, integrating peer and mentor feedback, providing thoughtful feedback to peers, and working with others as student researchers" (SMCOE, 98).

Multimedia: the multimedia component gives students opportunities to use various technologies effectively as tools and to select the most appropriate media to communicate complex ideas and information.

Extended time frame: Project work should take place over an extended period of time. An extended time frame "builds in opportunities for students to plan, revise and reflect on their learning" (SMCOE, 98). The time frame should provide enough time to support "meaningful doing and learning" (SMCOE, 98).

Assessment: assessment should be an ongoing process of documenting learning during the project-building process. "Assessment should also be inclusive and well understood by students," providing opportunities for
student participation (SMCOE,98). Though the end product is the driving force in project-based learning, it is the content knowledge and skills acquired during the development process that are most important in this approach.

These goals and components of effective project-based learning can be used as models for developing effective technology staff development.

Goals of project-based technology staff development

When implementing a project-based approach to technology staff-development, the goals of the staff development program move from delivering technology skills to changing attitudes and integration methods, including:

- **Project Process:** projects, no matter the curriculum, follow several basic steps. Participants should understand these steps and how following them will provide the foundation for a successful project.

- **Group Dynamics:** in all collaborative project work, participants learn to identify and overcome conflicts and succeed with a variety of experience levels.

- **Environment:** participants have the opportunity to experience a replicable project environment and an instruction model in which the trainer acts as a facilitator or coach rather than an expert.

- **Connections:** participants learn to work with colleagues across curricular lines. Participants establish peer expertise and identify technical resources, creating an environment where they are not reliant on an individual expert in their school such as a Technology Resource Specialist.

- **Dispositions:** participants develop techniques for addressing new issues, technologies, and teaching strategies. Change isn’t always easy and most participants are learning to accommodate technology into their existing classroom model. It is essential for participants to learn to approach new technology and environments with a positive and creative attitude.

- **Feelings:** participants develop confidence and self-esteem and an increasing sense of their own potential and competence. Participants realize that knowing how to find an answer is often more important than just knowing an answer.

- **Technology Skills:** participants learn to understand the basic functions of standard software, the computer operating system, and the on-site networking capabilities. Participants also gain experience using peripheral devices available to them. The goal is not only personal proficiency, but also the correct selection and application of different tools and skills in various situations.

The components of a project-based staff development environment

A project-based staff development model has several components which are essential to success.

- **Heterogeneous Groups:** it is important to create groups that do not have a basis in friendship, common curricular areas, age, or any other pre-defined social structures. This pushes participants beyond their normal comfort areas. This component is designed to require participants to learn collaborative skills, including group decision making, relying on the work of peers, integrating peer and mentor feedback, providing thoughtful feedback to peers, and working with others as student researchers.

- **Facilitation:** the project work must encourage thoughtful participant decision making, from the selection of the project topic to design, production and presentation of the project.
Multimedia: this component provides participants with opportunities to use various technologies effectively as tools. Participants also need to learn to select the most appropriate media to effectively communicate complex ideas and information.

Continuity: the use of technology should be limited to tools which participants will have available immediately upon returning to their classrooms. This removes another obstacle to implementation, making it more likely that participants will incorporate the technologies and behaviors they have learned into their own classrooms.

Extended time frame: in order to determine a project focus, research the project, learn skills, create a project, reflect, and assess, the development event must last for several days.

Assessment: assessment is an ongoing process on several levels. Participants model several forms of project assessment during and after the project-building process.

The steps of a project-based technology staff development

Skill Building: although the focus of the training is project- and curriculum-based, systematic instruction is utilized to familiarize participants with the available technology. Skill-building sessions are used to provide attendees with an introduction to operating systems, networks, and the basic functions of available hardware and software tools. In cases where attendees arrive with personal proficiency in many of the tools available to them, skill building is designed to provide familiarity with more advanced technologies, such as sound, video, and image editing. Skills instruction is kept to a minimum in order to maximize project time. After a brief introduction, it becomes the responsibility of participants to discover and learn the features in individual tools as they find the need in their project work.

Project Building: a three-phase, project-building model is used for the workshop process. This model, originally based on the work of Bena Kallick, John Schiller, Don Zundel, Patrick Laherty, and Ed Mitchell at the Sonoma County Office of Education, has been developed and successfully implemented during Tech4Learning ProjectLearn Academies over the last ten years. The process includes brainstorming project ideas, grouping participants into collaborative heterogeneous teams, creating a project proposal, storyboarding the project, allocating tasks, developing a multimedia project, and presenting the project. The process includes checkpoints, some for individual teams and some for the entire group, in order to ensure that forward movement is productive and appropriate.

Assessment: although a formal presentation and group assessment is modeled at the end of the project, both instructors and participants are engaged in informal assessment throughout the project-building process. Constantly assessing the work being done helps teachers develop more complex relationships with students and helps students answer the questions "Am I getting it" and "How am I doing?" (SMCOE, 1998). Assessment also helps teachers plan their next steps by evaluating the rate at which participants are learning the information required.

Assessment is designed to focus on what is being learned during the process. Ongoing evaluation of participant knowledge and comfort allows workshop leaders to provide assistance when needed and nudge groups forward when they are ready. Assessment of the final project is designed to reveal what has been learned during the process. The assessment process can help make content and technology connections clear and involves participants in the evaluation of their own work.

A successful project-based staff development environment

Climate is essential for a successful project-based staff development experience. The community of learners, the physical location, and allocation of time are all important to model for the project environment. The coaches must be able to convey their confidence that every participant has the ability to be successful.

Creating a community of learners in which each participant’s skills, knowledge, and opinions are recognized is essential to success. In the project-based staff development model, the goal is to create tasks and an environment as similar as possible to what participants will be expected to reproduce in the classroom. Rules in this community should be limited and agreed

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upon by all learners. Expectations should be clear to everyone, and routines should be established to facilitate work. The infrastructure of the environment should also be designed to be as flexible as possible.

Appropriate work areas should exist to support different activities, including group and individual work. Learners should have convenient access to available resources, all of which should be close at hand for the moment of discovery. Provisions must also be made for the storage and transfer of project work during project development and presentation. Finally, it is important to provide a medium, such as CD-ROM or storage space on the Internet, for learners to save and share their projects.

Flexibility is the most important factor when allocating time in a project-based environment. It is important for teachers to be willing to make schedule adjustments based on the needs or progression of the class. Projects require an extended time frame. A project-based model for staff development requires a multiple-day commitment on the part of attendees.

A replicable, sustainable model

Project-based technology professional development demonstrates a successful classroom model for the infusion of technology in the curriculum. The model provides for continuous improvement of technology proficiency for participants. New technology and new curriculum can be easily integrated into a process that is specific to neither. Participants gain firsthand knowledge of the learning process while being exposed to a learning environment the will be eager to reproduce in their own classrooms.

A school or district can sustain the model by using previous participants as coaches in future staff development.

In this model, everyone is a learner, everyone is a teacher, and everyone has the opportunity to excel.

References


