Technology Planning: Recipe for Success

Larry S. Anderson, Founder/Director, National Center for Technology Planning, Mississippi State University
John F. Perry, Jr., Associate Director, National Center for Technology Planning, Mississippi State University

Introduction

Research conducted by the National Center for Technology Planning (NCTP) revealed that fewer than 30 percent of America’s schools possess a written technology plan that is integrated into the curriculum. Although an increasing number of schools are considering the preparation of technology plans, relatively few educators know how to develop a technology plan that ensures success. Most school board members and district administrators confess to being confused about what strategic planning involves (Peterson, 1989).

Just as a cookbook has recipes that, if followed generally, will lead to delicious cuisine, a technology plan has the potential for providing directions to success. The preparation of an effective plan should evoke the same type of devotion to excellence that one might recognize in the kitchen of a fine chef as he/she works arduously to craft a delicacy. All the necessary ingredients must be gathered and handy for incorporation into the feast being prepared; however, not even the finest quality ingredients will yield the desired dish unless the recipe is explicit and is followed during the cooking activity.

The National Center for Technology Planning (NCTP), established in late 1992 for the expressed purpose of assisting schools throughout the
United States in their technology planning efforts, has amassed a large quantity of written technology planning documents. The documents, generally referred to as the “technology plans,” vary widely in size, appearance, and scope of coverage. Certain essential principles exist, however, that serve as benchmarks to success.

**Technology Plan Defined**

Prior to achieving success with a technology plan, one must understand rudimentary concepts of what a technology plan is—or should be. Definitions differ depending on the person with whom one is talking—in a similar fashion that one’s definition of chicken and dumplings will differ depending on the correspondent. Perhaps the unifying thread will be that “the way we do it” is best.

Cook (1988) asserted that the best examples of planning are based more on the collective intuition of the planning committee than on so-called hard data. Many cooks would give testimony that their intuition, that feeling of “just a pinch of this” or “just a touch more salt” is what provides the deciding difference between a bland dish and a delicacy; succulence is not always attributable to the specificity of the recipe.

Rather than concentrate on the many specific elements that are to be enumerated within a maximally-effective plan, the focus should be on major points. Later, after the “big picture” is conveyed and understood, a planner will be able better to address the minor, yet still important, elements.
A technology plan often is a document, and nothing more. Thankfully, however, in effective schools, the plan is merely the physical manifestation of a major planning effort that focused on improving all segments of instruction, using technology in a natural infusion process. The plan, ideally, shows to the total community that the school is dedicated to a particular goal, or set of goals, that will benefit the learners affected. Every good plan will include an aggressive thrust that extends beyond the range of “the ordinary” into a level to which the entire community must strive. The plan will cause all concerned to “reach” for the good stuff.

For purposes of this paper, a technology plan is defined as that written document that represents the very best thinking accumulated in a particular environment (school building, district, state, etc.) for the purpose of studying technology infusion, then recommending direction for the future. Carlson, Gardner, and Ruth (1989) discovered that innovations and advancements in computer technologies often are excluded from organizations’ long-range plans. Such does not have to be the case; in fact, planning offers an opportunity for educators to commit to writing the direction they envision for their organization. The optimum plan will embody the dreams, aspirations, and visions of individuals involved and interested in maximally-effective education for that community.
Steps in the Recipe for Success

As is the case with an effective recipe, whether for an exotic dish or an informal casserole, certain steps must be followed during preparation in order for the desired result to be realized. Too, if those who partake of the product consider it to be succulent and irresistible, others will want to share the recipe and enjoy its excellent taste. A technology plan must be prepared with certain steps in mind.

Committee Representation

To ensure summative success, a technology planning committee must be established. This committee must represent every aspect of the school community—teachers, administrators, staff, business leaders, civic leaders, homemakers, and, yes, students. A key point to remember is: “involve all stakeholders.” Herman (1988) suggested that committees should be developed to promote ownership and collaborative decision-making. Members of the committee must perceive their participation to be of importance to the community; thus, the physical surroundings in which meetings are held should be conducive to productive work. Each committee member must be provided with sufficient resources to perform assigned tasks. The committee chair must communicate clearly to committee members the purpose and goals for which they are convened.

Progress Report

The committee chair should give a “state of the school” report so all members will understand current conditions in the school and the
extent to which technologies are used for instruction and administration. Weak areas, as well as areas of particular strength, should be illuminated so they can be addressed in the plan. One might think of this step as “taking inventory.”

Information appearing in the progress report may, or may not, be included in the final technology plan. If the committee feels that these background data are beneficial, they should be couched in such a way that any reader gets the clear picture that the report reflects historical information. Planners should be wary of introducing information into the plan that indicates hopelessness.

**Subdivide Responsibilities**

The technology planning committee will work most efficiently and effectively if the workload is distributed among its several members. Hart (1988) recommends using several small groups to begin the planning process. One by-product of this approach is that each individual develops ownership in the process and the subsequent plan that emerges.

Each member of the committee must have specific responsibilities. To be a member of a committee is not enough by itself; one must take seriously the responsibility that comes with appointment. The outcome from this committee will be a working plan that leads the school district in application of various technologies to the instructional process in every grade at every school building for all
students in the entire district—no small task. When each person performs his/her task at the level of excellence that must be expected, even demanded, the document that emerges will represent clearly and accurately a vision that can lure all involved into a bright future.

Cooper (1985) recommended that individuals who participate in planning identify major trends affecting the school district. When the group has agreed upon the identified trends, members can attack trends and see what their impact will be upon ongoing implementation enterprises.

Establish Time Frames

The technology planning committee must have a clear idea of the length of time required to prepare a written plan. Of course, this includes their understanding of all the prerequisite activities and considerations that lead to finalizing the planning document. Peterson (1989) reminded that an organization simply cannot know what it is doing and what it intends to do unless it establishes and monitors periodically its goals—and the concomitant time in which it measures achievement of goals. Accomplishment of this requirement ensures that strategic planning occurs.

Time frames to be considered for adoption include, but are not limited to: length of time it takes to assign committee members to subcommittees; assessment of district needs; assessment of district technology inventory; assessment of district physical facilities; polling vendors to determine what technologies and related peripherals are
available to address school needs; creating draft documents in the variety of areas addressed in the plan; acclimating district personnel to changes that may be recommended in the plan; educating community members; ensuring equitable representation by all constituencies in the district; preparing a financial proposal on costs; preparing a financial proposal for supporting investments required by the committee’s recommendations; first-year implementation of the plan; potential for a phased-in approach to implementation; full implementation of the plan; evaluation of the plan; evaluation of the planning process; evaluation of the implementation process; evaluation of district personnel’s response to implementation; and modification of the plan to incorporate findings from evaluations.

Establishment, and subsequent publication, of time frames helps to ensure that the technology plan will be implemented successfully. When committee members understand time frames and can communicate them to the community, chances for success are increased and avenues of support are more readily accessible.

**Set Target Dates**

Target dates are essential for a technology plan to be successful. When time frames are considered and consensus is reached within the committee, the chairperson should entertain input for dates on which certain specific accomplishments can be expected.

Members of the planning committee will achieve individual and collective goals if well-defined dates are established. A member may be
given, for example, the task of assessing a school’s security status. If the ensuing report is scheduled for presentation at a specific meeting time, chances of acquiring and using that information have been increased significantly merely by setting a date (Green & Lamb, 1993, Malone, 1989). Use of Gantt or PERT charts can be considered to improve clear understanding of target dates within the committee.

**Build Consensus**

Consensus among the population affected by an organization is essential but may be difficult to acquire. The technology planning committee, however, must accept full responsibility for ensuring that the maximum consensus possible is gained. Many avenues exist, and models are available for review, for achieving broad consensus within the community.

The successful plan benefits every aspect of education in the local environment. When the planning team ensures that all players are represented appropriately in the plan, chances are improved that clientele and participants will “buy in” to ideas contained in the plan. An effective plan will address needs of all segments of organizational life—administration and instruction alike (Fasano, 1987). One element cannot be represented to the exclusion of the other.

Various techniques may be employed in the quest for consensus. The plan, when complete, must be explained fully to all stakeholders who are involved, directly or indirectly, in the school. While the plan is being put together, consensus may be gained by ensuring maximum
involvement by a wide collection of constituents. Those who “pay the bill” with taxes and other contributions must see the long-term benefits of the plan’s implementation. If they sense a reasonably high level of participation, they will adopt ownership in the concepts and will give consensus gladly.

**Formulate Plan**

At this phase, the plan should be written. This section takes the least explanation, but it evokes the most hard work. Here is where “the rubber meets the road”—results of difficult decisions emanating from long hours of examining and debating data must come forth into a document that is defensible. Specific considerations must be guaranteed to appear in the plan. The plan, in turn, should appear in various places within the organization’s materials.

Elements of a successful technology plan will find their way into the organization’s budget, curriculum, and job descriptions. The technology plan will not achieve maximum usefulness if it resides as a document all alone, totally separate from other written materials from which the organization acquires its direction. When the technology plan is part of a larger picture, specifically, the overall strategic long-range plan, the goals, missions, and visions embodied therein will be part and parcel of organizational activities—the plan will be integrated.

The committee chair must remain cognizant that this document will be perused by a wide assortment of school supporters (Dewess, 1988, Malone, 1989). The writing, therefore, should be beyond reproach. The
plan should have a pleasing, professional format so that a positive, sure image is projected. Care must be taken to guarantee that any terms familiar only to educators are explained in sufficient detail that anyone who reads the plan will understand the intended meaning. Often, a committee will elect to present complex information in a pictorial form, usually in a chart or graph. The document should be bound in such a fashion that modifications can be performed without destroying the integrity of the plan.

As the committee organizes the sequence of the planning document, one element to receive special treatment is the executive summary. As a general rule, the executive summary will appear at the beginning of the plan. Several readers will not have time to peruse the entire document, word-for-word; therefore, it is prudent that the executive summary appears first and portrays a clear representation of what the committee intends to convey to the public. Main points may be highlighted in a variety of fashions; perhaps a bulleted list is deemed most appropriate, maybe a sidebar is most effective, or a boldfaced text printed in a variant typeface produces the desired result. In any event, the executive summary should be given a place and appearance of great importance in the planning document.

**Implement Plan**

Educators are reminded by Smallen (1989) that planning, not just *talking* about planning, is necessary if optimal pedagogical use of hardware and software is to be realized. As trustees of public funds, educators can ill-afford to ignore this fact.
Implementation of the technology plan depends on wholehearted support from all members of the school community. Only when teachers are attuned appropriately to purposes of the plan, given sufficient ownership in ideas and opportunities for growth through the plan, and provided the level of training they deserve will they ensure full infusion of technological concepts into the curriculum and its related activities.

Administrators in the organization, if committed to the plan, should make available all resources possible to see that implementation is realized. This may mean that role models are located and placed in strategic positions so teaching faculty may gain strength by seeing effectiveness demonstrated. Fledgling teachers and staff will be better able to put the plan into full action if all the perceived obstacles are removed and a reward structure is put into place so that all players may achieve success while the plan is working, too.

Evaluate Plan

Proper evaluation of an activity is essential: this is an accepted notion among educators. Certainly, then, the technology plan should be evaluated from numerous vantage points. While the plan itself should be scrutinized, activities surrounding the plan deserve perpetual evaluation, informally, and periodic evaluation, formally.

First, the planning process should receive evaluation. Committee members should evaluate their effectiveness and should encourage an
external evaluation of the process through which they went to arrive at the implementation phase. At this point in the planning cycle, personal feelings must be set aside so that accurate reflection will yield beneficial feedback to invigorate the system for the next round of planning. Committee members will benefit from provocative input.

The planning document should be reviewed annually, with the most stringent review coming at the end of year one (Peterson, 1989, Randall, 1991). Subsequent reviews must take into account any recommendations that have been made during precedent evaluations (Tashner, Riedel, & Hutchinson, 1991). All aspects related to planning and implementing the plan ought to be scrutinized—vendors, training of personnel, the reward structure, incentives, equipment compatibility, curriculum infusion, resource materials, professional development, public relations, administrative participation and support, auxiliary services, special needs student services, architectural requirements/modifications, networking, and financial/budgetary matters. Recommendations should be included in the annual report presented by the committee chair.

**Role of Teacher Education Programs**

The main focus of this treatise is upon the planning document, reflective of interaction among all components in the planning cycle. Teacher educators, though, have a tremendous responsibility, because we have an opportunity to create an environment in which preservice
teachers may learn about and experience most aspects of technology planning.

Increasingly, teacher education programs require some computer literacy training (Arntson, 1991). Beyond that, a few are providing continuing experiences for preservice teachers to use the knowledge and skills learned in literacy classes for projects and activities that strengthen relevance of technologies to their learning. Some few institutions guarantee that students create technology-oriented teaching materials and share those with fellow preservice teachers, often using the Internet as a conduit.

Teacher education, as a whole, faces a challenge to provide opportunities for preservice teachers to understand basic planning concepts along with their technology-rich experiences. If students graduate from programs in which they have learned the benefits of planning and are well-equipped to fashion even the most rudimentary elements of a technology plan, they will improve sharply the possibility of an education agency’s implementing successfully a sensible technologically-inclusive program. A side benefit of preparing preservice teachers in this regard is that the training institution will, more likely, have a good plan of its own.

**Resources for Planning**

Technology planners do not have to concern themselves with scavenging every single piece of information necessary to help them
create and implement their plan. Numerous resources exist to make their job much easier. No single source can provide all the aids, though; materials exist in a wide variety of locations.

The National Center for Technology Planning (NCTP) was established to serve as a repository for exemplary technology plans, as well as a place to acquire planning aids, public relations announcements, checklists, professional development opportunities, and to engender discussion and debate relative to a multitude of aspects surrounding planning. Planning documents have been procured from national and international sources; these have been placed in an archive accessible on the Internet via anonymous ftp, gopher, and by using Mosaic to access the home page at Mississippi State University (by loading a URL—http://www.msstate.edu). In addition to the online access, NCTP staff provide consultative assistance to schools, communities, and higher education institutions.

The Consortium for School Networking (CoSN) operates a gopher server (digital.cosn.org) that includes networking and technology planning assistance. Hundreds of practitioners are available, too, to give advice through the CoSN discussion list on the Internet. The Special Interest Group on Teacher Education (SIGTE), as a part of the International Society for Technology in Education (ISTE), conducts lively discussion on their listserver operated by Neal Strudler at the University of Nevada-Las Vegas (strudler@nevada.edu).
The Scholastic Network, accessible through America Online, provides many technology planning resources. Along with offering downloadable technology planning documents provided to them by the National Center for Technology Planning, Scholastic Network operates a forum aimed at technology planning, specifically. Questions on planning, as well as technology implementation are welcomed.

Commercial computer manufacturers offer planning kits. Apple Computer’s *Teaching, Learning, and Technology* is available in both videodisc and QuickTime CD-ROM format. IBM Eduquest has a technology planning packet that can be acquired from a regional Eduquest office. Both of these “for sale” resources contain a template that an organization may simply fill in, saving many hours of laborious polling, consultation, discussion, writing, and evaluating. The drawback to this approach, however, is that the educational agency will have produced a document that may be called a plan, but the true plan for the future has never been envisioned by the school. Such an approach is rejected vigorously by wise technology planners.

**Conclusion**

The desired outcome of effective technology planning is that the most appropriate technologies are infused in the most natural manner into a maximally-effective instructional or administrative program so that all parties concerned have equitable access and achieve world-class benefits from routine use of the technologies. Such a view is much like the desired outcome of an effective recipe: the consumer acquires
excellent nutrition from a succulent dish prepared by an experienced
cook who used the most appropriate utensils and appliances according
to specific instructions (allowing user-adopted variances) in a relatively
hassle-free environment to such an extent that others, even the
consumer, want to know how he/she prepared the dish.

As educators use acceptable procedures and practices to create and
implement technology plans successfully, other professionals will seek advice for their plans. Like gossip, the word will spread. One goal of leaders in the field of planning is to ensure that the highest quality of information attainable is spread among schools. If this recipe for planning is followed, then disseminated throughout the country, students in our nation’s schools will enjoy a richer, more challenging, rewarding educational experience.

References


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Larry S. Anderson is Founder/Director of the National Center for Technology Planning, Director of Instructional Technology, and Assistant Professor in the Technology & Education Department, College of Education, Mississippi State University, Mississippi State, MS 39762 E-mail: LSA1@Ra.MsState.Edu

John F. Perry, Jr. is Associate Professor, Department of Technology & Education, College of Education, Mississippi State University, Mississippi State, MS 39762 E-mail: JFP1@Ra.MsState.Edu