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ABSTRACT

The conceptual implications of various alternatives to the classic model of rational decisionmaking are explored, in order to note the radically different roles that information plays in different kinds of organizational settings. Examples are drawn from cases illustrating the different uses of information, showing some of the important costs and benefits of differing types of behavior in the people who provide information. Information professionals should recognize that, in addition to the traditional uses of information, other information functions that are critical to good decisionmaking include: identifying problems and alternatives; setting the context for action; inducing action; and promoting or legitimizing action. An alternative model of decisionmaking, multiple advocacy, is presented. Multiple advocacy promises to increase the likelihood of information being used for decisionmaking in the typically nonrational, real world of higher education. The fundamental premise of multiple advocacy is that superior decisions result from consciously adopting a conflicting or dialectical decisionmaking process. Implications for data presentation and for the role of the information professional are also discussed. Contains 31 references. (KM)

Promoting the Effective Use of Information in Decisionmaking

By Peter T. Ewell
& Ellen Earle Chaffee

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2BA386 $7.00

Summary

It is well known that decisionmaking in institutions of higher education does not operate according to the classic rational model. The way that institutions of higher education actually operate is more likely to be based on alternative modes of decisionmaking which are collegial, bureaucratic, political, or even anarchic. Given the fact that most decisionmakers and information professionals must function in a combination of such nonrational organizational settings, how is information best utilized?

Information often plays radically different roles in different kinds of organizational settings. Identifying the best functions of information within a specific setting is particularly important. Information professionals should recognize that, in addition to the traditional uses of information, there are other information functions which are critical to good decisionmaking. These include the use of information to (1) identify problems and alternatives, (2) set the context for action, (3) induce action, and (4) promote or legitimize action. Illustrative cases that pertain to higher education are presented.

Alternative modes of decisionmaking can be captured by the concept "multiple advocacy." The fundamental premise of multiple advocacy is that superior decisions result from consciously adopting a conflicting or dialectical decisionmaking process.

After the implications of multiple advocacy are discussed, this monograph concludes by presenting a number of alternative modes for disseminating information to decisionmakers, as well as different roles for information professionals to play in the decisionmaking process of institutions of higher education.

three standards is to make the role of the information professional transparent in any given decision. If decisionmakers are rational, the information itself will have considerable impact on the outcome of a particular decision. The manner or form in which it is supplied is not a factor.

However, it is well known that the world of higher education does not work according to the rational model. Alternatives to the classic model of decisionmaking have been discussed for so long and have been so thoroughly verified empirically that they have gained a modicum of acceptance as descriptions of the way institutions of higher education actually operate. Among the alternatives are collegial, bureaucratic, and political models, as well as models based upon the notion "organized anarchy." Despite wide acceptance by researchers of higher education, however, the implications of these alternatives for the work of information specialists in higher education have not been effectively drawn. Information professionals in real institutional settings have been largely left to their own devices when it comes to deciding if they should, first, provide information as if the decisionmaking process were rational, second, tailor their work to the decisionmaking process which they suspect will actually be used, or, third, attempt to influence the decisionmaking process toward greater rationality through their own actions.

This monograph has two purposes. First, the conceptual implications of various alternatives to the classic model of rational decisionmaking are explored. The primary intent of this discussion is to note the radically different roles that information plays in different kinds of organizational settings. Second, examples are drawn from cases illustrating the different uses of information. The intent is to illustrate some of the important costs and benefits of different types of behavior of the people who provide information. In the last section, an alternative model of decisionmaking is

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proposed and briefly discussed. This is multiple advocacy, an approach which promises to increase the likelihood of information being used for decisionmaking in the typically nonrational, real world of higher education.

Limits of Rationality: Alternatives to the Classical Model

While the research literature undergirding alternative decision models is plentiful, that which relates such models to information utilization is scarce. This is particularly true with respect to issues and processes common to institutions of higher education (Chaffee 1983). Organizational theorists and institutional researchers alike have pointed out the importance of taking into consideration organizational and political contexts when developing information presentations (Schmidtlein 1977). Others have treated the presentation of information from the standpoint of cognitive psychology and the psychology of perception. Valuable contributions to the technology of information formatting have been made as a result (Jaret 1983; Hackman 1983). Much rarer, however, have been attempts to combine these two themes and draw implications for information gathering and presentation of information in different organizational circumstances.

Three Organizational Constraints on Using Information

A useful way to begin a discussion of alternatives to the classic rational model of decisionmaking is to consider some important real-world constraints on the decisionmaking process (March 1982). In the face of these constraints, it is still possible to think of decisionmaking as an essentially rational process. Each constraint, however, places limits on the rational model; each conditions the way decisions are structured and

accomplished. More important, each constraint has a profound impact on the nature of information that is used in the decisionmaking process. Although people tend to think of these impacts as negative, it is important to recognize that, in the presence of these constraints, information can serve important decisionmaking functions not covered by the rational model.

Constraints of Incomplete Information. The critical assumption of the rational decisionmaking model is that decisionmakers possess complete information about the alternatives among which they must choose. Indeed, only under conditions of complete information is it possible to act rationally and choose alternatives that minimize costs and maximize benefits. Classical-decision theory relaxes this constraint somewhat, but it does so at the price of making the acquisition of information the subject of a rational decision (Raiffa 1968). Decisionmakers are asked to balance the reduction in uncertainty that a piece of information provides about a decision, on one hand, with the known cost of acquiring the information, on the other. Complete information is consequently assumed to be available and limited only by the decisionmaker's rational assessment of how much it is worth given the context of the decision.

There are many empirical objections to this approach. The first set of objections centers on the absolute impossibility of gathering complete information in a policy context (Coleman 1972). The need for timely information often outweighs the need for precise information; and, in any case, the search for precision can be fruitless. A second set of objections has to do with the tendency of people in organizations to examine only the alternatives about which there is information rather than seek information about a full range of alternatives. This version of "looking for something where the light is better" assumes that current information is complete. A third set of objections has to do with

information overload. For the decisionmaker whose most precious commodity is time, interpreting complete information (even if it were possible to gather it) could impose an intolerable constraint. More subtly, internalization of the rational model might drive the decisionmaker continually to amass information as a valued good in itself, despite an increasing inability to process or use it (Feldman and March 1981).

Political Constraints. The second critical assumption of rational decisionmaking is that the motives of individual actors in the decisionmaking process are neither known nor relevant. While certainly not without cost, information is at least part of the free market; its supply and interpretation are not impeded by political barriers. If the administrative process is perceived to be essentially political, however, these assumptions about information are immediately reversed (Huff 1984; Wildavsky 1964; Baldridge 1971). Internally, information can be used rationally to discover and assess alternative courses of action. Externally, however, information is used as a weapon to convert the opposition and build support for one's own position. In neither case is information freely shared in the approach which is taken to a problem which faces the organization. Indeed, in a bargaining process, sharing information, particularly information about one's own preferences, is a profoundly irrational act (Boulding 1962).

Constraints of Organizational Culture. The third critical assumption of rational decisionmaking is that different decisionmakers perceive and interpret information in essentially the same ways. While the political constraint undermines this assumption on the grounds of motive and organizational position, the constraint of organizational culture does so on the basis of differences in individual perceptual and cognitive styles (Geiger and Hansen 1968). Perceptual and cognitive styles

that are distinctive for an organization can be the result of the different backgrounds and training of administrators (McKenney and Keen 1974). Indeed, the fact that administrators in higher education are drawn from different disciplinary backgrounds with widely different approaches to standards of evidence has profound implications for the use of information by college and university administrators (Mayo and Kallio 1983; Mitroff 1982).

Distinctive perceptual and cognitive styles can also be the result of particular organizational settings. Regardless of the disciplinary backgrounds of administrators, the administration of a small liberal arts college is a different enterprise from that of a large research university. The difference can be attributed to different perceptions of collegiality and the importance of preserving it. Futhermore, individual institutions particularly private institutions, can have unarticulated, but closely held, institutional ideologies. Belief systems that are centered on academic mission and philosophy can systematically prevent perception of certain kinds of alternatives, and they can also systematically discount certain sources or types of information.

These three constraints, acting together, profoundly limit the utility of management information systems that are based on a belief in rational decisionmaking. As Churchman (1975) has succinctly noted, "On the bottom of every systematic MIS there should be the warning, Manager: Most of the information is lacking. You will have to supply it on your own, from friends and allies."

Irrationality and the Action Imperative

Each of the three major constraints on rational decisionmaking limits considerably the ability of information to play its traditional role in the decisionmaking process, that is, the reduction of uncertainty among alternative courses of action.

A more important threat to rationality and, consequently, to the traditional model of information use, is the tendency for complex organizations to behave in what seem to be quite irrational ways (Allison 1971). Institutions of higher education are not exceptions to this tendency. Colleges and universities often apply simple assumptions in decisionmaking in order to reduce arbitrarily the number of options they must consider. Incremental solutions to critical problems are often posed because, given the need to build consensus, they are perceived to have the greatest chance of being carried out (Lindblom 1959; Astin 1976). And, most important, institutional ideologies are often employed to mobilize constituencies for action, even though such ideologies might involve very inaccurate interpretations of the institution and its environment.

All of these observations can be summarized in terms of a single underlying theme: the process of decisionmaking is ultimately dependent upon the need to take effective action once a decision--any decision--is made. Indeed, it has been persuasively argued that a major reason why complex organizations engage in what appears to be irrational decisionmaking is that decisionmaking itself is a relatively unimportant activity. The premiere challenge to organizations is to mobilize the necessary physical, human, and psychological resources to ensure that a decision, once made, can be implemented (Brunsson 1982).

A major contradiction inherent in this hypothesis is that information is necessary to arrive at a decision, but too much information can block the implementation process. The concepts "decision rationality" and "action rationality" are thus in considerable conflict with respect to the role information should play. Decision rationality requires consideration of the maximum number of alternatives about the decision. Action rationality requires complete, unquestioned agreement on the

merits of one. Because the decision and action are rarely separated in a given organizational context, only one perspective--the action perspective--is generally allowed to dominate. The more alternatives raised in the decisionmaking phase, the more difficult becomes the task of reducing uncertainty so that motivation and commitment in the action phase can be maintained. Thus, as Brunsson (1982) points out, decision irrationality is particularly critical for big choices in which it is important to maintain motivation and commitment.

Information in Some Nonrational Settings

Both of the above observations allow some important alternatives to the rational organization to be posed and the role of information in each to be discussed. Alternatives to the rational organization which should be considered include the collegial organization, the bureaucratic organization, the political organization, and the anarchic organization. Consistent with the previous discussion, each model uses information for decisionmaking in a different way (see table 1). This is because each organizational structure imposes different limits on the completeness of available information and its motivational and cultural content. Additionally, each type of structure uses information for decisionmaking in a different way precisely because each must organize for action in a different way.

The five organizational structures presented in table 1 are ideal types. No institution exhibits all of the characteristics of any one of these conceptual categories. But institutions certainly tend toward one or more of these alternatives. For many institutions, different models can be found in different areas of decisionmaking. For example, academic decisions might be collegial or anarchic, while financial decisions are bureaucratic or political. The point of providing such categories is diagnostic--to help those who supply information

TABLE 1

Information Considerations	Decision-making Models			
	Formal Rational	Collegial	Bureaucratic	Political
What is information?	Verifiable facts; probabilistic analyses; expert judgment	Verifiable facts; probabilistic analyses; expert judgment; rhetoric	Verifiable facts, digested and presented according to routines	Verifiable facts; probabilistic analyses; persuasive rhetoric
What is it based on?	Problem definition	Problem definition	Procedure; precedent	Partisan debate
Who prepares it?	Professional analysts; substantive experts	Everyone	Administrators, especially at lower levels	Anyone with a position to advocate or refute
Who uses information?	Line authorities	Everyone; collegium	Specific administrators	Partisans
When is it used?	Early in the stages of problem-solving; continuously only by choice	Early in the stages of problem-solving; continuously only by choice	Regularly, as determined by standard operating procedures	Early in the process of issue attention; continuous only by choice
Why is it used?	To discover the relative costs and benefits of choice alternatives	To check relative validity of choice alternatives as means to agreed-on objectives	To address issues as historically and continually established by the organization	To reveal mutual benefits of alternatives and relative power
What is the goal of information use?	To identify the alternatives with maximum cost-benefit ratio	To iterate toward consensus	To identify the current state of traditional decision premises	To persuade contenders toward a self-interested favorable outcome
How important is information?	Critical—no decision possible without it	Very important, but so is a colleague's opinion	May be important: a) for direct use in making a decision; and/or b) for organizational continuity, stability	Very important (but indirect) effect on decision in that it helps determine and justify actors' positions

SOURCE Ellen Earle Chaffee, "Information Systems to Support a Decision Process at Stanford. *CAUSE/EFFECT* 5.3 (May 1982), p. 6.

to understand how it will most likely be used (or not used) in the decisionmaking process.

In addition to limiting the ways that information can be used rationally to help decisionmaking, the alternative models of the ways that organizations function also provide opportunities for information to be used in new ways. And, indeed, certain of these structures are associated with particular ways of using information (see table 2). The rational organization, for example, is configured to use information in decisionmaking; but, because it tends to approach problems one at a time, it does not make effective contextual use of information. In contrast, the collegial model makes the best use of information to generate different arrays of decision alternatives from different points of view, while the decisions that are ultimately made can be based on nonrational grounds.

Given the fact that most decisionmakers and information professionals must function in combinations of such nonrational organizational settings, it becomes particularly important to identify the best functions of information in a particular setting. Once identified, techniques can be developed that enhance and capitalize upon their salience in particular decisionmaking situations. At the very least, information professionals should recognize that these additional information functions are critical to good decisionmaking. Examples of alternative uses of information, together with some illustrative cases, are presented below.

Use of Information to Identify Problems and Alternatives. Information can be used to search for new alternatives rather than to assess the consequences for decisionmaking of different alternatives (Huff 1984). In a political or a collegial context, in fact, discerning alternatives through information-based discussion can be a far superior way of generating alternatives than more rational approaches.

TABLE 2

Relationships Between Uses of Information and Organizational Types

	Decide among alternative courses of action	Generate new alternatives	Provide context for decision	Promote or legitimize action
Rational	+ + Information highly valued to reduce uncertainty about action consequences	0 Information search limited to posed alternatives—anything else is accidental	– Alternatives posed discretely/ little incentive to get big picture	0 Implementation assumed to follow automatically from informed decision
Collegial	+ May allow clarification of other's points of view	+ + Actively employed to generate new, shared alternatives	+ Information used to accommodate opposed points of view	0/+ Information may help "certify" collective decision
Bureaucratic	+ Information-based decision valued as part of organizational ethic—but may be ritualized	0/+ As rational, except new alternatives move down through the hierarchy	0 Organizational structure itself provides context for decision	+ Information "signal" of rationality—part of bureaucratic ethic
Political	0/– Information actively distorted to promote persuasion	+ New alternatives may develop through give/take of information-based advocacy	+ Context emerges through informed, iterative bargaining process	+ Information part of mechanism of persuasion; may "cloak" backing down for losing parties
Anarchic	0/– Information brought to bear on a particular decision essentially random	+/– Many alternatives generated but not systematically—can't be exploited	– No opportunity to gather/ express contextual information	0 Depends on dominant culture; could provide only focus for potential action

Case 1

The president of Rally College portrayed the college financial picture as rosy, but finally admitted to the trustees that Rally was nearly bankrupt. Soon after, the trustees held a public meeting and laid out all information about the situation to students, townspeople, media, and sponsoring church members. During the next several months, the chairman of the board asked the student body president to accompany him so that he could tell the story to other churches in the region and discuss it on statewide television. Ultimately, the sense of betrayal and outrage that had been stimulated by the sudden revelation of the deficit abated. Betrayal was counteracted by extreme openness. Moreover, presenting all the information publicly made clear what it would take to rescue the college. The trustees were in effect asking those who had it in their power to rescue the college to do so whether or not they wanted the college. They would be able to tell from public response whether the alternative of staying open was available or whether the problem ran so deep that no amount of fund-raising could overcome it. Laying out all the relevant information for the interested parties allowed maximum opportunity for those affected by the situation to generate the maximum number of decision alternatives.

Case 2

Academic leaders at Fork Falls Community College (FFCC) were extremely worried about the high cost of instruction in low-enrollment, sophomore-level courses in the transfer programs. They were convinced that freshman/sophomore attrition among transfer students was the cause of the problem, and thus they gathered considerable information on patterns of attrition and program cost. The results of analysis showed that FFCC in fact experienced excellent retention rates among traditional transfer program students--those who would be most likely to take sophomore-level courses. The analysis also

showed that the college served two other quite distinctive clienteles for whom considerable improvements in program structure could be made. Opportunities for resource saving and revenue generation that would result from such improvements went far beyond the original question of sophomore-level course offerings. Information originally directed at a single problem revealed a range of new policy alternatives.

Use of Information to Set Context for Decision. Most decisionmakers rely heavily on a suggestive, rather than decisive, information system (Churchman 1975). The objective of a suggestive system is to place a given decision in its proper context, that is, outline its basic parameters and, most important, define ways in which it is dependent upon other parts of the system. Information of this kind is rarely a sufficient condition for making a particular decision, but it can provide a foundation for considering a whole range of issues and the relationships among them. Contextual information such as this can, for example, be a critical ingredient in strategic decisionmaking. Supplying it effectively requires considerable interpretation and integration. Futhermore, such activity can be fostered by particular organizational cultures, especially those emphasized by the collegial model.

Case 3

Like many small private colleges in the 1970s, Prairie College was forced to face the fact that its efforts to attract students by diluting its liberal arts mission were producing neither level nor increased enrollments. It needed either to pursue aggressively a new mission that would be more attractive or rededicate itself to the liberal arts and lop off some programs that had been recently added. Moreover, it needed to decide whether achieving level or increased enrollments was important. Perhaps "smaller but better" had meaning for Prairie. Consciously or not, the trustees and

faculty who chose a new president at this juncture foreshadowed the outcome of the decision by the character of the man they selected--a professor of Spanish literature from a highly selective women's college in the East. This set the context for later discussions about the mission and size of the college. Because the new president allowed the decision to move slowly through the system, a great deal of additional contextual information surfaced. The faculty voiced their nostalgia for the days of pure liberal arts curriculum, but those discussions inevitably acknowledged the likelihood of declining enrollments for the liberal arts. Trustees, townspeople, and students were involved in a similar discussion. Through them, the president was able to develop a sense of the receptiveness of college constituencies to various alternatives. The selection of the president provided contextual information for the debates; the ensuing discussions provided contextual information for the president.

Case 4

Like many public institutions in the Southeast, Southern State University (SSU) was under a federal consent decree to increase the percentage of black students enrolled in undergraduate and graduate programs. As a result of this pressure, a major marketing effort was planned to attract black high school students to SSU upon graduation. At the same time, the university was experiencing considerable loss of black students already enrolled. Clearly, there was also a need for a retention program for black students. To support recruitment and retention, a great deal of previously collected information was brought together. This included information about application rates, admissions, matriculation, performance in curriculum, withdrawal and program completion, perception of the institution and its programs, and postgraduate education, income, and employment. When pulled together, this information revealed that perceptions of black students about SSU being academically

difficult and challenging were deterring applications and that potential students did not know of the successes of their peers in completing programs and obtaining good jobs. Most important, they did not know of the kinds of support services SSU had available to help them succeed. The information provided helped decisionmakers see recruitment and retention of black students as part of a single linked problem requiring a common solution. Prior to this, admissions and student-service personnel had been working at cross-purposes.

Use of Information to Induce Action. Beyond its use in clarifying the consequences of particular decisions, information can facilitate the process of arriving at a decision. For example, in collective decisionmaking processes--the kinds of committee structures that are pervasive in higher education--concrete data about the problem under discussion provide a degree of closure far beyond their actual bearing on the problem and their actual informational value. This is because they provide a focus for discussion and allow empirical questions to be separated from value questions. It has often been observed that confusion between these two fundamental issues is a primary reason why most collective decisionmaking processes take so long to reach a conclusion (Simon 1957).

Case 5

When enrollments declined, rumors began to circulate that the parent university planned to sell Link College. Soon rumor took on credibility as discussions were held in the president's cabinet confirming that the alternative was under consideration. By the time the university sold another one of its campuses to the state, lending still further credence to the rumor, morale had dropped precipitously, and those who could leave the college for other jobs did so. Through seven years of unrest, low morale, presidential turnover, and

continuing decline, discussions about the sale of the college recurred. Finally, someone noted that the land and the paid-for buildings on campus were legally owned not by the parent university's board of trustees but by Link College's local development foundation. The foundation would have to consent to any change of college status, and the position of the foundation was to maintain the status quo. Suddenly, the issue was dropped and that rebuilding of morale and enrollments began.

Case 6

The chairman of the English department at Upstate University was concerned about a lack of curricular structure in the undergraduate program. Too many students, he felt, were graduating without the needed rigor in writing and critical analysis that is crucial to good scholarship in the field. Because the university prided itself on its ability to train undergraduates to perform effectively at the graduate level (and 45 percent of undergraduates did successfully enter graduate programs), this was a serious concern. But the chairman was frustrated by his inability to focus a discussion on this issue among the diverse, research-oriented faculty members of the department. An opportunity came with distribution of comparative results of an alumni study conducted by the Office of Institutional Research. Results of former student evaluations of the English curriculum were presented graphically and compared to division and university averages. English ranked well below other departments in students' perceived adequacy of preparation for graduate study, and these statistics were reinforced by the verbal comments of students about the structure of the curriculum. The department chair immediately distributed these results to his faculty and arranged a meeting to discuss them. While many faculty quarrelled with the adequacy and substance of the study findings, the result was that the faculty was for the first time engaging in a serious discussion of the curriculum and how to improve it.

Without the spur of information which showed the department in a negative light, this probably would not have occurred.

Use of Information to Promote or Legitimize Action. Once a particular decision is taken, concrete information provides a powerful lever in "selling" the decision to those whose cooperation is needed to implement it. Again, the effectiveness of information in this role has nothing to do with either its accuracy or its bearing on the problem at hand. Rather it serves as a symbol that the decision was well taken, and allows the possibility of cooperation among opposing parties without one side overtly having to back down. Some of the power of information to accomplish this feat undoubtedly has to do with a distinctive cultural reverence for numbers and an expectation that numbers, in Hofstadter's (1979) terms, "will not do silly things." Part of it also has to do with a collective organizational ethic, particularly present in higher education, which holds that acting on information symbolizes a serious, rational approach to decisionmaking (Feldman and March 1981).

Case 7

Returning to the case of Rally College, the community and church came to the aid of the college, but not without misgivings. Many individuals and groups made pledges for future donations that were contingent upon satisfactory effort from the college in the interim. So the trustees and the new president developed systematic methods of identifying and publicizing positive changes. They were especially concerned that they be able to show steady increases in enrollment as a summary measure of institutional well-being. Therefore, new programs and new methods of counting students were developed. Fortunately, the programs were successful and the new methods of counting did not seriously overstate the college's true condition. By sending out good news and lots of it, the college

accomplished two important goals. First, college supporters felt that secrecy, which had precipitated the crisis, was no longer a factor in college management. Second, college supporters were given information that legitimated following through on their commitments to support the college.

Case 8

For some time, the dean of Instruction at Sunkist Community College was convinced that an existing two-year vocational program in hospitality management was not properly structured to meet the changing needs of the community. The college's service region--a major resort area--was developing rapidly and in extremely diverse ways. New management needs were arising based upon much larger enterprises often associated with major hotel or restaurant chains. Several faculty, including the program chair, agreed with the dean that serious restructuring was necessary, but no progress could be made because of the political opposition of an entrenched program-advisory committee which threatened to raise the issue with the college's politically sensitive board. In the course of a program-review process, interviews were conducted by an external consulting firm to determine the demand for hospitality management and several other programs. The results strongly confirmed what the dean and faculty already knew. Presented with statistical information from an external source, the opposition backed down, and the dean was able to initiate program restructuring without fear of a board fight on the issue.

Multiple Advocacy

Many of the themes in the previous section can be summarized in terms of a single conceptual alternative to the classic, rational model of decisionmaking. Broadly termed "multiple advocacy," this alternative has many implications for the way

that information professionals perceive and carry out their roles in the nonrational world of academic decisionmaking.

The fundamental premise of multiple advocacy is that superior decisions result from consciously adopting a conflictual or dialectical decisionmaking process (George 1972; Thomas 1984). Advocates of different positions regarding an issue are encouraged to present to a decisionmaker or decisionmaking body the various alternatives (supported by the best possible analyses of each), together with the consequences of each. Because supporting analyses are presented from differing points of view, they often contain quite different or contradictory "facts" about a given situation. One advantage of this approach is that discussion of alternatives can center on sorting out the empirical differences among particular analyses without immediately having to address underlying value conflicts. In this respect, multiple advocacy is structurally similar to the Delphi technique. It also has strong structural analogies to the kinds of unit budget hearings and participatory program-review processes that are increasingly present on many college and university campuses (Keller 1983).

There is a growing body of evidence supporting the efficacy of conflicting analyses in promoting better decisions. Mason and Mitroff (1981), for example, propose a method of "dialectical inquiry" in which a prevailing or recommended plan is developed and proposed, but is then confronted with a fully developed alternative in the course of structured debate. In a similar approach, termed "the devil's advocate," a prevailing plan is systematically criticized from different points of view, using different bodies of evidence in order to determine as fully as possible what is wrong with it (Schwenk and Cosier 1980). Experimental literature supports these positions. For example, Schwenk and Thomas (1983) found that a sample of mid-level decisionmakers made better policy choices when

presented with conflicting evidence about the consequences of a set of alternatives than when given only one point of view. More important, their grasp of the context of the problem was improved by exposure to conflicting analyses.

Some Implications for Data Presentation

Information professionals, including researchers, typically present the results of their work in a standard format. After some introductory comments on the context and methodology of the study and a set of recommendations, the results of a data-gathering effort are aggregated and presented as an independent report. As a concession to decision-makers' time, an abstract or executive summary is often provided which outlines the main points of the study. Reports of this kind will, most likely, be quickly put aside. However, a number of alternatives for disseminating information are available and have proven quite effective in communicating information to decisionmakers. These include the following:

1. Problem-centered reports which integrate the results of many distinct analyses around a commonly perceived campus problem such as student retention, campus image, and so forth.

2. Presentation of explicitly conflicting recommendations, each of which can be supported by the information presented, together with what appear to be their associated costs and benefits. This approach represents a form of dialectical inquiry which institutional researchers can undertake entirely on their own.

3. Unit-level comparative reports which disaggregate data to the department or unit level so that comparative evaluations of unit effectiveness can be made. Often, the discussions generated around the questions which are raised by reports are more important than the actual information conveyed by the reports.

4. Comparative exercises that force decisionmakers to state their expectations for particular data-gathering efforts before the data are collected. Differences between expected results and actual results are often excellent catalysts for discussions which lead to better decisions.

A basic theme throughout each of these techniques is the use of research information to promote better discussion of alternatives by forcing more structured interaction with the data and by encouraging debate about particular sets of findings and their implications. Often, in fact, the best decisions will result when the original data are shown to be limited or faulty, and the collection of data from different sources (or by different people with different positions) is encouraged.

Some Implications for the Role of the Information Professional

Another implication of the multiple advocacy approach is that the role of the information professional should be as much to provide appropriate data for analysis as to carry out analysis. In fact, there is growing evidence that, because of changes in information technology, the practice of institutional research is already moving in this direction (Stevenson and Walleri 1984). Indeed, the growing importance of microcomputers and decentralized decision support systems in colleges and universities makes it possible to have an effective information-based approach to multiple advocacy. Individual decisionmakers or members of a decisionmaking team can conduct their own analyses of a given body of data using differing assumptions or methods of analysis. The results of these analyses can then be used interactively to examine the merits of particular decision alternatives.

Such an approach, however, places a heavy burden on the integrity of the database used to support it. The role of the information professional under such circumstances becomes twofold.

First, he or she serves the critical maintenance function of ensuring the integrity and the accessibility of the planning database. Multiple advocacy approaches flourish in the presence of analytical diversity. They founder if completely different sets of data of uncertain quality are constantly introduced into the process (Jones 1982). Second, the information professional serves as a technical assistant who is able to provide advice and guidance to individual decisionmakers who are attempting to structure and implement their own analyses of a problem. Part of this role is to increase participation in decisionmaking bodies as an analytic expert rather than as an information resource. The analytic expert provides guidance about the limitations and potential contributions of particular analyses undertaken in support of particular decision alternatives. Neither role implies an increase in the information professional's participation in the decisionmaking process. Both, however, lead to considerable revisions in the way the information professional should support the process. And both of these roles are more consistent than the traditional role played by the information specialist.

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