

## Chapter 2

### *Philosophy of Science and Social Responsibility: Alex Michalos*

Alex Michalos's autobiographical accounts in two websites are surprisingly expansive for such a normally modest man. Currently Professor Emeritus at the University of Northern British Columbia and director of an institute for social research there, he is a fellow of the Royal Society of Canada—a long way from M.A., B.D. (bachelor of divinity), and Ph.D. degrees at the University of Chicago. Among many, many honorary or appointive positions, he has been president of the Canadian Rural and Remote Health Association; vice president of Academy II (Humanities and Social Sciences) of the Royal Society of Canada; president of the International Society for Quality of Life Studies; and—important for our purposes here—he was the second person elected president of the Society for Philosophy and Technology. Michalos was also a Federal New Democratic Party candidate for Parliament in Guelph-Wellington, Ontario, twice and in Prince George Peace River once, and has held several offices in the party over the past two decades or so. Michalos has taught social sciences and philosophy since 1962, with 28 years at the University of Guelph prior to moving to UNBC.

He has published at least 18 books and 70 refereed articles. He founded and, though he is now retired, still edits four scholarly journals: *Social Indicators Research* (an interdisciplinary and international journal for quality-of-life measurement); *Journal of Business Ethics* (with Deborah Poff); *Teaching Business Ethics* (also with Deborah Poff); and *Journal of Happiness Studies* (with Ruut Veenhoven and Ed Diener). He has served on the editorial boards of the *Journal of Medicine and Philosophy*, *Research in Philosophy and Technology*, *Theory and Decision*, *International Journal of Value-Based Management*, *Optimum* (the journal of public sector management), and the *South Asian Journal of Psychology*.

Following my convention here, his books, especially those that I think are relevant to controversies in the philosophy *of/and* technology, are included in the bibliography at the end, under Chapter 2.

Michalos's five volume treatise, *North American Social Report: A Comparative Study of the Quality of Life in Canada and the USA from 1964 to 1974* (1980–82), received the 1984 Secretary of State's Award for Excellence in

interdisciplinary studies in the area of Canadian Studies. His Science for Peace volume on *Militarism and the Quality of Life* (1989) argued that some scientific research and development was counterproductive from the point of view of improving the quality of life. His four volume *Global Report on Student Well-Being* (1991–93) gives the results of a survey of over 18,000 university students in thirty-nine countries. It is the biggest international survey of students ever undertaken and involves the most extensive testing of a social scientific theory across national boundaries.

Michalos has also been a consultant to many federal, provincial, regional, and municipal government departments and agencies in Canada and other countries, and his writings have been translated into Japanese, Chinese, German, French, Spanish, Italian, and Polish.

Most of this is from Michalos's own websites. And it means that, for our purposes here, Michalos is a very special case. He has written little about philosophy of technology as such; much about philosophy of science, including a chapter in a book I edited, *A Guide to the Culture of Science, Technology, and Medicine* (1980, 1984), that touches on ethics and social responsibility in science; but mostly on measures of the quality of life in the contemporary world. His *Guide* chapter puts on display many opponents in philosophy of science, on which issues he is open-minded and fair, down-to-earth, almost the total opposite of most of his opponents. His early technical writings on the interpretation of the foundations of statistics were well received by experts; there his view is down-to-earth practical; he even calls himself a pragmatist, and often does so while citing Dewey.

To try to sum up Michalos's views in a sentence, he believes passionately in the power of public opinion polling and statistical analysis to provide the intelligence we need in modern society for good democratic governance. It is difficult to fit Michalos within a framework of discussions in the philosophy of/and technology. I won't even try, but I should give him his due as the second president of SPT—though with strong links to the Philosophy of Science Association in the early days, and as a genuine maverick since.

To give him his due I will focus on the part of his chapter in *A Guide to the Culture of Science, Technology, and Medicine* that touches on ethics and social responsibility in science. It admirably reveals his evenhanded and self-effacing approach.

“From a logical point of view, the central problem underlying . . . [many] discussions [in the Guide] is the conflict between cognitive and pragmatic (or social) utilities or values—i.e., the subject of this section.

“Anyone who has an ordered set of preferences that may be exhaustively measured on an interval scale is said to have a utility function. Interval scales are such that their basic units of measurement are of equal size, allowing one to say, for example, not only that one item is larger than another but exactly how much larger in terms of a standard unit of measurement. For some limited areas, provided that they do not contain more than half a dozen items, one may be expected to have such a utility function. However, given the wide variety of things that people value, it would be a rare person indeed who could neatly order her or his total set of preferences. Most people do not have, and probably do not miss, utility functions for all their preferences.

“Since preferences are, by anyone’s reckoning, closely related to values, it is often assumed that insofar as one has a utility function, one’s values are measured on an interval scale. Moreover, by combining utility and probability values, it is possible to increase substantially the variety of one’s inductive procedures. The method of combination is straightforward, involving a Maximization of Expected Utility (MEU) rule, which is itself easy to illustrate.

“Suppose, for example, you are considering buying one of two houses. Both houses are selling for \$100,000, but one is 10 miles from work and the other is 30 miles away. If all other things are roughly equal, you might think that because you will suffer three times as much in travel time at one house as at the other, the expected utility or value of buying the house closer to work is about three times greater than that of the house farther away. So, following the MEU rule, you buy the house closer to work.

“It has been suggested that the idea of utility considered here is too general to serve the specific interests of science. After all, the argument runs, the values that are of particular concern to scientists represent only a subset of all the values that people hold. Moral, political, aesthetic, religious, economic, and social values, for example, are supposed to be irrelevant to the scientific enterprise. Hence, if one is going to use the MEU rule to determine the acceptability of scientific hypotheses, one is going to have to put some constraints on one’s utility function. More precisely, one must distinguish epistemic from pragmatic utility,

and employ only the former in science. Pragmatic utility may be identified with the broader concept with which this discussion began. Epistemic utility requires a bit more explanation.

“The epistemic utility or value of a hypothesis is its utility or value from the point of view of the aims of pure or basic science. Without getting bogged down in a debate about the difference between pure and applied (or ‘mission-oriented’) science, one may safely assume that truth is near the top of the list of aims of pure science. Besides truth, defenders of this position claim, there are other epistemic values—e.g., the explanatory power of a hypothesis, its internal coherence (self-consistency), its external coherence or consistency with other hypotheses, its precision. So far as the expected utility of a scientific hypothesis is concerned, then, these are the only kinds of values that should be taken into account. . .

“Such considerations as how much it will cost to test the hypothesis, whether the right personnel are available to get the job done, how one’s reputation will be affected if the hypothesis succeeds or how much one’s reputation might be damaged if it fails, are all important for the assessment of the hypothesis’s pragmatic utility, but not for its epistemic utility.

“As one might expect, there is some dispute about the matter. Some people believe that pragmatic values must be considered in the determination of the acceptance of scientific hypotheses. According to these people, the decision to accept or reject a hypothesis is always based, for instance and among other things, on the seriousness of making a mistake. One must take into account the expected utility of accepting a hypothesis that may turn out to be false, and the utility must be as pragmatic as the actions one is likely to perform under the influence of a false belief. That is, because one’s scientific beliefs influence one’s actions beyond the realm of science, one’s assessment of the consequences of holding those beliefs must include an appraisal of the consequences beyond this realm. Hence, the evaluation of the expected utility of scientific hypotheses must be based on pragmatic as well as epistemic utility. . . .

### *Social Responsibility*

“The preceding section has taken us slightly beyond the threshold of a discussion of the social responsibilities of scientists as scientists. . .

“As scientists, what, if any, special social responsibilities do scientists have? Since no one has been able to provide precise necessary and sufficient conditions for distinguishing the scientific enterprise from everything else, one should not expect a logically tight answer to this question. Still, several worthwhile points may be made.

“In the first place, a wide variety of social responsibilities accrue to scientists as a direct consequence of what scientists do for a living or, perhaps more precisely, of the very nature of the scientific enterprise. Suppose, for example, we begin with the fairly uncontroversial idea that one of the most important aims of science is to discover well-warranted, descriptively true claims about the natural world. Publication of the claims, procedures used to warrant the claims, procedures used to assess, audit or certify the alleged warranting procedures and claims all require special responsibilities. A history of science is in large part a history of human reflections, discussions and debates about what are to count as good, acceptable or appropriate procedures. Someone must decide who is qualified to decide such things and what procedures are to be used to make such decisions. Thus, disciplinary, multidisciplinary and transdisciplinary organizations are created to provide the personnel, procedures and criteria to make such authoritative decisions. Official, or at least, authoritative outlets have to be created, indicating the approval of the right people, with the right credentials, using the right rules of procedure. All of this routine day-to-day work has to be undertaken by scientists as their social responsibility as scientists. Much of this work is not scientific but social, e.g., founding disciplinary organizations, journals, networks of likeminded researchers, rules of proper behaviour for chemists is not like bench chemistry. Just as the creation of a workable political/social/economic/moral infrastructure that allows people to interact productively in a community is different from the variety of individual activities undertaken within the community as residents perform their daily roles as bakers, cooks, teachers, etc., the creation of a scientific infrastructure is different from inventing hypotheses or theories, testing them, and so on. Broadly speaking, then, the first social responsibility of scientists is to construct a good infrastructure for the scientific enterprise to flourish responsibly.

“In the second place, it must be appreciated that scientists are not immune to the buck-passing syndrome. Most of them will almost certainly be inclined to narrow the range of activities for which they are prepared to accept responsibility and, at the same time, widen the range of activities for which they are prepared to accept authority. Notwithstanding the psychological theory of cognitive

dissonance, most human beings seem to manage this particular pair of incompatible inclinations.

“Although people in business seem to be the only group blessed with the analytic aphorism, ‘The business of business is business,’ others certainly try to have their way in the same fashion, namely, by fiat. In the case of science, the inclination is to come down very hard on the as scientist part of our question, thereby paving the way for the narrowest possible purview. Scientists, after all, are not moralists, politicians, social workers. So they need not have the concerns of moralists, politicians, and so on. So the answer to our question is a flat no; scientists as scientists have scientific responsibilities and that is that.

“Apart from all the issues mentioned under the first point above, the trouble with this argument is that it assumes that all concerns or problems can be uniquely sorted into mutually exclusive pigeonholes. On the contrary, most concerns or problems can be regarded as species of several genera. For example, unemployment is an economic, moral, political, and scientific, as well as a social, problem. The task of ‘correctly’ measuring the number of unemployed people in a country or region continues to haunt official and unofficial researchers around the world. In fact, about this problem there remains a considerable disparity of views from one country to the next. Officially unemployed people may be eligible for compensation. Unofficially unemployed people—e.g., housewives—will not usually be eligible. Hidden unemployed people are surely unemployed but not officially unemployed and not eligible for compensation. To be counted as a member of the hidden unemployed is to be counted as a person without hope at best and as a slacker at worst. In either case, because they are no longer trying to find work, they are not officially regarded as unemployed. Their official status thus depends on their desires and the activities in which they engage in the interest of satisfying those desires. Or rather, it depends on some interviewer’s perception of those desires and activities. Needless to say, the self-images of the hidden unemployed and unemployed housewives are affected by their employment classification. Indeed, it is unlikely that the self-image of anyone in a work-oriented society is unaffected by her or his employment status. Clearly, then, the question, ‘Who ought to be regarded as unemployed?’ is as much moral, political, economic, and social as it is scientific. Hence, anyone who sets out to measure unemployment scientifically must be aware of, and must make decisions concerning, the propriety and consequences of a number of alternatives. Anyone attempting to measure unemployment without regard for the presumably nonscientific facts of unemployment would be a poor scientist. A good scientist

as a scientist would address the problem in all its richness. He or she may not be able to manage the problem in that form and may have to introduce arbitrary restrictions in order to manage it at all. But that is not the same as refusing to grapple with its richness on the grounds of its unscientific character, whatever that may be.

“It must also be remembered that because the results of scientific investigation may be used intentionally to influence or control human action, investigators should at least be required to share some of the responsibility for aberrant uses. Although one may balk at the suggestion that Pavlov should be condemned for all the immoral uses to which operant conditioning has been put, one should not be oblivious to the unseemly side of the social impact of his discovery. Undesirable consequences unleashed by scientific discoveries may be as real as desirable consequences.

“Again, if allegedly scientific claims are used to legitimize socioeconomic policies, then the scientists making those claims in behalf of those policies should be held partly responsible for the consequences of the policies if they are put into effect. For example, those who recommend separate tracks in schools for minorities and majorities or bright and dull students on the basis of their research should be held responsible for the costs as well as the benefits that follow the development of programs consistent with those policies. Whenever social programs are initiated on the strength of the recommendations of scientists, whose recommendations would not be heeded at all if they were not made as scientific, the scientists must share the responsibility for the consequences of the programs. If scientists are not held accountable for the consequences of their scientific pronouncements then they will be encouraged to be irresponsible, and they will enjoy an unwarranted social privilege that most people cannot and should not enjoy. These two arguments are used in the document, *Scientific Freedom and Responsibility* (1975), produced by the A.A.A.S. Committee on *Scientific Freedom and Responsibility*. . . .

“It is also the case that because scientists draw from the same limited resource pool from which the rest of the human race draws, they have an obligation to try to make their demands reasonable from the point of view of the public interest. The assumption behind this argument is that there is no invisible hand operating to allocate the world’s resources equitably or even efficiently. Moreover, it is demonstrably certain that if everyone attends only to what he or she perceives as his or her own interests, a socially self-destructive result may occur. That is the

clear message of so-called ‘prisoner’s dilemma’ studies. It is also the message of two children in a playpen who finally tear the toys apart rather than share them. .

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“Finally, there is an argument from self-interest that is worth mentioning. Scientists as scientists must look beyond their own interests in order to preserve those interests. They must try to assess the total demands on the resource pool that they are tapping in order to avoid what one author has called ‘the tragedy of the commons.’ Here, as on our roadways, one must drive defensively. To assume that the ‘other guy,’ an elected representative, civil servant, or kind-hearted citizen, is going to be wise enough or morally good enough to balance all interests equitably and efficiently is to reject the lessons of history. The public good is the business of everybody—scientist and nonscientist alike.”

Some readers might think that all of the assertions in this long quote are far removed from philosophical concerns about technology. But if we assume—along with the American Association for the Advancement of Science that Michalos quote—that “scientists” include all technically trained workers, including, for example, engineers and economists, then we can conclude that Michalos’s assertions can fall under the heading of philosophy and technology. Presumably the members of SPT who voted for Michalos read him that way.

Thus in terms of *controversies*, Michalos's opponents come primarily from within a *science* quadrant, though he thinks there is no sharp divide between scientists and technologists, and he wants all of them to be socially responsible.

He also sometimes says he is a *pragmatist* (though Hickman, see Chapter 14 below, would challenge his reading of Dewey). His principal explicit opponents are narrow positivist philosophers of science; that is, defenders of the narrowest possible claims for exclusive epistemic values. In his political career, Michalos has been a *socialist* New Democrat, which places him squarely in opposition to

Canadian conservatives (typically *idealists* in Watson's terms) and liberal *meritocrats*. Michalos’s socialism is also opposed to Marxism, though he does not make a big deal of this. In short, we must guess where Michalos would stand on a number of philosophy of technology issues, because he has not entered explicitly into controversies with other philosophers—either “of” or “and” technology.