# TEACHING FUTURES STUDIES

Volume 7 Number 3 FEBRUARY 2003

Articles

1 Teaching Futures Studies: Some Lessons Learned
*James Dator*

7 The Future of Education in a Season of Change
*Natalie Dian*

15 Need and Feasibility of an Open University for Futures Studies in Europe
*Fabienne Goux-Baudiment*

21 Lessons from 25 Years of Futures Teaching
*Graham H. May*

27 Forging the Future: Teaching Futures Studies. Theory and Praxis in a Capitalist World-Economy
*Christopher B. Jones*

35 Teaching Futures Studies: From Strategy to Transformative Change
*Sohail Inayatullah*

41 Helping Students Realize their Full Potentials: Teaching Futures Studies in Singapore and Japan
*Ryota Ono*

51 Market Wants, World Needs
*Patrica Kelly*

55 A Futures Perspective: Lessons from the School Room
*David Hicks*

Essays

65 11 September 2001 and Muslim-West Relations
*Ahmed Ishtiaq*

67 Principles and Patterns of Economic Era Development
*Graham T.T. Molitor*

77 Understanding Our Moment in History
*William Van Dusen Wishard*

Reports

87 Using Futures Studies to Transform: Exploring the SmartState Vision
*Colin Russo*

93 Futurewatch
*Jennifer Coote*

# Editor's Introduction

This issue is novel for a number of reasons. First, we are currently undertaking a full-fledged overhaul process, heading towards a new look and a new style. We expect this process to reach completion by fall, 2003. In the meantime, please bear with us as, during the transitional period, production bugs are virtually inevitable. We hope that our readers will find the changes refreshing, attractive, and above all, consonant with the journal's aims. Reader feedback is an important part of this process, and heartily welcomed.

As well, new editorial board members join us. Thank you for your hard work in speeding up the refereeing process, making it among the fastest of any journal.

The articles in this issue are based on the recent (November 5-7, 2002) Tamkang University International Conference on Teaching Futures Studies. The conference had two purposes. First, to explore the teaching of futures studies—how we teach, what we teach, and why we teach. Our intention was to take initial steps to create not just an interpretive community in the futures field but a learning community. Futurists often feel isolated in their universities or in the informal sector. By sharing teaching practices, we hoped to build bridges. David Hicks, James Dator, Patricia Kelly (her piece was featured in the November 2002 issue), Natalie Dian, Ryota Ono and myself presented in this area.

The second purpose of the conference was to explore the possibility of institutional alliances in the field, bridge building between universities. Enric Bas, Fabienne Goux-Baudiment, Richard Slaughter and Chris Jones focused on this.

A workshop was also held that explored the creation of a global Masters and Doctorate in Futures Studies (attended as well by Dator, Dian, Ono, Chen and myself along with those focused on institutional alliances).

There has been discussion for years on the notion of a global post-graduate degree, MA or Phd, in Futures Studies, but this was the first time that individuals began the complex process of defining the vision, the characteristics, the stumbling blocks and action steps ahead. Part of dealing with global problems is not just teaching about them but teaching them globally from multiple perspectives. This means beginning the process of creating the possibility of the movement of students and professors (and, of course, challenging these categories), negotiating and creating shared curricula, discerning the role of professional associations, and, eventually, if possible, institutions co-evolving a global post-graduate program.

Important first steps were taken in developing the characteristics, constraints, metaphors, models and action steps in creating a global post-graduate degree in Futures Studies. I present some of these in bullet form.

The identified characteristics included:

* Multiple nodes
* Ways of knowing embedded in the curriculum
* Collaborative
* Multi-national and post-national
* Up and close, virtual and physical
* Jobs embedded in curriculum, as applied internships
* Seamless travel from node to node

The constraints in creating such a preferred future were all too obvious. A few were:

* Currency problems in that different countries used terms such as unit,
* course, degree, formal, informal in quite distinct ways.
* Administrative dimension of the University
* Scheduling

One important suggestion to deal with these constraints was to focus on a PhD in Futures Studies, rather than a Masters, as this would not require problems of currency transfer (in every meaning of the word).

The metaphors that were used to describe this global degree in Futures Studies included: the clown (in that it should be fun and challenge categories) and the stool (multiple legs: universities, government and social movements; theory, data and values; and, for example, something on which to stand).

Three models were articulated.

First, a loose alliance of universities and their departments/programs/courses in Futures Studies with the initial step being student exchange. The second step would be faculty member exchange.

Second, a professional model wherein a professional association such as the World Futures Studies

Federation would authenticate or provide a stamp on a MA gained from a particular university. This would be an MA plus. Having the additional stamp or certification would provide the global dimension to the degree. This could entail some webwork and perhaps a face-to-face short course (linked to the various World Futures Studies Federation international courses).

Third, a utopian model, seamless education, wherein a number of universities and a professional association such as the WFSF co-evolve to create a joint Global Masters and/or Phd in Futures Studies.

To create any of these possible futures, much needs to be done. The following were suggested steps (some of these have already been initiated by Richard Slaughter through the Australian Foresight Institute at Swinburne University).

1. Collect list of futures courses
2. Revisit professional standards
3. Identify university schedules
4. Develop exchange policies
5. Design web units
6. Explore potential role of WFSF international courses
7. Clarify proposal or system

Certainly these are only small steps on a long journey. However, it is quite clear that with the globalization of knowledge and the Academy, unless we proactively create the type of discipline and discourse we desire, it will be created by forces that are unlikely to have the values or the theoretical and methodological rigor the editors and this editorial board seek.

We hope you can join Tamkang University and the Journal of Futures Studies in reflecting further on the pedagogy of futures studies and the institutional structures and processes necessary to create a global post-graduate degree in Futures Studies.

Sohail Inayatullah

# Teaching Futures Studies: Some Lessons Learned

James Dator
University of Hawaii, U.S.A.

## Abstract

*Has Futures Studies improved over the forty-odd years of its existence as an academic discipline, or gotten worse? Some say it is treading water—flailing about but going nowhere. I reviewed much of the earliest writing on the subject—from in the beginnings of the World Future Society and World Futures Studies Federation—up to today, and came up with nine lessons learned. We have determined what futures can be, and cannot be, and have set out significant, differing, tasks within those boundaries. That is improvement.*

## A SOBERING OPENING THOUGHT

In 1977, Wayne I. Boucher completed *The Study of the Future: An Agenda for Research* for the US National Science Foundation. It was based on a small seminar of invited futurists. I was privileged to attend.

Twenty-three years later, Boucher published an article titled, "The futures examination," in *Futures Research Quarterly*, Winter 2000, pp, 5-10. He started off by commenting that when twenty-two people were asked, by the editor, Harold Linstone, to contribute essays for a special issue of the journal *Technological Forecasting and Social Change* (August 1989) devoted to developing a new agenda for forecasting, "there is not a single reference to the 'old' agenda...to which some of the same authors had contributed. Accordingly there is not a single word on the progress that had been made on that agenda in the preceding 12 years." (5)

So Boucher proceeded to construct a twenty-question examination that any futurist educated according to the original "Agenda" should be able to pass. He said he envisions his exam for the B. A. level but is sure most futurists would view it as a PhD examination. However, Boucher suggests that "they are probably not asked on any level in any field at any institution of higher education these days, and, judging by the 'futures' literature, it seems certain that virtually all of today's practicing futurists would flunk if they had to provide reasonably sophisticated answers—theoretically grounded, analytically sound, and historically informed—to even half of them. That is to say, had there been 'serious progress', nearly everyone now associated with the teaching or practice of futures research would be unqualified for a B. A. in their own area of professional expertise." (5f)

A serious charge indeed.

Is it true? Does it matter if it is or not?

## INTRODUCTION

I have been teaching futures studies for a very long time. I first formulated some ideas about the field while I was teaching in the College of Law and Politics of Rikkyo University in Tokyo, Japan, during the early 1960s. I introduced some futures-oriented elements in my teaching then. When I returned to the United States in 1966, I was able to introduce (in 1967 at Virginia Polytechnic Institute and State University) what is said to be the first officially-recognized college course entirely oriented towards the future, although I know that Alvin Toffler had taught a futures course at the New College for Social Research in New York City before this, and there might have been others as well (see comments by Rojas & Eldredge, below).

Indeed, I soon discovered that I was not alone. The very year I returned from Japan, a group of people gathered in Washington, DC, to form the World Future Society, and a largely different group of people met in Oslo, Norway, to form what soon came to be the World Futures Studies Federation. I immediately became involved in both, though I devoted substantially more of my time to the World Futures Studies Federation for various reasons.

I moved to the University of Hawaii in 1969 specifically to teach futures studies. The Legislature of the State of Hawaii created the Hawaii Research Center for Futures Studies and placed it at the University of Hawaii in 1971. I have served as director of the Center since then.

An MA program in Alternative Futures was established in the Department of Political Science of the University of Hawaii in 1977. I have served as its coordinator since then. During the 1970s and 80s, I also conducted futures courses sponsored by the World Futures Studies Federation through the InterUniversity Consortium in Dubrovnik, Yugoslavia, every year. For the past decade, I have also annually taught futures courses for the International Space University in Strasbourg, France.

In addition to extensive face-to-face teaching, I also have taught futures courses by newspaper, live (interactive) and/or taped radio, live (interactive) and/or taped television, via live interactive satellite (PEACESAT), and for the past five years, entirely or partially online and/or over the Internet.

A book I edited titled *Advancing Futures: Teaching Futures at the University Level* (Wesport, Conn: Praeger Press, 2002) includes essays written at my request by university professors teaching futures studies in nearly twenty countries.

Over the last several months, I have gone back to some of the earliest futures work I was familiar with-the meetings and discussions leading up to the eventual creation of the World Futures Studies Federation, and the work and writing, at the same time, coming from the early days of the World Future Society.

## CONCLUSIONS ABOUT FUTURES STUDIES AND FUTURES COURSES

Based on this overview, I have come to the following condusions:

1. Most people get into the futures field in the belief that it is possible to predict the future. They assume that futures studies will provide them with the theories and methods to do that. Some persist in that notion and either keep trying to find a positivistic basis for future studies, or leave the field, declaring it a pseudoscience. Others accept the fundamental uncertainty of the future as a given, and then try to devise a futures studies which deals with that recognition.

2. Most people get into the futures field favoring one particular "future" over others–they may support a "continued growth" or "high tech" or "environmental" or "spiritual" or "feminist" or some other particular view and concern about the future. Some remain devoted to a single preferred future throughout their career, orienting their teaching, research, and consulting around it. Others come to accept the diversity of futures, and build a futures studies around that diversity.

3. Similarly, most people believe there is or should be a single, proper, objective way to view the future, and futures studies. Others come to see that all perspectives on the future are personal, influenced by one's culture, language, and individual life experiences. While it is possible and desirable to be as "unbiased" as possible in some aspects of futures work, it is not possible or desirable to be (or pretend to be) "value-free" in all of it.

4. There appear to be thousands of courses (and even more parts of courses) that deal with a single view of or concern about the future. These courses come and go, and not only do not usually contribute to futures studies as an academic discipline, but do not even know futures studies exist.

The single most common complaint I have as a person who has labored long in this vineyard, and especially as one who reviews manuscripts submitted for publication in the major futures journals, is that the overwhelming majority of the authors of such manuscripts appear to be completely unaware of the existence of a huge literature in futures. They often fail to cite a single other person who has written about futures before them, and give the impression that they believe they are expressing these ideas for the first time in history.

No one would dare try to publish an essay in any other professional journal without at least having read and thought about one book or artide in the field! Until the editors and publishers of futures journals refuse to publish naive essays (except for those that do indeed present fresh ideas!), the field will continue to languish.

5. As Wentworth Eldredge lamented thirty years ago, so now, few futurists have carefully and fully developed theories of social change and stability. Those that do tend to focus on one single, or one single set, of factors. Though not entirely absent, "theory" still remains the weakest part of futures studies, and is one reason futures studies remains in disrepute among other academic perspectives—or is adopted mainly by other "soft" disciplines or persons, and rejected by the "hard" ones.

6. Futures continues to be dominated by Western, male views and actors, as many people have pointed out. While there have been major improvements in the cultural, epistemological, and perhaps theoretical and methodological mix (thanks to the work of Zia Sardar, Eleonora Masini, Elise Boulding, Anita Rubin, Ivana Milojevic, and many more), much more remains to be

done. Perhaps this symposium can also mark a step forward in this regard.

7. I long ago came to the conclusion that futures studies does not study "the future" since "the future" does not exist and therefore cannot be studied, *per se*. What we can study empirically are "images of the future"—ideas about the future that do exist—in each individual (often several contradictory images), in each culture, differing between men and women, young and old, over one's life, depending on past experiences and current events, and, most importantly, serving as a basic rationale for action in the present (which then helps shape the future).

The fact that futures studies is ignored by formal educational systems at all levels, in almost all countries of the world, whereas history and past ideas are taught over and over again throughout one's education, means that people have very immature and largely unexamined images of the future (in contrast to the comparatively more mature and purposely inculcated ideas they have about religion, society, the military, one's country, various occupations, and the rest). Of course people do have ideas about the future, but they come not from their formal education but rather almost entirely from the media-TV and films, and to a much lesser extent, written fiction. In other words, while formal educational systems work hard to give students a specific (often "scientific") view of the world around them, they are content that students have a science fiction of the world to come.

I believe collecting and studying images, and the consequences of images, of the future should be a main focus of futures studies. Even though the concept "images of the future" is widespread in the futures literature, it does not seem to be the central focus of the field that I think it should be. [For a good example, see "Giving images a chance" by Anita Rubin in Dator, ed., Advancing Futures, Chapter 21.]

8. As the previous pages have demonstrated, there have been many attempts to categorize futurists and futurists' methods. They may be described as extrapolative, normative, or pragmatic. Or optimistic vs. pessimistic. Or possible, probable, and preferable.

Years ago, I toyed with the idea of writing a futures text book that was in two parts. Read one way, the material was all "hardcore" futures—quantitative, mathematical, predictive, and practical. But when the book was turned over and read from what was the "back" but would now be the "front", then the material was all "softcore" qualitative, visual, creative-and perhaps even more practical.

I still find Rick Slaughter's chart to be among the most useful typologies, wherein he locates futures studies in the middle of a continuum between futures research (hard, forecasting) and futures movements (change and values oriented).

Sohail Inayatullah distinguishes between predictive, interpretive, critical, and anticipatory action learning approaches (in his Questioning the future. p. 8 and elsewhere). Moreover, Inayatullah's "Causal Layered Analysis" (Ibid., Chapter 2 and elsewhere) is the first major new futures theory and method since Delphi, almost forty years ago. CLA is a very sophisticated way to categorize different views of and concerns about the futures, and then to use them to help groups think about the futures far more effectively than they could by using any one of the "layers" alone, as most theory/methods do.

However, I am unaware of anyone using CLA to organize a course syllabus, but it would be a very good way, I imagine.

9. For what it worth, the theories/methods that I find most useful and do use in my teaching and research are:

I start with a theory of technology as a basic agent of social change that defines "technology" carefully and suggests specifically how it precipitates social and environmental change...

...Which then leads to demographic factors, age-cohorts, and Kondratieff-type long waves serving as independent agents of social and environmental change...

...Requiring scanning to monitor these and other "STEEP" trends, and especially to identify emerging issues....

...The creation of alternative futures from this input, starting with the "generic" four of Continued Growth, Collapse, Disciplined Society and Transformational Society but expanding to others as appropriate....

Deductive forecasting of social subsystems using the "four futures" basis.

Futures visioning activities in order to identify preferable futures.

Where appropriate, tying the above to strategic planning processes.

**Given all this, some time ago, I suggested that to be a good futurist, you need the...**

...widest possible knowledge of the history and present condition of as many cultures and civilizations as possible; you must know more than one culture, and thus more than one language, intimately...

...widest possible knowledge of all aspects of all the social sciences...

...widest possible knowledge of current and emerging developments in the natural sciences, and their emerging sub disciplines and transdisciplines, for example, evolutionary systems theory, chaos theory, and brain

science...

...widest possible familiarity with developments in engineering (especially electronics, genetics, nanotechnology and new materials), architecture, and space sciences...

...widest possible familiarity with philosophy, ethics, morals, and religions, and certainly the ethical discourse of as many different traditions as possible...

...widest possible familiarity with law and planning...

...an active awareness of aesthetics and the aesthetic element in all aspects of life. A continuing experience of aesthetic expression in some, or preferably many, modes...

...creativity, imagination, the willingness to think new thoughts, to make unmade connections, to be ridiculed, laughed at, and to laugh at yourself...

...ability to synthesize, combine, invent, create...

...willingness to be politically active, to test out new ideas on yourself first and while trying actually to create a better world, or some portion of it...

...ability to try to anticipate the consequences of actions before you act, but also the willingness to risk failure and to learn from mistakes and criticism—indeed to seek out and provoke criticism—but to keep trying to do better, and constantly to relearn what 'better' might be...

...insatiable curiosity, unbounded compassion, incurable optimism, and an unquenchable sense of humor and delight in the absurd...

"All of this can be described in one word, 'aiglatson'—'nostalgia' spelled backwards. Told to me by Gabriel Fackre, this word symbolizes the yearning for things to come; revering the future without being disrespectful to the past (remembering that once it was all that was humanly possible); preferring the dreams of the future to the experiences of the past; always desiring to try something new; to go where no one has ever gone before in all areas of human, and non-human, and, soon, post-human-experience." (Originally published in Richard Slaughter, ed., *New thinking or a new Millennium*. New York: Praeger, 1996, p. 112)

## CONCLUSION

So what do we make of Boucher's criticism that I began with?

I agree with Boucher that in many ways futures studies has not progressed beyond its beginnings nearly as much as we thought we would, and probably should have. But Boucher seems in his original "agenda" and in the questions on his "futures exam" to still be rather committed to a "hardcore," single view of the future.

When I asked people to contribute to a book on teaching futures at the university level, I was surprised and pleased to see how few of them any longer insisted on that. Indeed, several of them described their own journey from a positivistic prediction-based single futures perspective to a qualitative, vision-based, alternative futures approach. But even so, the essays in *Advancing Futures* (and the many ongoing discussions about the relevance and utility of futures more generally) clearly indicates the tension remains.

Correspondence:
University of Hawaii, 2424 Maile Way Honolulu, Hawaii 96822,USA
Dator@hawaii.edu

## References

**Some early major futures sources:**

Kurt Baier and Nicholas Rescher, eds. *Values and the future: The impact of technological change on American values*. New York: The Free Press, 1969.

Raymond Bauer, ed., *Social Indicators*, Cambridge, Mass: MIT Press, 1966.

Daniel Bell, "Twelve modes of prediction–A preliminary sorting of approaches in the social sciences," *Daedalus*, Summer 1964, pp. 845-880.

Daniel Bell, ed., *Toward the Year 2000: Work in progress. Boston: Houghton Mifflin, 1968.*

Wendell Bell and James Mau, eds., *The sociology of the future*. New York: Russell Sage Foundation, 1971.

Harrison Brown, The challenge of man's future. New York: Viking Press, 1954.

Kenneth Boulding, *The image: Knowledge in life and society*. Ann Arbor: University of Michigan Press, 1956.

Kenneth Boulding, The meaning of the 21st Century: The great transition. New York: Harper and Row, 1965.

Rachel Carson, *Silent spring*. Boston, Houghton Mifflin, 1962.

George Chaplin and Glenn Paige, eds., *Hawaii 2000: A continuing experiment in anticipatory democracy*. Honolulu: University of Hawaii Press, 1971.

Arthur C. Clarke, *Profiles of the future: An inquiry into the limits of the possible*. New York: Harper and Row. 1962.

Theilhard de Chardin, *Phenomenon of man*. London: Collins, 1959.

Betrand de Jouvenel, *The art of conjecture*. New York: Basic Books, 1967.

Rene Dubos, *Man adapting*. New Haven: Yale University Press, 1965.

Maryanne Dunstan and Patricia Garlan, eds., *Worlds in the making; Probes for students of the future.*

Englewood Cliffs, NJ: Prentice Hall, 1970.
Paul Ehrlich, *The population bomb*. New York: Ballantine Books, 1968.
Buckminster Fuller, *Utopia or oblivion: The prospects for humanity*. New York: Bantam Books, 1969.
Ossip Flechtheim, *History and Futurology*. Haim: Meisenheim an Glan, 1966.
Martin Greenberger, ed., *Computers and the world of the future*. Cambridge: MIT Press, 1962.
S. J. Hahn, ed., *Korea in the Year 2000*. Seoul: Korea Institute of Science and Technology, 1971.
D.S. Halacy, Jr. *Cyborg; Evolution of the superman*. New York: Harper and Row, 1965.
Yujiro Hayashi, ed., *Perspectives on postindustrial society*. Tokyo: University of Tokyo Press, 1970.
Robert Heilbroner, *The future as history*. New York: Harpers, 1960.
Olaf Helmer and Nicholas Rescher, *On the epistemology of the inexact sciences*. Santa Monica, Cal: The RAND Corporation, Feb. 1960.
Carl Hempel and Paul Oppenheim, "Studies in the logic of explanation," in Herbert Feigl and Mary Brodbeck, eds., *Readings in the Philosophy of Science*. New York: Appleton-Century-Crofts, 1953, pp. 319-352 (and other essays in this volume).
Institute of History and Natural Sciences and Technology, the Institute of Philosophy of the Academy of Sciences of the USSR, and the Institute of Philosophy and Sociology of the Czechoslovak Academy of Sciences, eds., *Man--Science--Technology: A Marxist analysis of the scientific-technological revolution*. Prague: Academia, 1973.
Robert Jungk and Johan Galtung, Eds., *Mankind 2000*. London, Allen & Unwin, 1969.
Herman Kahn and Anthony Weiner, *The Year 2000: A framework for speculation on the next thirty-three years*. New York: Macmillan 1967.
"'Manifesto' of the Ad-hoc Committee on the Triple Revolution," Conference on the Cybercultural Revolution–Cybernetics and Automation, 1964, in Henry Winthrop, *Ventures in Social Interpretation*. New York: Appleton-Century-Croft, 1968.
John McHale, *The future of the future*. New York: G. Braziller, 1969.
Marshall McLuhan, *Understanding media*. New York: McGraw-Hill, 1964.
Emmanuel Mesthene, *Technology and social change*. Indianapolis: Bobbs-Merrill, 1967.
Donald Michael, *Cybernation: the silent conquest*. Santa Barbara, California: Center for the Study of Democratic Institutions, 1963.
Aureilo Peccei, *The chasm ahead*. New York: Macmillan 1969.
John Platt, *The step to man*. New York: John Wiley & Sons, 1966.
Fred Polak, *The image of the future* (2 vols). New York: Oceana, 1961.
Bruce Ross-Larson, ed., *Malaysia 2001*. Kuala Lumpur: Syed Kechik Foundation, 1978.
Robert Theobald, *The challenge of abundance*. New York: C.N. Potter, 1962.
Alvin Toffler, *Future Shock*. New York: Random House, 1970.

### Articles in The Futurist and FRQ, 1967-2002

#### The Futurist

Roy Amara, "The Futures Field: Searching for Definitions and Boundaries," *The Futurist*, February 1981; "The Futures Field: How to Tell Good Work from Bad," *The Futurist*, April 1981; "The Futures Field: Which Direction Now?" *The Futurist*, June 1981.
Joseph Coates, "Technology Assessment: The Benefits, the Costs, the Consequences," *The Futurist*, December 1971.
Joseph Coates and Jennifer Jarratt, "What Futurists Believe: Agreements and Disagreements," *The Futurist*, November-December 1990; "What Futurists Believe About the Future of Education," The Futurist, November-December 1990.
Edward Dewey, "Forecasting By Means of Cycles," *The Futurist*, June 1969.
H. Wentworth Eldredge, "Education in Futurism in North America," *The Futurist*, December 1970; "Teaching the Future at North American Universities," *The Futurist*, December 1972; "University Education in Futures Studies," *The Futurist*, April 1975.
Jay Forrester, "Economic Conditions Ahead: Understanding the Kondratieff Wave," *The Futurist*, June 1985.
Arthur Harkins, "Futurizing a University," *The Futurist*, August 1973.
Martino, Joseph P. [513-229-3036], "Technological Forecasting: An Introduction," *The Futurist*, July-August 1993; "Does the Kondratieff Wave Really Exist?" *The Futurist*, February 1985; "The Role of Forecasting in Technology Assessment," *The Futurist*, October 1972; "A New Approach to Technological Forecasting," *The Futurist*, December 1970; "Forecasting Technological Breakthroughs," June 1970; "The Consistency of Delphi Forecasts," April 1970; "Forecasting By Analogy," *The Futurist*, December 1969; "What Computers May Do Tomorrow," October 1969; "Evaluating Forecasts," *The Futurist*, June 1969; "Methods of Long-Range Forecasting," *The Futurist*, April 1969; "The Paradox of Forecasting,"

February 1969; "Blunders of Negative Forecasting," *The Futurist*, December 1968; "The Methodology of Technological Forecasting," *The Futurist*, April 1968; "Technological Forecasting May Make it Possible to Design the Future," *The Futurist*, October 1967.

Theodore Modis, Theodore "Life Cycles: Forecasting the Rise and Fall of Almost Anything," *The Futurist*, September-October 1994.

**Futures Research Quarterly**

Wayne I. Boucher, "The Futures Examination," *Futures Research Quarterly*, Volume 16, Number 4, Winter 2000.

Vary Coates, "Technology Forecasting and Assessment in the United States: Statistics and Prospects," *Futures Research Quarterly*, Volume 15, Number 3 Fall 1999.

Jib Fowles, "The Future of the Internet: Forecasting by Analogy," *Futures Research Quarterly*, Volume 12, Number 3, Fall 1996.

James Lihosit, "Social Forecasting from the Cycles of American History," *Futures Research Quarterly*, Volume 12, Number 3, Fall 1996.

James Lihosit, "Transitional Cohorts in the Cycles of American History," *Futures Research Quarterly*, Volume 14, Number 4, Winter 1998.

Timothy Mack "The Subtle Art of Scenario Building: An Overview, " *Futures Research Quarterly*, Volume 17, Number 2, Summer 2001.

Tim Mack, "Technology Forecasting in an Imperfect World," *Futures Research Quarterly*, Volume 15, Number 1, Spring 1999.

Mika Mannermaa, "Multidisciplinarity, Methodologies and Futures Studies," *Futures Research Quarterly*, Volume 16, Number 2 Summer 2000.

Wang Shian, "Evolutionary Forecast Theory," *Futures Research Quarterly*, Volume 14, Number 3, Fall 1998.