Simulating Society

Designing, Writing and Trying to Get Approval
for an Interdisciplinary High School Credit Course
based on System Dynamics

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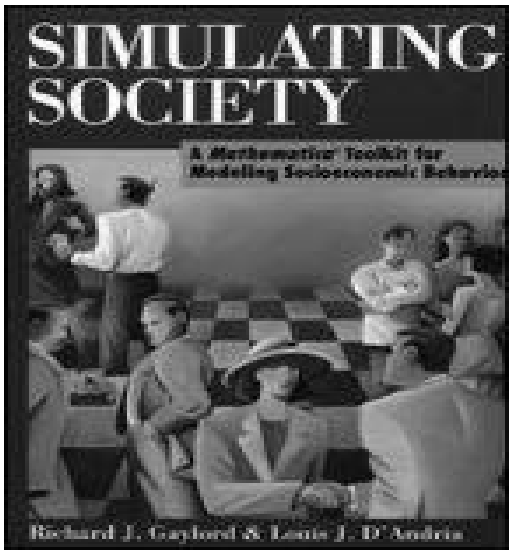
The Journey

A. Genesis of an Idea
B. Finding out the Rules
C. Partners
D. Research
E. Writing the Course
F. Edu-jargon
G. Seeking approval
H. Trying again
I. Lessons Learned



A. Genesis of an Idea

- Driving back from Dynamiquest 2001 a student asked:
- “Why can’t we get credit for all this work?”
- I decided to find an answer.

B. Finding out the Rules

I went

- my Principal
- to my School District: Program Division
- then to the MOET local representative

- **It was possible to get approval for a locally designed course…under certain conditions.**

Political Context

- A top-down/very centralized control structure was being put in place
- A new curriculum was being introduced
- The funding formula was a mess

- ***The course has to meet a local need not met by any standard course***

C. Partners

- I had to work with a post secondary Institution
- a contact at the University of Ottawa's Department of Economics helped
- I worked with Professors from:
  - Department of Economics
  - Systems Science
  - Center for Governance

D. Research: Course Concept

- ***Simulating Society:***
  - **A Mathematica Toolkit for Modeling Socioeconomic Behavior**

Computer simulations provide a laboratory in which qualitative ideas about social and economic interactions can be tested. This brings a new dimension to the social sciences where 'explanations' abound, but are rarely subject to much experimental testing.

- My partners were Economists
- HS social science teachers were looking for a way to attract better students
- I wanted an Interdisciplinary course that was NOT perceived as a computer "geek' course

E. Writing the Course

Module Title	Subject Area	Skill or Tool to Learn	Case Study	Game
A.1 Why Systems Thinking	Economics	the whole is more than the sum of its parts	The Collapse of the Eastern Cod Fishery in Newfoundland	The Commons Game

- I spent the summer
  - finding problems in various subject domains,
  - building/using models,
  - writing/using papers, and
  - developing a logical but FUN sequence of activities/games to add emotional punch
  - checked my work with my University partners and students on a regular basis

F. Edu-jargon

- Understanding and Managing Change = Systems Thinking
- Methods of Social Inquiry = SD Computer Simulations
- Changing Social Structures = Group Model Building

<u>MOET Design Structure</u>

- **Overall Expectations**
- **Specific Expectations**
  - **Understanding Concepts**
  - **Developing Skills**
  - **Learning Through Applications**

Submission Documentation

- Rationale for the Course
- Origin of the Course
- Involvement of post-secondary partners
- Links to other courses
- Curriculum expectations
- Curriculum Overlap
- Assessment and Evaluation of student achievement
- Textbooks and resources
- Appendix: Letters of Support from University partners

Section A – The Systems Thinking Worldview *Content Based Rubric*

Knowledge /Understanding	**Coaching Rubric**	**Level 1**	**Level 2**	**Level 3**	**Level 4**
-Systems Thinking - qualitative data -mental models .	-I can explain why systems thinking is needed for complex dynamic issues -I recognize the limits to logical thought processes & make decisions including qualitative data, emotions & societal values - I can explain how all interpretations of the world are based upon implicit mental models which are simplifications of a complex world	-recognizes the need for systems thinking -is aware that emotions play a role in decision making	-demonstrates some knowledge of when systems thinking is needed -	-frequently relates systems concepts to problems assigned	-thoroughly understands how & why systems thinking is applied to real world issues

G. Seeking approval

- By September I had all the forms filled
- the Program Division began to write their submission
- then a new memorandum came from the Ministry
- and the District people changed
- and new initiatives to have all courses on a master list

That I was told that they could
not submit to the MOET at this time.

H. Trying again

- This Spring I am submitting again as there are now *interdisciplinary guidelines*
- the District now has the capability to run on-line courses via blackboard so perhaps it can run as an **<u>On-line course</u>**

I. Lessons Learned

- You need friends on the inside
- Bureaucracies have their own agendas
- Working with Universities is not so tough
- Students are your strongest allies
- A centralized educational system stifles initiative
- Quality control can really mean dumbing down
- ***Be flexible***
- **And never give up!**