

The Alternative Futures Project at the University of Illinois

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For the past four years a group of graduate and undergraduate students, with somewhat changing membership, has been working on a variety of projects emanating from Professor Charles E. Osgood's interest in futures research and the use of the PLATO teaching computer as a device for enabling people to "explore the future". We have assembled this newsletter to inform people with similar interests about our past and present activities. Some of the directions in which we have focused our attention include the following:

1. How to involve a larger proportion of the public in planning and imagining alternative futures.
2. Possible applications of new communications technologies and their social impact.
3. The reform of universities and new methods of "disseminating knowledge among the people" (Thomas Jefferson's concept of education).
4. The political implications of the growth of planning and forecasting.
5. Developing computer models and scientific theories of social systems which include the impact of technology on society.
6. New transportation systems for high density urban areas.

In addition to research activities, a course on "The Uses of Science in Environmental and Social Change" is being taught by Stuart Umpleby, a graduate student in Political Science. This course, for advanced undergraduate students, covers a wide range of topics including: 1) methodologies in futures research, 2) the interplay of social institutions and customs, values, and technology, 3) new communications technologies, and 4) computer simulations of social systems.

Faculty members who have been of assistance in a variety of ways over the past several years include Charles E. Osgood, psychology; Hugh Folk, economics; Richard L. Merritt, political science; Herbert I. Schiller, communications; B.F. von Turkovich, mechanical engineering; Daniel Alpert, graduate college; Donald L. Bitzer, electrical engineering; Daniel Slotnick, computer science.

Financial support for the project has come from the Program on the Social Implications of Science and Technology funded by National Science Foundation grant GR-60; the Institute of Communications Research on the University of Illinois campus; and graduate student fellowships.

PRESENT RESEARCH ACTIVITIES

While much of our work still focuses on developing alternative uses of the teaching computer, our interests in recent months have gone beyond the possible applications of this new technology. The following abstracts on current projects indicate some of the areas of our present interests.

WHY WE DO NOT HAVE AN ELECTRONIC WORLD UNIVERSITY
A Case Study of Non-use rather than Mis-use of Technology

by Richard Goldstein

The idea of a world university has been around at least since the time of the League of Nations. However, the concept, as it is usually applied, refers to a brick and mortar institution, though having an international focus and usually located on neutral ground. But if one of the functions of the university is interpreted to be the transfer of information to a group of people for purposes of education, then the door is open to a whole new range of possibilities using communications technologies which reach beyond classrooms and lecture halls.

If Walter Cronkite on the evening news can speak to potentially every student in the United States every day, why cannot every student in the country take a course from John Kenneth Galbraith, Herbert Marcuse, George Wald, or any other professor who is willing to devote the time and whom the students want to hear? Similarly, with communications satellites and news reports from Viet Nam and Egypt why is it that every student in the United States, Europe, and Japan (at the very least) does not have regularly scheduled guest lectures from people such as Jean-Jacques Servan-Schreiber and Eldridge Cleaver?

My paper will examine several possible explanations for the slow application of electronic technology to the problems of world wide education. Examples of factors to be investigated include the following:

1. The conservatism of university faculty members and administrators.
2. Prevailing and unexamined beliefs about who should be educated in what setting and using what types of communication.
3. Ideological conflicts between East and West.
4. A belief by conservative politicians that university-based liberals are already having too much impact on world affairs.
5. A lack of research within the university on its own operation.
6. The fact that education in the U.S. has traditionally been considered a governmental function whereas the electronic media have been primarily privately owned.
7. A belief held for a long period of time by many people in the field of education that the new communications technologies

are not applicable to education or that existing methods are adequate.

8. Widespread popular belief that education should train a person for a job and consequently little grassroots demand that the university teach about cultures around the world.

Two methods will be used to determine which of these or other factors best explain our present slow progress toward an electronic world university:

1. An examination of the performance and stated purposes of organizations such as the major national broadcasting networks, Education Information Network (EIN), the Corporation for Public Broadcasting, the United Nations International Education Year, Interuniversity Communications Council (EDUCOM), Cambridge Information System, National Educational Television, etc.

2. Questionnaire-guided interviews with college professors, administrators, students, and members of the public.

There can be little doubt that an electronic world university either would require or would bring about a very different kind of international system. Imagine the difficulties which would be encountered if a Russian professor were to teach economics to American students, if an American professor were to teach corporate law to Chinese students, or if a Cuban professor were to teach the history of revolutionary movements to Latin American students. Such hypothetical cases are useful in helping us put present universities in the perspective of the idea that a university by its very name professes to teach universal knowledge.

The transition to a world with a smoothly operating electronic world university will in all probability be a period of unprecedented turmoil in human history. But an electronic world university can exist without actually being called that. Indeed, the evening news on television, cheap paperback books, the underground press, student exchange programs, television debates, films of America in the 60's, Prague in the summer of '68, and Paris in the spring of '68 already constitute a kind of informal "university." The real question may not be when or if we will have an electronic world university but rather the degree of difficulty which a broad range of institutions is now having and will continue to have in adapting to the expectations of successive generations of students raised in information environments far more complex and technologically advanced than those existing in the university.

NEW COMMUNICATIONS TECHNOLOGIES AND CITIZEN PARTICIPATION IN COMMUNITY PLANNING

by Valarie Lamont

One of the most important activities of those concerned with the future has been an attempt to generate public interest and involvement in future oriented activities. The common methods used have been conferences, travelling lecturers, the promotion

of community study groups, and the introduction of future courses in colleges and universities. In addition, there are numerous magazines, newsletters, and journals devoted to articles on the future.

Despite sincere efforts, the vast majority of the population remains outside the realm of future oriented thinking except possibly as spectators. In order to more actively involve large segments of the population in considering and originating alternatives, it may be necessary to invent new communications media or apply existing technology in innovative ways. There are a number of new communication technologies now coming onto the scene - cable television, communications satellites, video cassettes, and the teaching computer - which offer unique opportunities. The most important of these technologies may well be those which present the possibility of establishing direct, two-way communication with the populace.

In this paper, I shall discuss the results of an experiment using one such technology - the teaching computer - as a method for involving people in community planning. Very briefly, a presentation of an environmental issue was prepared for the PLATO (teaching computer) system and community members have been invited to explore the future of this local natural resource. The participants sit at a terminal and view information on a television screen. They communicate with the computer by answering programme questions and inserting their own comments, criticisms, and suggestions via a typewriter-like keyboard.

The experiment can be discussed along the following lines:

1. Preparation of the Program: How the issue was selected; the gathering and arrangement of information; and the time involved in research and programming.
2. Presentation to the Community: How community leaders were approached to gain support for the experiment; the basis for early participant selection; and the number of people who showed up.
3. Results of the Experiment: An analysis of the responses to the programmed questions; how responses vary along socio-economic-status lines; the amount of information which participants chose to look at before making a decision; the determination of bias in the program; and the community's reaction to the use of a new communications medium.

The introduction of a new communications technology of necessity generates a range of considerations which go beyond the mere description of a single program. For example, if systems such as PLATO become more prevalent across the country, who will select the information to be presented to the public; how can the inclusion of all points of view be assured; what role can other communications technologies play; what implications does such a technology have for the democratic process?

THE FUTURE OF THE UNIVERSITY
An Experiment with a Computer-based Mediator

by Sherry Beyer, Rhoda Hornhohl, Valarie Lamont, William Pearson,
and Stuart Umpleby

Several years ago a group of people at the University of Illinois began developing experimental programs to demonstrate some alternative uses of the PLATO system, a "teaching computer." One such program, an "exploration of the future," enables people to examine the possible consequences of actions which they might choose. Participants "explore the future" by investing in various future developments. The computer then indicates how their investments affect the probable occurrence of other developments. After seeing the simulated consequences of certain actions, a person may change his mind about what investments he should make, especially if some developments have consequences which he had not expected and which he would consider undesirable.

It is unlikely, however, that a thoughtful person will change his beliefs about the world simply because a television screen and a complex adding machine told him, for example, that "1984" would occur by 1975 if he invested in genetic manipulation. He may not agree that the world actually works that way. It is far more likely that his attitudes could be changed by having a better understanding of the judgments and opinions of the people involved in this particular issue. This line of reasoning has led to thinking of the teaching computer as a mediator between groups with different viewpoints.

In our paper we shall present the results of an experiment using the University as the environment from which to select conflicting points of view. The data will show how the future of the University is viewed by students, faculty members, and administrators. The study is being conducted in three phases: two written questionnaires and an exploration on the PLATO system. The data will reveal:

1. Estimates of the probability, desirability, and importance of 50 events which may affect the University in the next 5 years.
2. Cause and effect relationships among 15 selected developments and external events.
3. How people's estimates of probability, of desirability, and of cause and effect relationships changed after seeing the views of other groups.
4. An evaluation of the exercise.

The study will indicate whether the PLATO system can be used by students, faculty members, and administrators as a medium for discussing University policy in addition to its uses in the classroom. At present there is a need for finding new ways to involve students in thinking about the University's policies, goals, and the social consequences of its operations. If the study results in a convergence of views, it may have important implications for innovation in arbitration and conflict resolution in areas outside the University.

PAST AND FUTURE EVENTS IN THE SECOND AMERICAN REVOLUTION

by Fred Landis

Future research has persistently ignored the area of domestic politics. Its lack of attention to the failures of existing institutions has not been notably worse than that of the social sciences, but the oversight has lent an air of unreality to otherwise thought-provoking forecasts.

There is a tendency among many of those professionally concerned with the future to think of technology rather than political beliefs as history's primary independent variable. Futurists should be aware, however, that there is a growing number of people around the world, most of them young people, who are less interested in whether middle-class Americans and Europeans are riding in automobiles or on air cushion vehicles than they are in access to social and political mobility for all the people of the world.

Recent occurrences in one country--the United States-- during the past 5 to 10 years suggest two ways in which domestic political events can have a major impact upon the shape of the future. First, the tone of domestic politics during even a short period of years can substantially alter the basic attitudes and values of a whole generation of leaders. Second, trends in domestic politics can bring about pronounced changes in the willingness of the general population to accept or respond in a cooperative manner to the recommendations and policies of government officials and planners.

The history of the United States in the next 30 years will increasingly be made by a growing number of predominantly white, middle-class college graduates who regard their government as illegitimate and who may be permanently disaffected from it. This group is disproportionately well-educated and well-trained. They are influential beyond their numbers among their peers. It is highly unlikely that they will disappear, be silenced, or be replaced.

The recent historical events which might be identified as a "cultural revolution" or the "Second American Revolution" are the shared experiences which have made the youth of today what they are. What to an older generation, looked at in the perspective of several decades, may seem like an aberration in American history is the only personally experienced history of the current student generation. The students who brought the universities to a halt in May of 1970 will be the generation in power in the year 2000. Insight into the future requires an understanding of the events which have molded their thinking.

By presenting and analyzing a chronology (possibly illustrated by film) of important domestic political events in the United States from about 1963 to early 1971, I shall try to explain why it is that government and business leaders have been so seriously discredited in the minds of a large part of an entire generation

of Americans and what the events of the past few years portend for the next several years.

THE POLITICS OF FORECASTING
Perception as Selection among Alternatives

by William Gulley and Stuart Umpleby

There seems to be very little consensus among people engaged in future research about the possibility of political neutrality in studies of the future. It would appear desirable to elevate the level of discussion on this issue since there has been a remarkable growth during the past few years in the number of institutions nominally engaged in objective research on the future.

The claim of political neutrality is most frequently justified by asserting a devotion to the development of methodology rather than to the advocacy of a political viewpoint. However, some research institutes are financing their "neutral methodological research" by accepting contracts for studies intended to recommend responses which the client could make to probable future events of interest to him. Such research is quite different from that which one would expect from an observer interested equally in the courses of action which might be taken by all concerned parties.

We will review the arguments which have been used to justify the claim of political neutrality and the arguments which oppose this view by summarizing the research on the role of policy research institutes and by giving illustrations drawn from several years of experience in the field of future research.

This paper will consider the ways in which bias can enter the subject matter of a forecast, including the following:

1. Biases introduced as the result of seeking to establish credibility with a particular group which has its own conception of the future.

2. Biases introduced by the groups which can use a methodology. The groups represented in a study will determine the range of situations and alternatives perceived. Due to the fact that perception precedes selection, if some groups are consistently excluded by the demands of the methodology, some alternatives will be unknowingly rejected since they will never be considered.

3. Biases introduced by the formulation of the "problem". In discussing this point we will present the results of an experiment designed to demonstrate how different perceptions of a "situation" can lead to different statements of the "problem", and how different formulations of a "problem" in turn lead to different sets of alternative courses of action. The group which defines a situation or problem wields great influence over the results of a study. If the people conducting a study are not familiar with the possible sources of bias, the possibility of political neutrality is markedly reduced.

4. Biases introduced by the systematic elimination of

minority viewpoints due to a preoccupation with arriving at consensus.

The belief that proper application of a carefully developed methodology can eliminate political bias has not yet been convincingly argued. Only by understanding the ways in which research institutions can reinforce or undermine the status quo can one hope to arrive at a position of objective arbitration between conflicting interest groups. The methodological dilemmas cited above will have to be resolved if we are to prevent the alienation of vast segments of our society from the forecasting and planning process.

FIRST SKIRMISHES IN THE GLOBAL STRUGGLE TO CONSTRUCT THE "SOCIAL BRAIN"

by Stuart Umpleby

Among the many widely held but rarely stated assumptions of futurists is one regarding the impact of the various sciences on society. Considering for a moment three basic divisions of science--the physical sciences, the biological sciences, and the social sciences--we tend to believe that each of these sciences will sooner or later pose a kind of "ultimate social question" for mankind. Atomic energy (physics) raised the possibility of the destruction of mankind by man himself. Genetic engineering (biology) brings the evolution of man within human control. The ultimate question of social relevance for the social sciences, we seem to assume, has yet to be defined.

The assumption tends to be that the "ultimate problems of social relevance" follow the development of the disciplines. Physics is a well developed discipline, and man has been grappling with atomic energy for over 25 years. Biology is a maturing science and the possibility of man controlling his own evolution is a recent discovery, at least for the general population. The social sciences are widely thought to be underdeveloped and not yet giving rise to social issues on the scale of atomic energy or genetic engineering.

I believe that this presently prevailing point of view is gravely in error. It seems to me that the "ultimate social question" raised by (or for) the social sciences, and communications technology, is "the construction of the global 'social brain'," or the vast increase in the number of people and amount of information which each person in industrialized society has access to.

It is essential to remember that the communications revolution did not stop with television. We already have communication satellites and prototypes of cable television, teaching computers, information utilities, holography, lasers, and low cost video tapes. We have already been grossly negligent in applying imagination to how we can use the communications technologies already

in existence. The difficulty in changing the present point of view is greatly compounded by the fact that most social scientists are not familiar with the communications technologies now being developed nor do they recognize the importance of becoming familiar with them.

Some of the questions which will soon have to be resolved include the following: Who will have access to what information under what conditions? Who will decide who has access to whatever kind of information? Which will be the first groups to be connected by new communications media? Who will decide which messages will be allowed on the broadcast media? What is the effect of different kinds of messages upon the public?

After giving brief descriptions of some of the presently identifiable future communications media, my paper will suggest several effects which these technologies may have on the structure and procedures of government. Each idea is based upon the following assumption: Government can be thought of as a social technology which utilizes the available physical technologies of communication. A major transformation in communications technology will bring about a profound change in the social order.

For example, extending present communications technologies to less developed countries and setting up new communications installations around the world is already producing new sources of conflict. This new arena of international competition in high technology could lead to a race to exert political influence not by coercing other nations through threat of the use of arms but rather by creating new opportunities for communication, even if only in a particular direction. "Wiring the world" might be thought of as a kind of "positive reinforcement arms race" which in the long run could undermine the foundations of the militaristic nation-states which exist today. The paper will show how these thoughts can be derived from a theory of the exercise of power which could enable us to move from a balance of power world with a dangerous arms race to a mutually interdependent world with a high level of certainty about the intentions of other nations.

PUBLICATIONS

We would greatly appreciate comments or suggestions on the work described in the foregoing abstracts. If you would like copies of our previous publications, listed below, please write to Mr. Stuart Umpleby, 252 ERL, University of Illinois, Urbana, Illinois 61801, USA.

1. Charles E. Osgood and Stuart Umpleby, "A Computer-based Exploration of Alternative Futures for Mankind 2000," Mankind 2000, edited by Robert Jungk and Johan Galtung, London: Allen and Unwin, 1969. This paper was prepared for the first International Future Research Conference held in Oslo, Norway, September, 1967. A shorter version appears under the title, "Erforschung der Zukunft mit Hilfe von Computern," Menschen im Jahr 2000, edited by Robert Jungk, Frankfurt am Main: Umschau Verlag, 1969.

2. Stuart Umpleby, "The Delphi Exploration: A Computer-based System for Obtaining Subjective Judgments on Alternative Futures," Social Implications of Science and Technology Report F-1, August 1969, 220 pages. This second progress report describes a game on the PLATO system intended for use both in education and for generating data for psychological and political studies. Participants in this game "explore the future" by investing their resources in developments which may characterize the world by the year 2000. Some examples of developments are Genetic Manipulation, Air Cushion Vehicles, and an Electronic World University. The computer calculates the changing probabilities of the developments due to investments and indicates secondary effects on other developments. The game encourages people to think about the future, how events are interrelated, and how desirable futures might be achieved. It can be used to provide data on which futures people consider desirable and on how people believe events are related. The report describes the mathematical model which is used and the decisions which have to be made by the programmer. Included is an example of an early version of the exploration and a partially annotated bibliography with over 500 entries. We are presently out of copies of this report, but a second printing should be ready in a few months. A price of \$5 is charged to cover printing and mailing expenses.

3. Stuart Umpleby and John Briggs, "Exploring the Future with a Computer," *The Futurist*, December 1970. A brief description of the Delphi Exploration is presented in this paper intended for a general audience.

4. Valarie Lamont and Stuart Umpleby, "Forty 'Information Units' with Background Paragraphs for Use in a Computer-based Exploration of the Future," Social Implications of Science and Technology Report F-2, University of Illinois, March 1970. This third progress report describes a stage in the development of a decision-making framework which guides people in exploring alternative futures by means of a teaching computer.

5. Valarie Lamont, "PLATO Program on the Boneyard Creek," Institute of Communications Research, University of Illinois, Urbana, June 1970. The "Boneyard Creek Program" was written to demonstrate how PLATO might be used as a communications medium between planners and citizens in a community. This program on an environmental issue provides background information on the subject and suggests a number of alternative solutions for the participants to consider. Several "branching sequences" enable participants to obtain additional information on points of special interest. A "comment mode" is available for suggestions and criticisms of the information presented and the method of presentation. A print-out of accumulated responses can be made available to planners to indicate the state of opinion on an issue.

6. Stuart Umpleby, "Citizen Sampling Simulations: A Method for Involving the Public in Social Planning," Policy Sciences, Volume 1, Number 3, Fall 1970. An edited version will appear in German in the journal Analysen und Prognosen. This article was prepared for the second International Future Research Conference held in Kyoto, Japan, April 1970.

The growth of the planning function of government raises the question of how planning can be accomplished by democratic means. A new technological device--the teaching computer--seems to be ideally suited for discussions between "experts" and the public on issues of medium and long-range planning. The teaching computer can be thought of as a mass communications system with feedback.

This newsletter was assembled and edited by Valarie Lamont.