

CED 527

Technology Leadership

NEEDS ASSESSMENT

One of the most useful exercises to illustrate the desire for change is a needs assessment. A well-conceived, well-researched, and well-written needs assessment is very effective in planning for and obtaining new technology. If appropriate work has been expended in the preparation of a needs assessment document, the presentation to the decision makers will be positively appraised.

Using systems theory to sort out the important processes within the educational setting is an effective approach to the needs assessment. A knowledgeable, broad-based committee consisting of those who have a vested interest in the schools seems to be the best approach for obtaining data and credibility. Identifying current technology usage in the schools, available information sources, and management and classroom needs are all part of the necessary data. Finally, determining current and future priorities is the capstone of the report. If all goes well, the needs assessment will serve as the foundation for implementing technology resources in the classroom and/or the school office.

The needs assessment should consist of the following:

1. What do we have now, how was it acquired, and what were the funding sources?
2. What is the current utilization?
3. What are the goals, objectives, and purpose? A questionnaire and/or interviews may help.
4. What are the future needs?
5. What are the priorities?
6. Based on your needs assessment, what would be the optimum situation in your district/building/department/classroom in terms of curriculum, hardware, and software?
7. An implementation plan that includes a timeline for the project.
8. How the results of the implementation will be assessed and what provisions are made for modification of the plan.

THE COMPUTER NEEDS ASSESSMENT

A needs assessment is basically a means to demonstrate to an audience that you have done your homework. It is an accepted way to document that specific activities have been researched and that the conclusion reached is both desired and appropriate. Needs assessments have been used for years.

The purpose of this paper is to discuss the underlying premise for documenting a need, and, more specifically, how such documentation can be applied to the use of technology in schools. The topics to be covered include: systems theory, the study committee, the needs assessment design, and writing the report.

SYSTEMS THEORY

In discussing education, most people, whether consciously or unconsciously, use systems theory concepts. They understand that schools fit into a larger social organization and they know that schools have various bureaucratic levels. They consider the educational system to have a single, basic purpose – to educate young people. And although they see different relationships among the various components associated with school, their assumption is that the schools are purposeful, integrated systems.

As with any complicated description, the definition of systems theory has its unique concepts. The terminology used to explain how a particular system works is specific and ought to be presented in great detail. While the basic ideas may be familiar, it is necessary to define specific terms to achieve a thorough understanding of the systems approach to organizational description. The following terms will be used throughout this paper:

- **INPUT:** Input includes the many components which are basic to the system. It is the raw ingredient on which the system depends. Such items might include personnel, students, goals, objectives, written philosophical statements, money, materials, equipment, rules, laws, and other necessary components with which the system starts off. Usually, the inputs are pre-determined. However, in another sense, they may be developing. (For example, a goal statement may be changed to include technology literacy.)
- **PROCESS or THRUPUT:** Process consists of the activities which the system uses to carry out its mission. Process uses all of the input variables. In many cases, the process is the result of decisions made by various policy makers and professionals.
- **OUTPUT:** Output means results. What is the product after the raw material goes through the system? Do the results match the goals, objectives, and purposes of the organization?
- **FEEDBACK:** Feedback provides data to the decision makers. Information is necessary to monitor an organization and must be collected and evaluated for the system to function properly.

- **CONTROL:** Control implies that there is a continuous monitoring of the output to determine whether adjustments are warranted. Administrators and policy makers compare the results with the purposes or standards to judge the system's effectiveness.
- **ENVIRONMENT:** It is essential to understand the environment if the system is to operate. The internal conditions of the school contribute to its overall effectiveness; and modification will affect the result. There is an important external environment which also impinges on how the school operates. Parents, community opinion, laws, and the relationship of the school to other governmental agencies play very important roles in its functioning.

All of the defined terms relate to the needs assessment. If any one of these ingredients is significantly modified, the whole system will be affected. If, for example, true computer literacy is implemented in the schools, the input will be changed by the addition of different equipment; different goals will be taught, the materials will be altered; teachers, administrators, and clerical staff will serve different functions; and many traditional variables will be made obsolete.

Traditional processes will also change. No longer will administrators and secretaries perform office chores in the same way. Neither will teachers teach in the same manner. The role of the student will be redefined. With the addition of technology, the output will be very different from what most districts currently expect. Students will probably have a better grasp of the technology and the information revolution than their elders. Likewise, the most up-to-date information available will be immediately accessible to all administrators, and the site administrator will not have to rely on superiors or the school board for instructions. Feedback will be better, faster, more relevant, and powerful than it is now. Data driven decision making will be the norm. All of these changes demand that those in charge of the control functions be able to determine the level of deviation and immediately modify practices to keep to the standards.

A problem arises in that there is very little precedent in any of these areas to guide a school policy maker. Neither school boards nor school administrators have the background to be effective in this dynamic situation. At least by conducting a thorough needs assessment, which uses systems theory concepts, some of the results can be anticipated and the appropriate planning take place.

THE STUDY COMMITTEE

Choosing a study committee to conduct the needs assessment is one of the most important first steps. If you are considering a school site for such a program, a representative committee must be selected. This committee should include representatives from different curricular areas and at least one member of the clerical staff as well as administrative staff. If political support for the program is necessary, the community itself could serve as a valuable resource. A person with the technical expertise would be not only useful throughout the assessment, but is a crucial figure when it comes time to actually specify the computer hardware and software.

If the district is embarking on a large system, involving many schools, the study committee must be much more inclusive. Administrators from elementary and secondary schools and from the central office must be included. Representative teachers from varied disciplines and grade levels are equally important. Various office staff, representing the accounting and research and development offices should also have a voice on the committee. Persons representing several community levels may be invaluable in garnering support for the new, expensive endeavor. A technical consultant is a necessity since the compatibility problems inherent in a multi-user system are very complicated. A committee combining these constituencies would lend credibility to the report and should be seriously considered.

To be able to make the appropriate judgments, each member of the committee must become knowledgeable in the use of technology. This means that some hands-on experience must be provided to each member. The committee should experience the variety of pleasures, pains, and possibilities afforded by the technology. It is not necessary that committee members become competent programmers or that they master a financial spreadsheet, but they should understand the computer's capabilities. Articles, newsletters, and computer magazines should be made available. Field trips to computer facilities, school-technology demonstrations, education technology conferences, and computer stores will help broaden the committee's information base. The enthusiasm of a broad-based committee may, in turn, spread to other educators in the system.

If the study committee performs its task well, the needs assessment document becomes a planning tool to assist in the computer adoption process. When the committee is sufficiently oriented and motivated, a number of tasks must be accomplished before the report is written.

DESIGNING THE NEEDS ASSESSMENT

The purpose of a needs assessment is to document that systematic investigation has taken place; a report is the documentation of that work. The report is intended to convince the reader that there is sound evidence of a need and that a well-designed plan has been formulated to fulfill it. If you are committed to more technology in your school, you must present a study that is thoroughly planned and documented. If you conduct a mediocre study, your chances of support from higher up are unlikely. If, on the other hand, you generate a quality report, your proposal will probably be strongly endorsed.

One of the first steps is to develop a concise review of the literature to determine what is already known. Literally thousands of references are available on the use of technology in schools, both as instructional aids and as administrative tools. A review of this information is important because it gives the committee and future readers of the report a clue as to current thinking about the technology. The review also assists in selling the concept to reluctant decision makers. If you can show that you have done your homework, many of the decision makers' initial questions will be answered.

The next step is for the committee to assess the current utilization of technology in schools. This assessment should include any and all classroom usage and the number of computers involved. How are teachers actually using computers? For what kinds of tasks are the students using the machines? How many computers are in use? What kinds of computers are in the classroom? How many teachers use them? These questions are important for an understanding of where schools now stand with regard to computer use in the classroom.

On the administrative side of the needs assessment, several extra steps are required to provide the decision maker with the necessary background. If the computer is to play a role in the office, there must be some assessment as the current standing of the computer for administrative work. If the total program encompasses many schools, each school, as well as the district office, should be surveyed. What computers are being used for administrative duties? What files are available at the school, district, county, and state levels? What databases are accessible and appropriate? Are system interfaces available such as telephone modems, networks, and Gateways?

Administrators should be concerned about the organizational structure in which the computer is to be installed and, here, the formal line chart may be useful. However, other aspects are more crucial to an understanding of the organization. What is the present level of office efficiency? Is the information flow usually upward, downward, or lateral? What are the functions and responsibilities at each level? How are staff and financial resources allocated at each level? What is the data and report flow at each level (data-report-review-approval-use, etc.)? What data are needed to make current decisions? What data are needed to make future decisions? What information is essential to meet the current goals and objectives of the schools? What data are needed to facilitate decision-making and information gathering? Answers to these questions will provide a profile of the organizational structure and give clues as the changes needed for more effective operation.

Most needs assessments include a **questionnaire** that is sent to the target population. If the technology is to be used for administrative purposes, the survey should be directed at the clerical staff and administrators. If the technology is for classroom use, the questions should be given to teachers. The importance of obtaining input from those who will be directly involved cannot be overemphasized. Technology should not be summarily imposed from above, but should be the result of active participation by all persons involved. It is important that the report document the widespread need for the change. Answers to the target population questionnaire can be used to demonstrate this need.

The next step is to project the future needs of the system. The literature review is useful in identifying inferences about the future. Clear indications of reasonable future uses of the computer should come from this review. The needs of students as they leave school for work or college in the next five to ten years are already identified. The efficiency of certain computer applications to administrative duties is known. If the computer is widely used within a district, speculations can be made about future organizational requirements and resource needs (staff, equipment, facilities).

The final step for the needs assessment committee is to rank computer priorities, a process which is dependent upon strongly supported needs. The first consideration is to determine the level of computer usage essential for maintaining existing programs and services, with the assumption being that anything less would make the total educational effort worse than it presently is. The second consideration is to identify those computer uses which would help update existing services. The addition of word processing, data base filing, and spreadsheet applications to the office would, for example, greatly increase efficiency. Likewise, many classroom uses of the technology exist which would facilitate learning. These should be itemized. The third priority is to specify the computer uses which would be required if drastic revisions in services and programs are demanded and to identify alternative solutions. Mandated computer usage in all classes and subject areas is such an example. Requiring site administrators to greatly increase their efficiency while cutting their operating budget might be another.

Included somewhere in the report should be an example of the optimal technology system for the existing organizational structure – a kind of wish list based on the information generated by the assessment research. The appropriate facilities should be defined, ideal workspace in the office or classroom described, and equipment specified, along with requirements for desks, air-conditioning, lighting, etc. The systems programming should be denoted, the software, courseware, documentation, and their respective objectives itemized, and data control determined. Within the description of the optimal system should go details about policies and procedures, the necessary levels of access, security, confidentiality, and other quasi-legal considerations, and training requirements. The kind of inservice training required for clerical staff, technicians, administrators and teachers should be specified, for without such training, computer use in the schools could become chaotic.

WRITING THE REPORT

The important thing to keep in mind when writing a needs assessment report is to focus on purpose. Never lose sight of the goals and objectives which provided the basis of the study. Many final reports are so diversified that the purpose gets lost. The author would do well to remember the reason for appointing the committee, collecting data, and performing all of the other necessary tasks. If the reader is to get the message, the purpose must be clear.

As you write, keep in mind that it is the discrepancy between the current state of affairs and what ought to be the case that demonstrates the “need.” If your report can provide strong evidence to demonstrate the need for change in order to increase output, your work was successful. The report must continually refer to what the actual situation “is” and what it “**should be.**” Since schools develop and analyze data prolifically, facts, statistics, charts, graphs, and their interpretation should be used to highlight the “**need.**” This single-minded approach may be the difference between a successful and an unsuccessful needs assessment report.

If the needs assessment is to be used as a basis for acquiring funding, several other factors must be considered. The basic needs assessment is still important and may be approached as described. However, funding sources usually have specific guidelines which must be followed, often to the letter. Many foundations and agencies are interested in limited, highly specified projects, and the proposal must comply with their parameters. Outside funding agencies are usually impressed with lists of objectives and the activities intended to carry them out.

Most funding agencies express a great deal of interest in evaluation. This means that an assessment of the project's success must be developed.

Modified from:

Gustafson, Thomas J., Microcomputers and Educational Administration, Englewood Cliffs, New Jersey, Prentice Hall Inc. 1985

Additional Needs Assessment Resources

Assessment Tools

<http://www.tcet.unt.edu/START/assess/tools.htm>

Assessing Technology Planning

<http://www.4teachers.org/intech/techassess.shtml>