Is Greater Citizen Participation in Planning Possible and Desirable?*

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Abstract

A review of present research suggests that significant alterations in democratic forms of government are possible in coming decades due to new communications technologies. Increasing citizen participation in planning is considered desirable due to the growth of planning in a democratic society, the need to restore a psychological balance between available information and decision making opportunities, the need for common forums in a society fractionated by multiple communication channels, and the potential for improving the responsiveness of government to the public at large. The advocates of citizen feedback hold a position distinct from the views of establishment social scientists, technocratic planners and radical community activists.

Introduction

In recent years a body of literature has emerged which proposes that participation in planning can be enlarged by means of new communications technologies. Since this is one case where physical scientists and engineers come to tred on the turf of social scientists, humanists, and those presently engaged in planning, it may be well to review the various proposals that have been made, the justifications given for changing the status quo and the counter arguments that these proposals are likely to encounter. Although other technologies will be discussed, the focus of attention here is on computer-based communications media and their use for involving the public in planning.

Conceptions of the Computer

A small number of ideas or metaphors seem to have guided our thinking about how computers might be used. (Fig. 1.)

1. Computers have for years been used as *calculators* for data manipulation, simulation, accounting, information retrieval, and in management information systems (MIS) [1].

2. The *information utility* concept was written about considerably by computer professionals beginning in the late 1960's and provided the route whereby they began to consider more imaginative social applications of computers [2].

3. A more recent idea is the computer as *a communications medium among experts* or

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THE COMPUTER CAN BE USED AS:

	A CALCULATOR	A COMMUNICATIONS MEDIUM
FEW USERS	1 classical uses: data manipulation, simulation, information retrieval, MIS	3 Delphi Conferencing, hook-ups among professionals
MANY USERS	2 information utility	4,5 teaching computers, citizen participation in planning

Fig. 1. Conceptions of the computer.

professionals. J. C. R. Licklider produced an article on the computer as a communication device in 1968 [3]. Murray Turoff's work with Delphi Conferencing has also focused on communication among professionals and managers [4].

4. Efforts to develop *teaching computers* have been very effective at least at the University of Illinois in producing significant advances in hardware, software and applications [5]. But most of the people involved in educational technology tend to view their work as developing new devices for use in existing educational institutions rather than as possibly bringing about fundamental changes in other organizations as well.

5. The computer as *a communications medium for the public* at large is an idea that could have a significant impact on current democratic theory [6]. But before getting into the complexities of that debate, perhaps it would be wise to clarify how computer-based communications media differ from other communications systems.

Generations of Electronic Mass Communications Media

During the next four to five years, the PLATO system at the University of Illinois is scheduled to expand from the simultaneous operation of 20 terminals to the simultaneous operation of 4000 terminals [7]. Although the PLATO system has been designed primarily as an educational device, it might also be viewed as a new kind of mass communications system—the prototype of fourth generation electronic mass communications media.

Communications media can be thought of in "generations" just as computers are. The metaphor is useful in pointing out that significantly different hardware is being introduced sequentially in time. Focusing on electronic mass communications media eliminates newspapers, films, and cassettes (they are not completely *electronic* media since they involve at least physical transportation) and the telephone and telegraph (they do not distribute similar messages to a *mass* audience) [8]. (Fig. 2.)

1. *Radio* transmits audio messages from the center to the periphery.

2. *Broadcast television* transmits audio and visual messages from the center to the periphery.

3. *Cable television* provides a great increase in the number of available channels and the possibility of both passive feedback, (monitoring what people watch) and active feedback (for example, voting by pressing a button on the television set).

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FOUR GENERATIONS OF ELECTRONIC MASS
COMMUNICATIONS MEDIA NOW EXIST IN AT LEAST
PROTOTYPE FORM

1.  Radio                       audio

2.  Broadcast television        + video

3.  Cable television            + feedback
                                  (passive and active)
4.  Computer terminals          + user control of
                                  presentation
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Fig. 2. Electronic mass media and their characteristics.

4. *Computer-based communications systems* are different in several respects.

(a) Less evanescent: With radio and television a listener or viewer cannot go back if he misses a word or sentence (unless he has a tape recorder). With PLATO each individual progresses at his own rate. The display does not change until he wants it to, and he can go back to review previous displays.

(b) Less simultaneous: With a computer-based communications medium everyone on one "channel" does not see the same thing at the same time as is the case with either broadcast or cable television. With PLATO the viewer can ask for additional information or can jump ahead if he becomes bored, thus to some extent designing his own program. (Fig. 3.)

(c) More interactive: Cable television cannot be interactive (the individual's response influences the information presented) for each participant, only for the group of viewers. The teaching computer is interactive for the individual, at least within certain limits.

Fig. 3. The PLATO III system involves communication in two directions. Each student is provided with an electronic keyset as a means of communicating with the computer and a television display for viewing information selected or generated by the computer.

Citizen Participation in Planning

In an earlier paper I suggested that the computer-based communications media now being developed could be used to involve a larger proportion of the public in the decision-making processes of society [9]. During the next two decades the distribution of computer-based education equipment to grade-schools, high schools, and colleges will probably become widespread. Facilities that are used by children during the day for education could be used by parents in the evenings both to learn about existing social conditions and future possibilities and to indicate to planning groups their views on goals and priorities. Computer-based citizen participation in planning will therefore be possible even before home computer terminals become widely available. (Fig. 4.)

STUDENT TERMINAL

PLASMA PANEL

$x^2 - 2x = Y - 4$

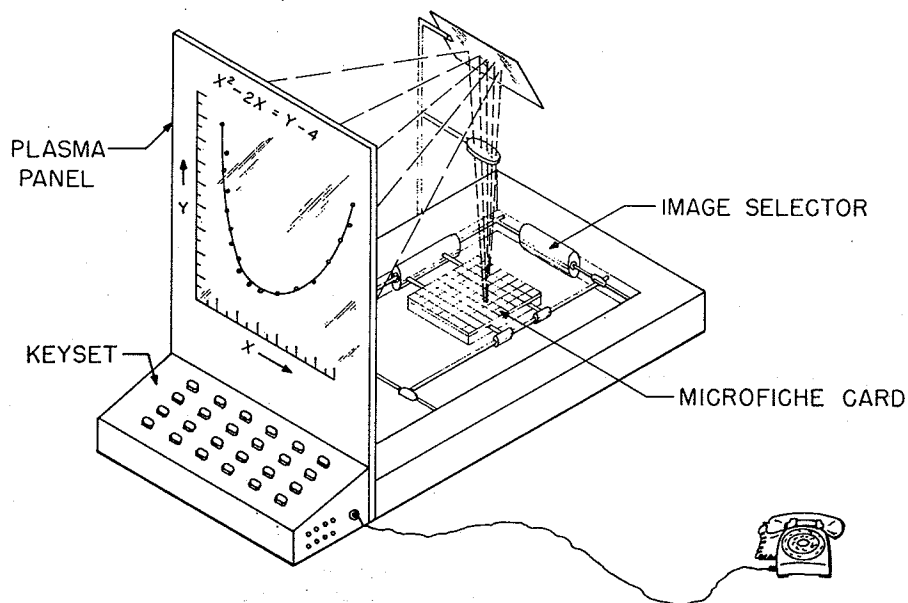KEYSET

IMAGE SELECTOR

MICROFICHE CARD

Fig. 4. Using terminals such as that pictured above, the PLATO IV system, scheduled for completion in 1975, will provide a high quality color display at low cost. The terminals will be connected to the computer over standard voice grade telephone lines.

In a typical citizen participation simulation background information would be available upon request of the person using the "exploration of alternative futures." The probable consequences of each alternative, according to the judgment of a group of presumably knowledgeable people, can also be part of the programmed material. During the course of the exploration each individual would indicate his opinion of the desirability of each alternative or could be asked to rank them in order of preference. As he explored the alternatives, background information, and probable consequences, the "explorer" would be able to use a "comment mode" to suggest additional alternatives, inadequacies in the background information provided, or his own judgments about the probable consequences of an action or development.

An elementary version of an "exploration of alternative futures" is now in operation

at the Computer-Based Education Research Laboratory on the University of Illinois campus. This "exploration" was originally proposed by Professor Charles E. Osgood as a device for education and social science research [10]. It is now regarded as the forerunner of citizen sampling simulations, which would use the physical equipment of the teaching computer to exchange information and opinions between experts and a cross-section of the public. The anticipated medium and long-range consequences of alternative courses of action would be "simulated" and opinions obtained from a sample of the population. The results, which would indicate what the public considers to be desirable and undesirable policies, would then be submitted to planning personnel for their consideration. A preliminary experiment, using a local environment issue has been conducted by Valarie Lamont [11].

Why New Forms of Participation Are Needed

Four justifications can be given for involving more people in decision-making processes. First, there has been a marked *increase in long-range planning activity* in the United States and other nations in recent years. Several developments—the establishment of new institutes, the founding of new journals, and the sharp increase in the number of books concerned with the future—attest to the emergence of a new field of activity in many institutions and particularly in industry, government, and universities [12].

The growth in planning activity would seem to require new patterns of communication and decision-making, if a democratic form of government is to be maintained. It is useful then to ask, through what communications media and institutional structures can the members of a community or a nation discuss and decide how they want to live, recognizing that it is not possible to get everyone together in a single room at the same time?

A second reason for increasing public participation in political decisions is that the present mix of new communications technologies with old political procedures may have disturbed *a basic psychological balance* between the amount of information people have access to and the opportunities available to them for participating in decision-making. One might even postulate a law regarding "need for decision-making" —increasing the amount of information about decision-making processes that affect one's life leads to increased demands for participation in or influence over those decisions. When the balance between amount of information and opportunities for participation is disturbed, there will be demands for changes in institutions and procedures.

Numerous writers have observed that demands for democratic forms of government seem to follow the diffusion of communications technologies. Bagdikian has made the point as follows:

In January, 1848, there was an insurrection in Sicily, followed by an astonishing succession of rebellions and revolutions during the next twelve months that shook every regime in Europe except Russia, Spain, and the Scandinavian countries. The basic causes involved the Industrial Revolution and urbanization, with the consequent growth of nationalism and individualism. New communications accelerated the change and in so doing caused events to happen differently . . . What were the new channels? In the years between 1820 and 1848 the steamship, railroad, new printing techniques and the telegraph produced stunning changes in the way individuals saw themselves and their positions in society . . . In both Europe and the United States the telegraph did more than simply raise the quantity of information. It placed knowledge in new places under changed conditions. It bypassed traditional systems for controlling information [13].

With regard to the present and future situation Paul Baran has written:

> The flood of news flowing downward and the felt lack of an upward channel of reply can be expected to worsen in the near term . . . Failure to supply such a channel would appear to guarantee alienation from the political process . . . There is a strong emotional need for the feedback channel in most "electrical communications crowds" to allow people to interact with something [14].

The political turmoil in the United States in the late 1960's was no doubt primarily due to growing dissatisfaction with the Viet Nam war and the just demands of minority groups and women. But an important factor in the political climate was the greatly increased ease in transmitting information about social problems. This change was not offset by a proportionate change in the public's ability to influence social policy either through an increase in the political skill and commitment of the electorate, or through changes in institutions, or both. "In terms of effective information transmitted per unit time, none of the presently available channels of citizen feedback rivals the flow from the centers of power outward to the citizens via television and the press" [15]. "One result of such unidirectional communication is the increasing alienation of the citizen from political and social processes" [16].

A third reason why new forms of participation are needed lies in the impact of a large *number of communications channels* on the amount of unity or agreement in a social system. Ithiel de Sola Pool has pointed out that a small number of mass media "channels" whether newspapers, radio, or television tend to increase unity among a large number of people; but new communications technologies, such as multiple-channel cable television, cassettes, and information utilities, which permit the individual greater control over the information he receives, can be expected to produce an atomization of society [17].

When there is a small number of competing channels, media managers tend to direct their messages to the largest possible number of people. But as the number of competing channels increases, managers try to capture the attention of significant minorities. Because the electronic media until recently have distributed a few messages to a multitude of recipients, there has been a resulting influence toward homogeneity and conformity. The new technologies, Pool argues, will tend to substitute for the mass media an interactive medium that, by adjusting to each user's desires, could introduce into society a powerful force toward fragmentation and variety.

However, a mass communications system with built-in feedback, by allowing people to comment on the information presented (and not presented), could be used to compare the different viewpoints developed on special audience channels. This application of computer-based mass communications media (as opposed to the information utility notion) might help hold society together. Such a medium could be thought of as a forum where divergent views are discussed. The important point is that if there is an absence of a concerted effort to use this medium as a public forum, the pressure for immediately useful information could lead to the overall effect of societal atomization. Because of the very important consequences of alternative uses of this new technology, greater academic attention to large scale information processing in social systems would seem to be quite worthwhile [18].

A fourth reason that can be given for increasing public participation in planning is based upon a principle from control systems theory. *Shannon's tenth theorem* states that the performance capability of a regulator is limited by the capacity of the feedback channel [19]. If government is regarded as the regulatory apparatus of a social

system, then the effectiveness of government will be limited by the amount of information that is available about the state of the social system and the consequences of government policies. For instance Leonard and Etzioni, *et al.* have noted that one result of unidirectional communication is "the making of decisions that are unresponsive to the real wishes or needs of the people and are, as such, widely resisted. (Prohibition and the busing of school children are examples.) In addition there is little opportunity for mutual influence to occur, or for a genuine group consensus to evolve"[20].

Obviously this is not an idea that is foreign to the practising social scientist. But the position of the principle in a formal theory reinforces the idea that if the channel capacity of feedback processes in a social system can be significantly increased, the increase in governmental effectiveness (for whose purposes the theory does not specify) could be similarly significant. It should be noted that there are innumerable locii of decision-making and therefore regulation in a social system. Consequently when one speaks of feedback in a social system, one does not necessarily mean feedback *to government.* One simply means feedback to a regulatory apparatus which might be any person or institution.

Kinds of Feedback in Social Systems

In recent years basically three kinds of feedback in social systems have received attention.

Societal feedback is the term associated with the movement to develop social indicators [21]. The idea involves collecting data on the social system at regular intervals in order both to better understand what problems exist and to be able to evaluate the effectiveness of programs legislated to deal with the problems.

Ombudsman programs and store front city halls can be thought of as providing *individual feedback.* These programs handle personal requests and problems and are usually concerned with insuring that social services are delivered rather than engaging in political activity that determines what services are to be provided [22].

Citizen feedback refers to participation in the decision-making processes of society [23]. Whereas individual feedback consists of requests for redress of personal grievances within existing laws, citizen feedback as used here refers to involvement in the political process to change laws, institutions, or procedures. Numerous proposals for enhancing citizen feedback have been made in just the past two or three years. Several of these are discussed in the next two sections.

Present Activities

A large number of activities have been undertaken over the years to increase the information available to the public about social and political issues using electronic media. In addition to radio and television news programs and documentaries there have been radio talk shows with questions and comments phoned in by listeners. Some stations even broadcast city council and school board meetings. In Jacksonville, Florida, the public television station accepts telephone calls following a nightly program "Feedback" which reports through film, videotape, and live interviews on issues in the news that day. The program has launched a clean-up campaign, forced the closing of a ramshackle junior high school and prompted a mosquito control campaign. The station also engages in "turnabout" television—when someone "has a valid point to get through to an official body, the public affairs staff of the station will make a film or

videotape presentation illustrating it . . . Significantly, such programs attract viewers comparable to the audience drawn to pure entertainment"[24].

The Advocates on the public broadcasting channel is the present activity in this country which most closely approaches public discussions of national or state policies. The program obtains feedback from viewers by mail and sometimes from people in the studio using hand-held switches.

In Germany Helmut Krauch has used a combination of television documentary, discussion, phone-in, and electronic opinion polling to review priorities for dealing with pollution. In early 1971 three programs were broadcast on successive evenings on an education channel based in Cologne and capable of reaching about a third of the West German population. The series began with a cartoon criticizing the gap between government and the public and then showed a film reminding people of the problems presented by pollution. The viewers were told that during the rest of the evening questions would be asked from time to time to which they could phone in their answers. Thirty lines were available. Callers were asked to answer the latest question on a five-point scale (strongly agree, agree, don't know, disagree, strongly disagree) and were also asked their sex, age, income, educational level and post code. No names were requested. Cards were punched and processed looking for patterns in the replies.

The phone-in sessions alternated with "organized conflicts" between representatives of industry, government, doctors, consumers, and other interested groups. The participants were encouraged to be aggressive rather than conciliatory. A panel of experts in attendance could supply factual information and interrupt if one of the participants in the discussion made a false statement or an unjustified generalization. A second, smaller sample of the public—a representative panel of 30 people—could phone in and intervene in the discussion to make a point or ask a question. The results of the large-scale phone-in were introduced into the discussion. Some 3000 phone calls were received in all and there would have been more if the lines had not been jammed for part of the time [25].

Recent Proposals

Going beyond periodic public discussions, Vincent Campbell has suggested a move toward direct democracy. His system would use newspapers to present and summarize issues and suggest references for background reading. Voting would be done by dialing in the telephone code numbers listed in the newspaper. Campbell suggests using the system for day-to-day politics and to replace legislators at least in part [26].

David Loye has advanced a plan for using computers, television and the Delphi method to enable a very large number of people to participate in reordering national priorities at intervals of approximately each year. Small groups would discuss a list of issues for about two hours and then each person would cast a ballot. The returns would be processed by computer and the results broadcast on television as is done with Presidential elections [27].

Mike McManus is the director of a project for the Regional Plan Association of New York City that will use a series of local telecasts to focus public attention on critical social issues and explain alternatives proposed by public and private agencies. Viewers, organized into small groups, will discuss the issues and mark ballots coded for computer processing. The results would go to government and private decision makers, or eventually to a special advocacy group set up to push for public wishes. The first stage of the project, called Choices for '76, is scheduled for the spring of 1973 [28].

Amitai Etzioni and others have proposed a series of experiments in community participation named after Minerva, the Roman goddess of political wisdom. His system would use existing technology of radio, television, telephones, and some additional equipment to link members of a community to one another and communities to each other [29].

The various activities and proposals cited above, clearly indicate that citizen participation in public discussions and perhaps also planning and decision-making are possible in the next few decades. Computer-based communications equipment will not be widely distributed for at least 15 to 20 years. However, the other proposals are more nearly realizable with existing technology. How the various technologies can be used in the political process is now beginning to be investigated in a variety of communities. Experiments with computer-based communications media could be enhanced by the fact that the teaching computer can also be thought of as a gaming laboratory [30]. Thus the same equipment which people may be using in the future for part of the actual political process will be readily available in the classroom for gaming simulations of political processes including a computer-based communications medium.

Will People Participate?

Despite the growing number of new media for political participation, there is some doubt whether people will actually use them after the novelty has worn off. The idea of an accurate sample, essential for a poll, may be dropped in computer-based exercises due to the somewhat time-consuming nature of the programs and the level of concentration required. Consequently a kind of voluntary participation to the extent of the individual's time and interest might develop. Such exercises could provide a theater of activity for those who would like to be more politically involved than simply reading the newspaper and voting but who are not actually decision-makers and who may be less interested in group organizing than the present political process requires.

The teaching computer might evolve into a communications medium used by the various active groups in a community. Groups interested in ecology could prepare the programs on ecology, and those interested in educational reforms could prepare the programs on education etc. Then that part of the citizenry interested in discussing a particular issue and registering an opinion and influencing others could work through the appropriate computer program. Thus a nucleus group would prepare a preliminary program which would be expanded and modified by later participants. If used in this way the computer would not be acting as a communications medium between planners and the public but rather as a communications device linking up the more active citizenry.

One factor that could contribute to the intensive use of computer-based media for citizen participation is the possibility that these media might increase the productivity of political activity by groups with widely dispersed membership. Political scientists have repeatedly found that the bulk of the population is relatively uninformed and does not extensively use the means of participation now available. Recognizing that some people are simply not interested in politics, an additional factor is the marginal cost of participation in terms of a person's time and energy. Computer-based communications media might have the effect of lowering the operating costs of citizen lobbies and making them more competitive with the lobbies of wealthy interest groups.

The Opposing Arguments

Even if greater citizen participation is possible, there is likely to be little agreement on whether it is desirable. Opposition to these forms of participation has been expressed

by both establishment and nonestablishment sources. Those who identify with the establishment are usually concerned lest their power be somehow diminished. Non-establishment opponents argue that those in power will use the new technologies to protect and extend their influence at the expense of the already poor and disenfranchised. Those who identify with the establishment tend to divide into two groups—social scientists and technologists. Thus three separate groups have so far expressed serious reservations—the establishment social scientists or pluralists, the technologists, and the antiestablishment social scientists or radicals (see Table and Fig. 5) [31].

THE PLURALISTS

The establishment social scientist will oppose increased citizen participation using concepts from a well-developed although recent school of political theory. This group, commonly called the pluralist school, maintains, contrary to classical democratic theory, that civil liberties and democratic rules of the game are more likely to endure in the hands of a wealthy, highly educated minority than if entrusted to the volatile, more easily misled masses [32]. As Peter Bachrach has explained, "Widespread mass support of totalitarian movements in prewar Europe and the rise of powerful proletarian-based Communist parties in postwar France and Italy, of Peronism in Argentina and Mc-Carthyism in the United States have badly shaken the confidence of liberals in the cause of democracy"[33]. A reverse trend resulting largely from growing disenchantment

TABLE

Synopsis of Opposing Arguments

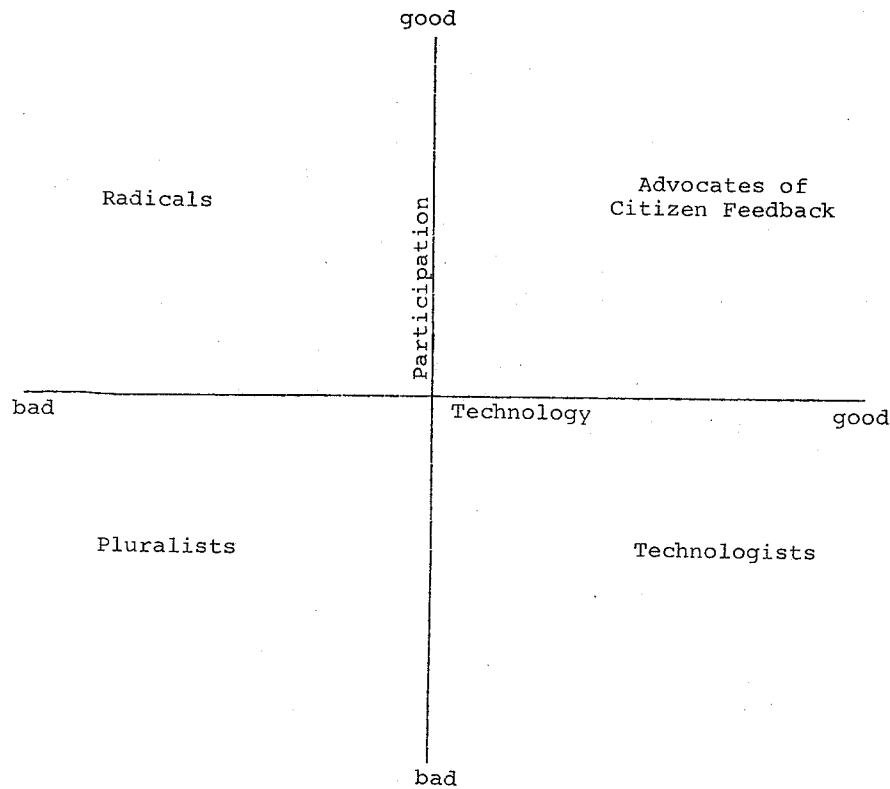| | ESTABLISHMENT | | NONESTABLISH- MENT |
	Pluralists	Technologists	Radicals
Basic position	Educated elites maintain political stability and basically liberal policies	More technical expertise is needed in decision-making	People should have control over their lives
View of the world	The current political system is as good as can be expected; the essense of politics is now as it has always been and ever will be	There is a long term trend toward higher standards of living for everyone; we should work together and use expert advice	Life is a continuing struggle between the haves and the have-nots; "experts" are in the employ of the haves
View of technology	It is useful in the economy but of little if any professional interest to political scientists	Technology is respon-sible for prosperity and happiness; it is man's greatest achievement	Technology is dehumanizing and a tool used by the establishment to further its ends
Reason for Opposition	Reactionary policies will be more likely; political stability will decrease	Level of information on which decisions are based will decline	These methods will be used by the establishment to solidify its power and prevent needed basic change
Ultimate Fear	Political instability will lead to authori-tarian government as an instrument to preserve order	Uninformed decisions will lead to breakdown of effective government and reversal of progress	The existing repressive system will continue with the privileged rich exploiting the oppressed in this country and abroad

good

Radicals | Participation | Advocates of Citizen Feedback

bad ————————————— Technology ————————— good

Pluralists | Technologists

bad

Fig. 5. Normative positions of the various groups.

with the Viet Nam war has in turn diminished confidence in the liberal elites, led to severe rifts within the social science disciplines and contributed to the rise of "radical" social science.

The pluralist position leads to a number of arguments against increased participation.

1. Their theory rests on an important assumption regarding *the limits of the possible*. Bachrach quotes Dahl, a leading pluralist spokesman, as having written, "It goes without saying that except in exceedingly small groups, specific decisions must be made by a relatively few people acting in the name of the polity"[34]. Further describing the position of the pluralist school Bachrach writes:

> To continue to advocate (democratic) theory in today's world, it is argued, is bound to foster cynicism toward democracy as it becomes evident that the gap between the reality and the ideal cannot be closed. Thus it is said that there is no alternative but to recast democracy, emphasizing the stable, constitutional, and liberal nature of the system of elite pluralism; the competitiveness of political elites, their accountability to the electorate at periodic elections; and the open, multiple points of access to elite power for those who bother to organize to voice their grievances and demands [35].

But as the activities and proposals cited earlier imply, alternatives *do* exist. Cable television and the probable future availability of computer-based communications media will certainly make broader participation possible.

2. The pluralists are also quite concerned about *the extent of public commitment to democratic rules* such as freedom of speech. It is useful to note that their fears of increased participation are based on historical examples that took place when radio and

television were widespread. By comparison teaching computers tend to be cognitive rather than emotional media. The major difference between responses made using a teaching computer and votes or data from polls is that with a teaching computer instruction and background information can be provided and possibly a certain level of comprehension made mandatory before a person is allowed to render a judgment. We tend to forget that under present procedures, a person's information gathering on political issues and his voting, or answers to polls, are separated. This situation is not inevitable but results from what is practical with present technologies. Computer-based communications media will make possible both providing carefully prepared background information and opinions in the voting booth and public discussions of long range community goals.

Thus democratic rules can be contained not only in people's minds, as the pluralists assume, but also as a part of the environment that people interact with, for example as a part of the constraints and background information provided by computer programs. Needless to say, a voter's information on the issues would not be limited to the information contained in the computer programs. The programs could simply guarantee a minimum level of understanding of the issues, somewhat like a mandatory reading of party platforms. Not incidentally the PLATO IV system includes audio equipment which could be used by illiterates or semi-literates. Information can be presented in as many languages or dialects as required.

3. In the pluralist's view of the world *apathy performs a support function* for the political system. If people were not apathetic, the demands on the political system would exceed its ability to respond. Apathy makes it difficult for opponents to organize support and thus tends to dampen shifts in policy. Furthermore, ignorance permits people to agree with others on short range actions when they may have quite different goals. Increasing awareness of differences in views will increase hostility among groups and thus political instability. What the pluralists are less concerned with is that ignorance and apathy also permit manipulation of the public by elites. Increased public knowledge about how the system is operating would increase the public's power over the system.

4. A variation of the pluralist position is set forth by the Lindblom school of public administration [36]. Just as the pluralists have dominated the discipline of political science in recent years, the Lindblom school has dominated the field of public administration. Whereas the pluralists look askance at any development that might reduce political stability, those who are concerned with public administration point to *the value of maximizing consensus*. By looking at politics through the eyes of the public administrator this group comes to regard as "functional" those things which make the public administrator's job easier.

By trying to create a consensus in favor of his policies the public administrator minimizes opposition and denies a following to those who would displace him. *Not* specifying long range goals is considered desirable partly because of the difficulty of accurately anticipating consequences but primarily because specifying goals tends to alienate some groups which would be willing to agree on short range actions. However, what is expedient for a public administrator is not necessarily in the best interests of either the public at large or other persons, for consensus is interpreted to mean consensus among the *active* interest groups. The pluralist theory implicitly assumes that

the costs of political activity are essentially the same for all interest groups and are equally easily borne by all interest groups.

5. Social scientists of the pluralist school have one final reservation about increasing political participation. They generally see themselves as having greater than average influence on public policy and as favoring positions more liberal than those of the average American. Thus to increase the power or influence of the electorate would likely result in *the adoption of more conservative policies* than those they consider to be desirable. Granted that this assumption is probably true, there is nevertheless an alternative to continuing to limit popular participation. It is a well known principle that people adapt their opinions and beliefs to fit their environments. A person introduced into a more conservative environment will tend to become more conservative, and a person introduced into a more liberal environment will tend to become more liberal. Consequently a second way to ensure the adoption of relatively liberal policies would be to correct the conservative bias of the information environment of the American people. In his book *Don't Blame the People* Robert Cirino has presented abundant data to support his contention that the mass media in the United States quite adequately present information regarding the range of opinion in the establishment but tend not to report opposing news and points of view [37]. It would seem that considerably more attention could be focused on this latter strategy. Computer-based communications media by moving information gathering and selection closer together will probably help to call attention to the very important relationship which has always existed between the two [38].

THE TECHNOLOGISTS

Those with a technological background who oppose increasing public participation in decision-making generally use the argument that the amount of information or expertise going into public decisions would decrease. This group, consisting mostly of physical scientists and engineers, believes that the amount of expertise in decision-making should increase, not decrease. Thus the pluralists and the technologists share a belief in the wisdom of educated elites and the prudence of a social order in which these elites have inordinate influence. However, they differ both in the type of knowledge which is valued and in their justifications of the importance of using knowledge in decision-making. The social scientists focus on knowledge of law and government procedures; the technologists are believers in scientific expertise. With regard to rationale, the social scientists emphasize the importance of political stability; the technologists display a preoccupation with making "better" decisions.

By "better decisions" they usually mean that a forecast was made of relevant aspects of the future environment of the decision or policy, that as wide as possible a range of alternatives was drawn up and that possible secondary and tertiary effects of each alternative were considered. What this point of view neglects is that there are basically two ways of improving the performance of a complex system. One can either improve the forecasting capability of a system, thus reducing the need to take quick corrective action to compensate for errors or change in the environment. Or one can improve the responsiveness of the system, thereby increasing the capability of the system to take corrective action and reducing the need for accurate forecasts.

It is no accident that people who favor the forecasting approach to dealing with social problems are usually high ranking professionals who tend to identify with decision-makers and seek approval from them rather than blacks, students, or some other group.

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Advocates of rational decision-making processes rarely stipulate that all groups to be affected by decisions should be represented in making them or at the very least that their interests should be understood and seriously weighed.

THE RADICALS

Whereas those who favor decision-making by elites are primarily interested in the quality of the policy results, those who support greater public involvement emphasize the educational function of participation in government. The nonestablishment opponents of this form of participation are, therefore, not opposed to increased political participation. Their reservations are first that technology is a tool of the establishment. They argue that vested interests, due to their superior resources, will come to own and operate the new media and will use it for their purposes—presenting the issues that they think are important and in the way they see them [39].

A second objection is that the power of minorities will be reduced in two ways— those presently disenfranchised can be expected to have the greatest difficulty in making use of the sophisticated technology, and "instant plebiscites" would increase the power of majorities at the expense of minorities [40]. No doubt less-educated adults may be deterred by anxiety from using this technology. However, experiments have shown that second grade school children can easily use the PLATO equipment. Since teaching computers are likely to be used in education prior to their use for public involvement in planning the disadvantage to minorities may not be of long duration.

It may be well to emphasize that I am not suggesting either direct democracy or instant plebiscites but rather an ongoing discussion in which the choice of issues and phrasing of questions is continually being modified by the participants themselves. The criticism that electronic media would vastly increase the power of majorities over minorities does not necessarily follow. Such a situation would result only if questions were decided by the rule of majority vote. However, alternative systems are quite easily constructed. For example, in a community discussion on a computer-based communications medium, a rule might be formulated that any suggestion or comment could be eliminated from the program for reasons of economy if 20% of the participants rated it as irrelevant (assuming that other participants did not bother to rate it). However, the issue could be reintroduced by a single individual and rendered impossible to delete if 10% or more favored its remaining in.

One further variety of opinion criticizes the notion that certain technologies "by their very nature" will bring about ecological harmony, decentralization of power, or increased political participation. More realistically, it is noted, technology serves the interests of the people who use it [41].

Conclusion

This short presentation cannot do justice to the complex systems of thought sketched above. Nevertheless the record clearly indicates that present social theories have been based upon the examination of present and past social systems with little effort given to imagining possible future social systems and thus to constructing more comprehensive theories. Specifically the present theories do not deal well with a social system that would include computer-based communications media—a social system in which a citizen's information gathering and decision-making on public issues could be more nearly combined, in which the information environment would therefore receive rigorous scrutiny and in which democratic rules of the game could be incorporated into

environmental constraints thereby relieving pressures on the school system to supply most of the public's education about democratic methods.

The present deficiencies of political theories give reason to believe that significant opportunities for improving the performance of the political system and reducing alienation may be lost due either to the new media being absorbed into the existing structure of interests or to opponents of the present structure being unwilling to compete for control of technological resources or both.

This and earlier articles by the same author have benefited from comments by numerous people, particularly Hugh Folk, Valarie C. Lamont, Charles E. Osgood, Herbert I. Schiller and Murray Turoff. The errors of knowledge and judgment are the author's contribution.

References

1 Alan Westin's book *Information Technology in a Democracy*, Harvard University Press (1971), is helpful in understanding the social impact to date of the classical uses of computers.

2 The concept of the information utility is presented in many sources including the following: Paul Baran, "The Future Computer Utility", *The Public Interest*, No. 8 (Summer 1967). Richard Sprague, *Information Utilities*, Prentice-Hall (1969). Harold Sackman, *Computers, System Science and Evolving Society*, John Wiley (1967). Harold Sackman, *Mass Information Utilities and Social Excellence*, Auerback (1971). *The Information Utility and Social Choice* (Harold Sackman and Norman Nie, Eds.), AFIPS Press (1970).

3 J. C. R. Licklider, "The Computer as a Communication Device", *International Science and Technology* (April 1968).

4 Murray Turoff, "Delphi and its Potential Impact on Information Systems", *Proceedings of the 1971 Fall Joint Computer Conference*, pp. 317–326.

5 Daniel Alpert and Donald Bitzer, "Advances in Computer-Based Education", *Science*, **167**, (1970), 1582–1590.

6 For a general treatment see Amitai Etzioni, *The Active Society*, Free Press, New York (1968). Also useful is *Computers, Communications and the Public Interest* (Martin Greenberger, Ed.) Johns Hopkins University Press (1971).

7 D. L. Bitzer and D. Skaperdas, "PLATO IV: An Economically Viable Large-Scale Computer-Based Education System", paper presented at the National Electronics Conference, Chicago, 1968.

8 For a more detailed treatment of differentiations among media see Rudy Bretz, *A Taxonomy of Communications Media*, Educational Technology Publications (1971), 168 pages.

9 Stuart Umpleby, "Citizen Sampling Simulations: A Method for Involving the Public in Social Planning", *Policy Sciences* **1**, 361–375, (1970).

10 Charles E. Osgood and Stuart Umpleby, "A Computer-Based Exploration of Alternative Futures", *Mankind 2000* (Robert Jungk and Johan Galtung, Eds.), Allen & Unwin, London (1969), pp. 346–359.

11 Valarie Lamont, "New Communications Technologies and Citizen Participation in Community Planning", Computer-Based Education Research Laboratory, University of Illinois at Urbana-Champaign (May 1971).

12 Probably the best annotated bibliography of the future research literature is Michael Marien's "Essential Reading for the Future of Education", Syracuse University Educational Policy Research Center (February 1971).

13 Ben Bagdikian, *The Information Machines: Their Impact on Men and the Media*, Harper and Row (1971), pp. 3–6.

14 Paul Baran, "On the Impact of the New Communications Media Upon Social Values", *Law and Contemporary Problems*, Symposium on Communications: Part 1, Duke University School of Law, Durham, North Carolina (1969), pp. 251–253.

15 Thomas B. Sheridan, "Technology for Group Dialogue and Social Choice", *Proceedings of the 1971 Fall Joint Computer Conference*, p. 327.

16 Eugene Leonard, Amitai Etzioni, Harvey A. Hornstein, Peter Abrams, Thomas Stephens, and Noel Tichy, "MINERVA: A Participatory Technology System", *Bulletin of the Atomic Scientists* (November 1971), p. 4.

17 Ithiel de Sola Pool, "Social Trends", *International Science and Technology*, a special issue on the Communications Revolution (April 1968), pp. 87–101.

18 For a discussion of some possible social and political effects of new communications technology see Ronald D. Brunner and John P. Crecine, "Implications of Changes in Information Processing

and Communications Technology for the Governing Function", Discussion Paper No. 26, and by the same authors "The Impact of Communication Technology on Government: A Developmental Construct", Discussion Paper No. 30, Institute of Public Policy Studies, University of Michigan (1971).

19 Claude E. Shannon and Warren Weaver, *The Mathematical Theory of Communication*, University of Illinois Press (1964), p. 68.

20 Leonard and Etzioni, *op. cit.*, p. 4.

21 Raymond A. Bauer, "Societal Feedback", *The Annals*, Social Goals and Indicators for American Society, Volume II, (September 1967).

22 Viewing the total set of citizen complaints and government responses to them can lead to indicators of government performance. Ezra S. Krendel, "A Case Study of Citizen Complaints as Social Indicators", *IEEE Transactions on Systems Science and Cybernetics*, (October 1970), pp. 265–272.

23 Two relevant articles appeared in the January 1971 issue of *Technology Review*: "Citizen Feedback and Societal Systems" by Chandler H. Stevens and "Citizen Feedback: New Technology for Social Choice" by Thomas B. Sheridan.

24 John W. Macy, Jr., "Community Uses of Public Television", *City* (March–April 1971), pp. 23–25.

25 Bryan Silcock, "You Too Can Govern the Nation's Future", *The London Times* (July 18, 1971), reprinted in *Presseberichte über das System ORAKEL*, Studiengruppe für Systemforschung, Heidelberg (October 1971).

26 Vincent Campbell, "Democracy by Telephone: An Alternative to Revolution", *Avant Garde* (January, 1970).

27 David Loye, *The Healing of a Nation*, Norton (1971), last chapter.

28 *Behavior Today* (November 1, 1971).

29 Leonard and Etzioni, *op. cit.*, pp. 4–12.

30 Stuart Umpleby, "The Teaching Computer as a Gaming Laboratory", *Simulation & Games* (March 1971), pp. 5–25.

31 The classification of groups into pluralists, technologists, and radicals parallels Arthur Waskow's grouping of the attendants at the First International Future Research Conference into humanist-social democrats, technocratic planners, and participatory futurists; "A Three-Way Report on an International Future Research Meeting", *The Futurist* (April, 1968), p. 28.

32 Robert Dahl, *Who Governs?* Yale University Press (1961), pp. 314–315.

33 Peter Bachrach, *The Theory of Democratic Elitism: A Critique*, Little-Brown (1967), p. 8.

34 *Ibid.*, p. 86.

35 *Ibid.*, p. 8.

36 Charles E. Lindblom, *The Intelligence of Democracy*, Macmillan (1965). For a comparison of the Lindblom view of the policy-making process with the problem-solving approach used in Program Budgeting see Charles L. Schultze, *The Politics and Economics of Public Spending*, Brookings Institute (1968).

37 Robert Cirino, *Don't Blame the People: How the News Media Use Bias, Distortion, and Censorship to Manipulate Public Opinion*, Diversity Press, Box 45764, Los Angeles, California 90045 (1971). Not available in most book stores, mail orders filled immediately $2.95 postpaid.

38 A quantitative relationship between information and selection has been suggested by Ashby in his "law of requisite variety:" appropriate selection can be based only on information in the requisite quantity. W. Ross Ashby, *An Introduction to Cybernetics*, John Wiley (1956), pp. 202–218.

39 For a persuasive treatment of this position see Herbert I. Schiller, *Mass Communications and American Empire*, Augustus M. Kelley Publisher, New York (1969), particularly the last chapter. Also Herbert I. Schiller, "Madison Avenue Imperialism", *Transaction* (March/April 1971), pp. 52–58, 64.

40 In their book *Participatory Democracy*, Cranfield Press, San Fancisco (1971), p. 18 Terrence E. Cook and Patrick M. Morgan deal with the use of electronic media only briefly in a refutation of instantaneous plebiscites. They refer to articles by Robert H. Cushman ["Real-Time, Two-Way Communications Between Citizens and Leaders", *EDN Magazine* (June 1, 1969), pp. 28, 112–113] and Martin Shubik ["Information, Rationality, and Free Choice in a Future Democratic Society", *Daedalus* (Summer 1967), p. 777].

41 James W. Carey and John J. Quirk, "The Mythos of the Electronic Revolution", *The American Scholar* (Spring and Summer, 1970).