

BUT, MR. PRESIDENT ---  
Is It ETHICAL ?

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#### ABSTRACT

A set of Ethical Guidelines for the Simulationist is presented in the form of his Responsibilities: to himself; his colleagues; his client; his profession, and to society. Because these guidelines, probably with some modification, may be adopted as the official position of the Society for Computer Simulation with respect to ethics for member simulationists, opinions are solicited.

#### 1. INTRODUCTION

Some of my colleagues, and others, have asked why John McLeod, of all people, should -- at some time well past middle age -- become concerned about ethics. A good question! To shed some light on that I'll tell you a little story.

The President of an unusually enlightened third-world country, who had won on a campaign promising that he would use advanced technology to alleviate many of their problems, was giving his inaugural address. He was also introducing members of his cabinet. Because I cannot pronounce many of their names I will not attempt to do so, but will only mention the titles of some of them.

"I have appointed as Minister of the Interior" the President said, "an eminent agronomist. He can prove that gene-splicing can push our agricultural production toward self-sufficiency by 1996.

"As our Minister of Energy I have selected a world-renowned theoretical physicist. He can prove that the production of atomic energy and the disposal of nuclear waste can be made safe and economical in the foreseeable future.

"And as Minister of the Economy I have chosen an outstanding simulationist. He can prove anything!"

At this point the President was interrupted by a reporter in the audience: "I heartily agree with your appointing a simulationist. But, Mr. President, is it ethical?"

And that, ladies and gentlemen, indicates why I became interested in ethics for simulationists. I am afraid that some simulationists might be too much like the accountant who, when asked "How much is 2 + 2 ?" replied "How much do you want it to be?"

That such can happen in real life was shown years ago in the book MODELS of DOOM (Sam Cole et al., 1973) which stated that results given in LIMITS to GROWTH (Donella Meadows, et al., 1972) could be drastically changed, or even reversed, by small changes in the values of "soft" data, or by assumptions concerning details of the structure of the model.

More recently attention was again called to this problem, when I wrote in the May 1986 issue of "Simulation in the Service of Society" (a special feature of SIMULATION, technical journal of the Society for Computer Simulation) as follows:

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#### ETHICS (or lack thereof) IN HIGH PLACES

It has been said that you shouldn't let babies play with sharp tools. I would like to paraphrase that: You shouldn't let sharp politicians play with computer models!

I quote from an article by DIANE SWANBROW in USC, published by the University of Southern California, for March 1986:

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"Only the politically naive were shocked by David Stockman's confession that he'd manipulated computer models on behalf of Reaganomics. Others have long suspected that computer-generated studies have often been used for political purposes, to fool the public and mislead the nation's legislators."

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The foregoing underscores this Editor's long-standing concern with the ethics of simulationists and others who use models; in too many cases only high ethical principles can prevent their misuse.

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Now, I am not worried about you folks in my audience or the vast majority of simulationists, who are honest, forthright, above reproach, and all those good things.

Nor am I concerned about the scoundrels among us. I am no reformer. Some people could know all about ethics and still cause serious mischief.

I am concerned with those simulationists who would like to have some sort of guidelines, something to think about and compare with their own conscious or subconscious inclinations as to how they should proceed.

To that end I offer the following Guidelines. They are the result of a one-year study under a grant by EVIST (Ethics and Values in Science and Technology) of the National Science Foundation, modified and changed, sometimes under duress, by my colleagues and correspondents. But they are not yet, and never will be "carved in stone." If I get any constructive criticism from this audience, or elsewhere, further modifications will be considered. Another draft will then be made and offered to the Executive Committee of

the Society for Computer Simulation at their next meeting for possible adoption as the official SCS position on Ethics for Simulationists.

We might even publish a condensed version of the Guidelines for SCS members to hang in their shop --- or elsewhere!

It should surprise no one that all of the guidelines resolved themselves into groups of Responsibilities, as follows:

- \* To yourself
- \* To your colleagues
- \* To your client
- \* To your profession
- \* To society

Now consider these responsibilities in more detail. They are the current -- not the final -- result of the year's NSF study of ethics made with Dr. Anagnostopoulos, head of the Philosophy Department at the University of California/San Diego, plus a lot of kibitzing from friends and colleagues. I will sincerely appreciate your comments. Speak up now please, but bear in mind that if you will subsequently let me have your thoughts in writing, they are much more likely to be included in the next (there will be no "final") version.

## 2. PROPOSED "GUIDELINES for the ETHICAL CONDUCT of SIMULATIONISTS" in terms of RESPONSIBILITIES

### 2.1. Responsibilities to One's Self

- a. Try to "know thyself": Take advantage of your strengths, and recognize your weaknesses.
- b. Develop credibility by being forthright and honest.
- c. Develop integrity by doing what you say you will, when you say you will do it.
- d. Beware of strongly held, weakly supported opinions, yours and others; they are biases which can adversely affect your personality and your work.
- e. Attempt to understand the biases of others, and compensate for them.

### 2.2 Responsibilities to Your Colleagues

- a. Study and practice the art of communication. Try to make sure that all concerned are considering the same aspects of the same subject.
- b. Be sensitive to your social as well as your physical environment, to the people and the circumstances with which you interact.
- c. Be considerate; think of the effect of your actions on others.
- d. Try to be objective, to see yourself as others see you.
- e. Avoid the NIH (Not Invented Here) complex. Others might also have good ideas, which should not be suppressed simply because they are not yours, or are otherwise unpopular.

- f. Abide, to the best of your ability, by the Golden Rule: "Do unto others as you would have them do unto you."

### 2.3. Responsibilities to Your Client

- a. Study your client and his objective. Does he really need what he says he wants? If not, discuss the problem with him.
- b. Be sure that you understand your client's problem. Is simulation the best methodology available to contribute to its solution? Consider alternatives, and if appropriate, suggest them to him.
- c. Inform the client as to the time and effort that will probably be involved in any proposed project, as well as the kind of results that can be expected. Avoid unpleasant surprises.
- d. Try to keep the client informed throughout the development of the model. Consider "walkthroughs" with the client and others involved, during which the operation of the model is explained in a way that the client and others can understand.
- e. Strive for a meeting of minds before beginning to design a model. This is an ethical responsibility, because failure to do so is an invitation to trouble later.
- f. If there seems to be a lack of understanding, consider other approaches to the situation.
- g. Can you deliver what the client wants without violating your ethical principles? If not, explain to your client what is bothering you. If he is adamant, and you wish to remain ethical, you have no choice but to refuse the work.

### 2.4 Responsibilities to Your Profession

- a. Rely on accepted principles of good computer modeling and simulation practice not only for the basis of your routine work, but also as the "point of departure" for possible research and development to improve the methodology and techniques of your profession.
- b. Remember that component relationships and assumptions determine the form of the model, while numerical data determine the results. Record your understanding of the relationship of the components of the simuland, justify your assumptions, and give the sources of your data.
- c. Avoid the use of "soft data" if at all possible. When questionable data must be used, "flag it," acquaint yourself with methods, statistical and otherwise, for firming up soft data, and explain fully.
- d. Beware the "Garbage in/Gospel out" attitude on the part of your client and others who might be concerned with your results. The aura surrounding the computer may cause some people to overlook the fact that both computers and those who operate them are

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fallible. It is unethical to take advantage of this fact.

- e. When choices must be made concerning model design, data used, experiments run, or analysis of results, give your client reasons for your choices — and record them!
- f. Document your model and your simulation experiments in such a way that your work can be replicated by your successor and/or other users. This requires time and proper funding. If funding is inadequate, explain the possible consequences (probably an "orphan" model that no one else can use), and record them.

### 2.5. Responsibilities to Society

- a. If there is something you do not know or understand, admit the fact and search out the answers.
- b. Take responsibility not only for your own actions, but also for the actions of those to whom you delegate responsibility.
- c. If political or other realities place you in an adversary situation, see that your position is made clear to all concerned.
- d. Remember that individual value systems shape our opinions. If the values of others differ from your own, you might consider their opinions to be biased. Try to understand, and adjust your recommendations accordingly.
- e. Help those with whom you have contact to behave ethically, and encourage your professional organization to do likewise.

### 3. CONCLUSION

I wish to emphasize that the foregoing are guidelines. They do not constitute a "code" that is to be, or can be, strictly adhered to. No method of enforcement is contemplated, nor considered desirable.

The purpose of the guidelines is to focus attention on areas where ethical values should be considered. Having had their attention called to the matter I believe that simulationists, as individuals and as professionals, can be expected to apply their own sense of values and conduct themselves in an ethical manner.

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### AUTHOR'S BIOGRAPHY

JOHN McLEOD is Publications Advisor to the Society for Computer Simulation, Editor Emeritus of Simulation, and Technical Editor of the newsletter, "Simulation in the Service of Society." In 1947, after various engineering positions in automatic control and research and development, and a stint in the Navy in World War II, he went to work at the U.S. Naval Air Missile Test Center (now Pacific Missile Range). Here he sparked and supervised development of the Guidance Simulation Laboratory which, within a few years, became one of the leading West Coast simulation facilities. In 1952 he organized the Simulation Council (now the Society for Computer Simulation) and, with his wife Suzette, began publication of the Simulation Council Newsletter, which eventually grew into the journal Simulation. He also acted as co-founder of the San Diego Symposium for Biomedical Engineering and edited the proceedings of the first of the symposia, which have been held annually since 1961. He is the author of Simulation: The Dynamic Modeling of Ideas and Systems with Computers (McGraw-Hill, 1968); Computer Modeling and Simulation: Principles of Good Practice (Society for Computer Simulation, 1982); and co-author (with Peter House) of Large-Scale Models for Policy Evaluation (Wiley, 1977). In 1983 he received a grant from the National Science Foundation and the National Endowment for the Humanities for the study of professional ethics for simulationists. He is a biographee in Who's Who in the West and American Men & Women of Science.

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