

Anticipating and Managing Change in Educational Organizations

By systematically scanning a variety of sources, administrators can keep up with—and even conquer—the information deluge.

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The last two decades brought great acceleration in change, and the years ahead will bring even more. Increasingly this accelerating change has come from developments in the external environment—the environment in which our institutions must survive and thrive. Thus, anticipating and responding to change is a major responsibility for all institutions.

Although changes may seem to come upon us without warning, experience shows this is rarely the case. Unfortunately, we often disregard or misinterpret the signals of change. We tend to spend our time on issues we perceive to be most important right now; we fail to scan our surroundings for changes that are in the early stages of development. The flood of problems that forces us into crisis management makes concern for emerging issues appear to be a luxury. It is not. It is a necessity.

Even though the signals of change are available to us, separating them from the tremendous amount of “information noise” is almost overwhelming. Another difficulty lies in the human characteristic of not seeing what we do not want to see. We quickly filter out of the noise

the signals that confirm our established positions and ideas. We also block out information that forces us to rethink ideas, opinions, and attitudes, or that forces us to adapt to change. The scanning process is an organized, conscious struggle against these human characteristics and limitations.

The Blinders We Wear

Missing important signals of impending change is a natural consequence of the way we conduct our daily affairs. Since most organizations have no formal scanning function to look at the external environment, they implicitly rely on the information flowing to their administrators. Surveys conducted of the external information resources used by executives in business, government, and professional associations always come to the

same astounding conclusion: everybody uses the same information resources. They typically review a weekly news magazine, a major national newspaper, a local newspaper, one or two publications focused on their profession, business, or industry, and see TV national network news and news magazine programs. Virtually no one reads *Working Woman*. Virtually no one reads *Sierra*. Virtually no one reads *Ebony*, *Savvy*, *High Times*, *Young Miss*, *Mother Jones*, *Teen*, *The Futurist*, or any of the other literature reporting on, advocating, or involved in change. We would never consciously design an information system around a few mainstream resources—but that is what we have done.

In spite of the narrow base of our information resources, many of the important changes facing us in the future are known to the leadership of organizations. If we were to ask: “What issues face our present or planned operations that you believe will demand a response in the future and that have not yet begun to receive any significant attention,” we would receive a flood of information. This raises two issues: how can this information be systematically fed

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into the organization and how can the quality of the information be improved?

We will briefly describe the design and operation of an environmental scanning system and then illustrate how a school system can use the results to avoid some crises and have more lead time for crises that cannot be avoided.

Developing a Scanning System

One individual can set up a scanning system, but it is better if several top administrators work together. There are two main reasons for this. First, only those with a broad view of current operations and future directions of the school system as well as its capabilities for responding can evaluate the potential importance or relevance of emerging issues. Second, the problems of achieving the necessary communication, recognition, and acceptance of information about change in the external environment are minimized. If the scanning task is delegated to a single person or a group of experts in an external service, the results of scanning can easily be ignored or their use postponed. If top administrators are personally involved, reporting and organizational problems are minimized.

Finally, the scanning process encourages a kind of thinking among the leadership of an organization that is needed and valuable. This continuous searching for and questioning of the interconnection of events and of the potential importance of external developments encourages a new process and approach to problems that can be valuable in other management decision-making processes.

There are only a few basic design requirements for a scanning system. The first step is to determine the areas that need to be scanned. This list should include issues in each of four areas—social, technical, economic, and legislative/regulatory developments. The 20 to 30 issues that would be developed from the survey might be organized into groups to identify the 10 or 15 issue areas that will be covered by scanning. Several specific issues might all belong in a general issue area such as minority rights, environmental quality, computers/communications, and so forth. (This list will change as new areas surface.)

The next step is to create a set of files around these issue areas. Then the information resources that are covered need to be matched against the list of

issue areas to ensure that each area is covered. Each member of the scanning group is assigned one or more of these specific resources to scan. National news magazines will, of course, eventually cover all issues that reach a certain threshold of importance. While they provide an excellent general resource for areas that do not justify a separate file, they are not adequate for areas that are to be scanned. These general resources are extremely important since the appearance of an issue in them signals its growth and spread to a larger audience. But for resources that will identify emerging issues, specialized publications must be used. The particular publications to use depend on the specific issues.

What to Scan?

Specialized magazines, periodicals, newsletters, and news sources in each of the four major areas should be scanned. A special effort should be made to include public opinion polls on all available issues. It is almost a requirement that a scanning system include a file on public opinion and that all opinion polls be included, no matter what the issue (an excellent source is the American Enterprise Institute's *Public Opinion* magazine.) Of course, newspapers constitute a major scanning resource. Indeed several national newspapers should be scanned on a continuing basis since each newspaper has its particular focus and biases. Usually these include the *New York Times*, with its focus on international affairs, the *Washington Post* or *Washington Times* with their focus on domestic political developments, the *Chicago Tribune*, with its focus on the midwest, the *Los Angeles Times*, with its west coast perspective, and one of the major papers from the sunbelt—Atlanta, Houston, or Miami. Perhaps the best newspaper for scanning is *U.S.A. Today* with its emphasis on factual news rather than analysis and opinion. The *Wall Street Journal* continues to be one of the best newspapers in the country for identifying emerging issues.

Using Scanning Results

Periodically all of the materials that come into the scanning system need to be reviewed, organized, analyzed, and evaluated. Even a small scanning system can, in a couple of months, produce a hundred or more items. The

chief scanner's job is to review this material and organize it into the specific issues that are identified—usually not more than 30 new issues. For example, scanning by the Policy Analysis Company recently found several items concerned with known or suspected carcinogens in school facilities and associated interior air quality standards. The sources of these items ranged from proposed legislation to planned medical research, to discussions with an expert, to a policy statement by the Association of Heating, Air Conditioning, and Environmental Control Contractors. All of these items pointed to a single issue.

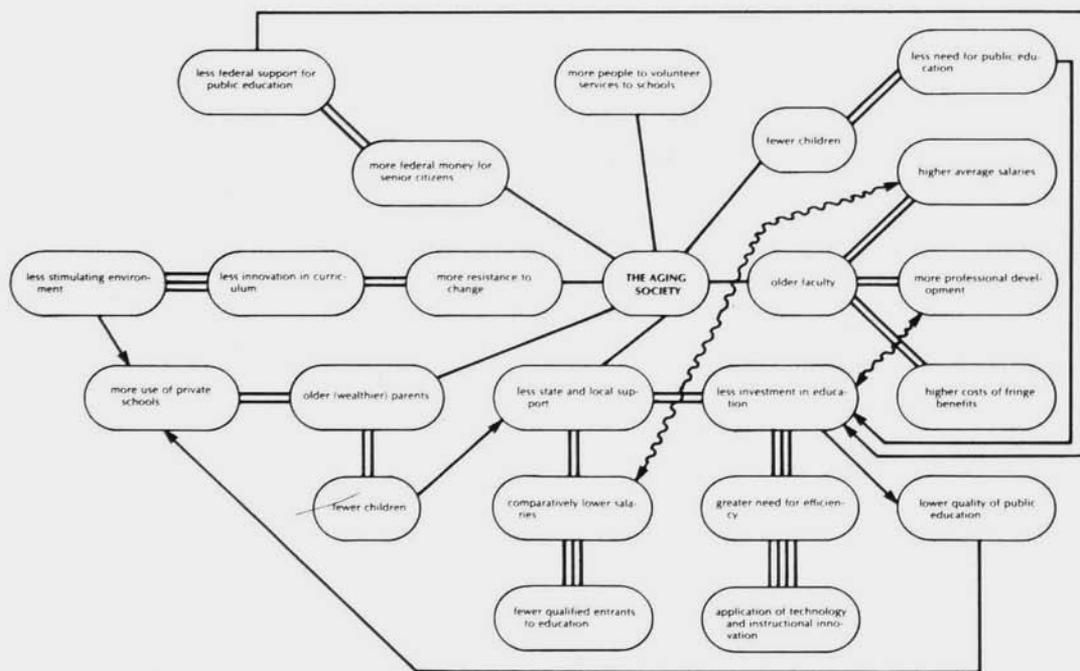
Analyzing Impacts

When the scanning categories have been organized, some understanding of the potential impact of each issue must be developed. One technique is to sharpen the issue into a scenario. For example, suppose the screening committee discovered forecasts that its region would be at the leading edge of the national trend toward an aging society. This might be stated: the average age of the regional population will increase by 10 years. The emphasis at this stage should not be on the likelihood of this happening, but rather on what the consequences would be if it were to happen. Indeed, the next question is, "What would happen if . . . ?" Here, the search is for first-order or direct effects if the starting event occurred. When five or six direct impacts have been identified, the "what if" process is repeated for each of the first-order impacts. This enables us to identify second-order effects.

The rule of this process is that any possible impact is acceptable. As this is a brainstorming session for understanding the importance of an issue, the fact that an impact is small or unlikely is no reason to exclude it from consideration. The only reasonable limit is the size of the diagram created from this exploration of effects. Typically, third- and fourth-order impacts are sufficient to explore the full context of the impact of an issue. The resulting diagram is known as an *impact network*.

Figure 1 shows an example of an impact network for the aging society. There are both positive and negative implications for public education. On the one hand, the demands of parents of the relatively fewer children who are in school seem likely to increase while the

Figure 1. Impact Network of the Aging Society



Key
 ○—○ The number of lines connecting the circles indicates the order of the impact—first, second, or third.
 ○—○ Positive feedback loops.
 ○—○ Negative or conflicting feedback loops.

vast majority of adults either do not have children or are no longer parents of a school-age child. A recent edition of the *American Journal of College Health* estimates that the majority of adults—as many as 64 percent—do not have children of school age (Nadelson, 1983). Major impacts of the aging society will be relative declining salaries of school teachers, particularly starting salaries. The effect of most of the feedback loops is to aggravate the problems focused around decreased support. However, there are some positive factors resulting from an aging society. For example, schools may receive increased volunteer support in the classroom in the form of teacher aides or teachers of specialized subjects. Moreover, cutbacks in funding may also have positive third- and fourth-

order effects: they will necessitate more efficient use of resources, an efficiency that may be met by application of educational technology, thereby stimulating instructional experimentation and innovation.

Setting Priorities

When the impact networks have been completed for each issue, the scanning group is ready to move on to developing and evaluating relative priorities. Again, for simplicity, a simple technique can be used to organize and structure this process. For each issue, each member of the committee is asked to make two independent decisions. First, what is the probability or likelihood that the issue will develop in the next five to ten years? And second, what is its impact (on a

scale of 1 to 10) if it were to develop? These two judgments are the coordinates of a point on a graph. A sample probability-impact graph is shown in Figure 2.

When evaluating the probability and impact of each issue, the group needs to employ the rules of democracy—everyone gets to vote anonymously. Usually each member of the group will have an impact graph for each issue. When everyone has voted, the graphs are collected and the results collaged onto a single chart. The resulting scatter of the votes graphically shows the opinion of the group. If the votes are clustered in such an area that it is reasonable and practical to average them as an expression of the group opinion, then additional voting may not be necessary. If

the group feels that more discussion is needed, then additional rounds of anonymous voting with feedback of the group opinion should follow. Typically the chief scanner will guide the group through a discussion of the various possible reasons for extreme votes that appear in group response. Thus the question is not, "Who said this is unimportant?" but rather, "Can someone imagine the rationale of a person who thinks this is unimportant?" The value of anonymity continues.

When the probability-impact charts have been prepared for all issues, the issues can be ranked according to the

product of probability and impact. This is shown in Figure 2¹ where there is reasonable consensus about both the probability and the impact. The weighted importance is 3.2 (70 percent times 4.5). The "0" event on the other hand, shows some consensus about the probability—low—but little consensus about whether the impact is positive or negative. The "0" event needs to be recycled for additional discussion, voting, redefinition, and so on. The process of sequential anonymous voting with group feedback is known as the Delphi technique.

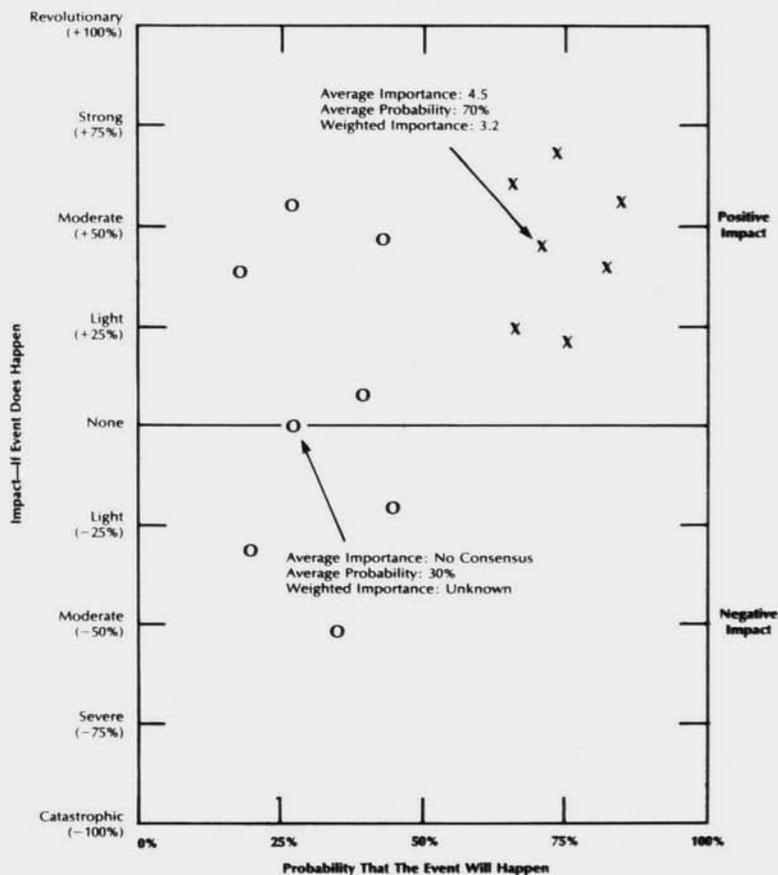
If the number of issues to begin with

is very large, then it may not be practical to prepare an impact network for every event. An initial screening through the use of a probability impact chart may be valuable to reduce the number of issues to manageable size as determined by resources available to the committee. This manageable set of issues then proceeds through impact network and the probability-impact graph stages.

Using the Scanning System

The scanning system has now produced an extremely interesting document: first, an ordering of external events in terms of their potential importance to

Figure 2. Probability Impact Chart Summarizing Seven Votes for Two Different Events.



X's show consensus about a very probable event with high, positive impact. O's show an event with consensus on probability (low), but not on impact.

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the school system; second, an analysis of the kinds of effects each event could have—the impact networks; third, selected clippings from the scanning file showing the source and background of the issue. This document now provides important information for the strategic planning process of the school system. Issues within the control of the school system should be added to the agenda of strategic planning. Issues not within its control should be added to the planning assumptions used in strategic planning. Of course, specific issues might be directed to their corresponding departments—affirmative action issues to personnel, student issues to the dean, and so forth. To facilitate the use of these results, many scanning systems in the business community publish newsletters to distribute throughout the organization. These newsletters identify and discuss the issues identified in scanning as well as the impacts developed by the committee.

Dividends

The purpose of the scanning system is to alert the organization to its own best thinking about emerging issues, which may provide opportunities or threats. It does this through an orderly system of organizing resources to anticipate and respond to these issues. Few if any school systems have established scanning committees to the extent described in this paper, probably because developing such a committee requires expenditures of time, energy and money. One way a district may reduce this expense is to involve faculty members. Another way would be to establish a consortium linked through electronic mail in which the scanning task can be shared. Whatever the cost, establishing a scanning process within a school system will pay dividends in that system's ability to anticipate and manage change. □

This chart is from Renfro, W. L., and Morrison, J. L., "The Scanning Process: Getting Started," in *Applying Futures Research in Institutional Research*, New Directions for Institutional Research Number 39, (San Francisco: Jossey-Bass, 1983).

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