

poster adapted from Creating a Pandemic of Health Global Health/Innovation Summit Dalla Lana School of Public Health, U of Toronto and

4th Ann Sunnybrook Health Science Centre

Education Conf, Toronto 2015

CHAOS COMPLEXITY COMPLEX SYSTEMS COVID-19 30 YEARS TEACHING HEALTH PROFESSIONALS CHAOS AND COMPLEXITY

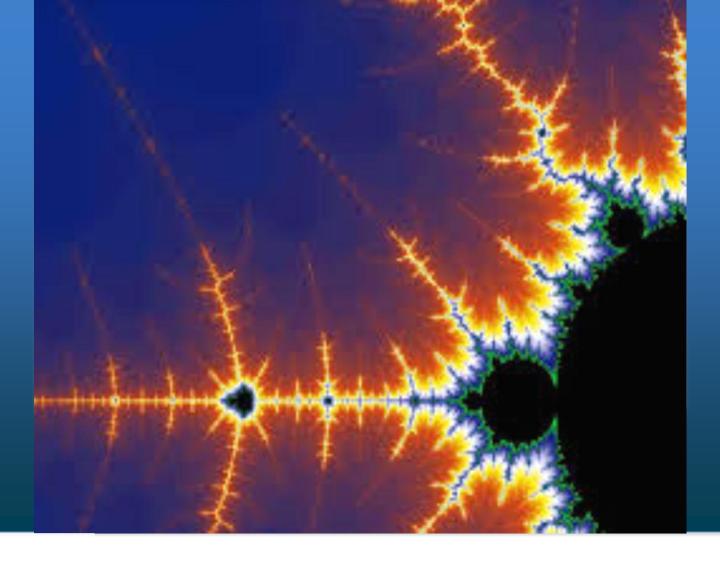
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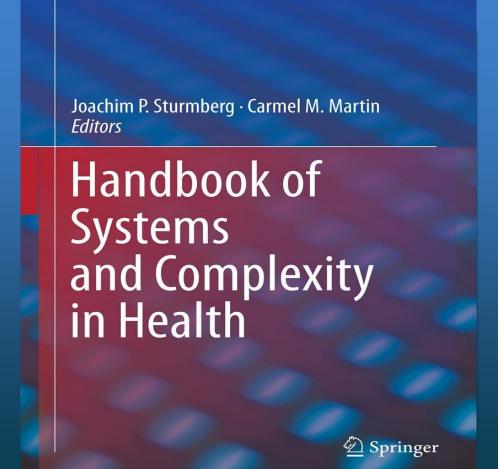
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10 th
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Complex
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NECSI
Nashua NH USA





Abstract

- Complexity, considered the science for the 21st century, is a paradigm shift over 400 yrs
- Now used in medicine, health and education as better able to address complex dynamic social/biologic/other interactions.
- Features include nonlinearity, emergence, uncertainty, network effects, etc. (see table).
- A 30 year experience learning, using and teaching health professionals complexity is described from 1990 to 2020.

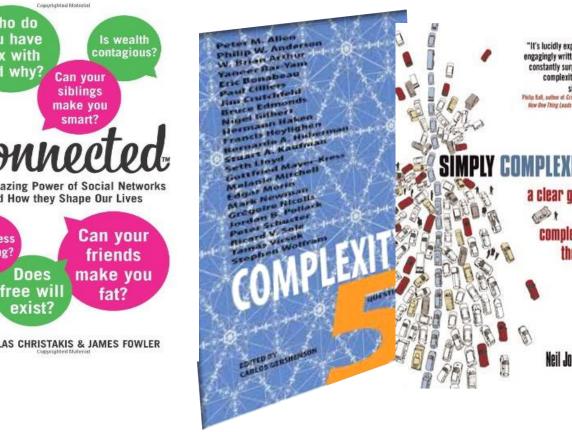




- 2010 Lancet Report on Educating Health Professionals for the 21st Century lists

 1) science 2) PBL (McMaster) 3) systems approach (complexity), as the three major 20th century reforms in medical education.
- Chaos and complexity, the science for the 21st century, and of systems and complex systems should be taught and used for the complex in medicine, health and society.
- •This extends now to the complex dynamics of COVID-19, health, medical, social, etc





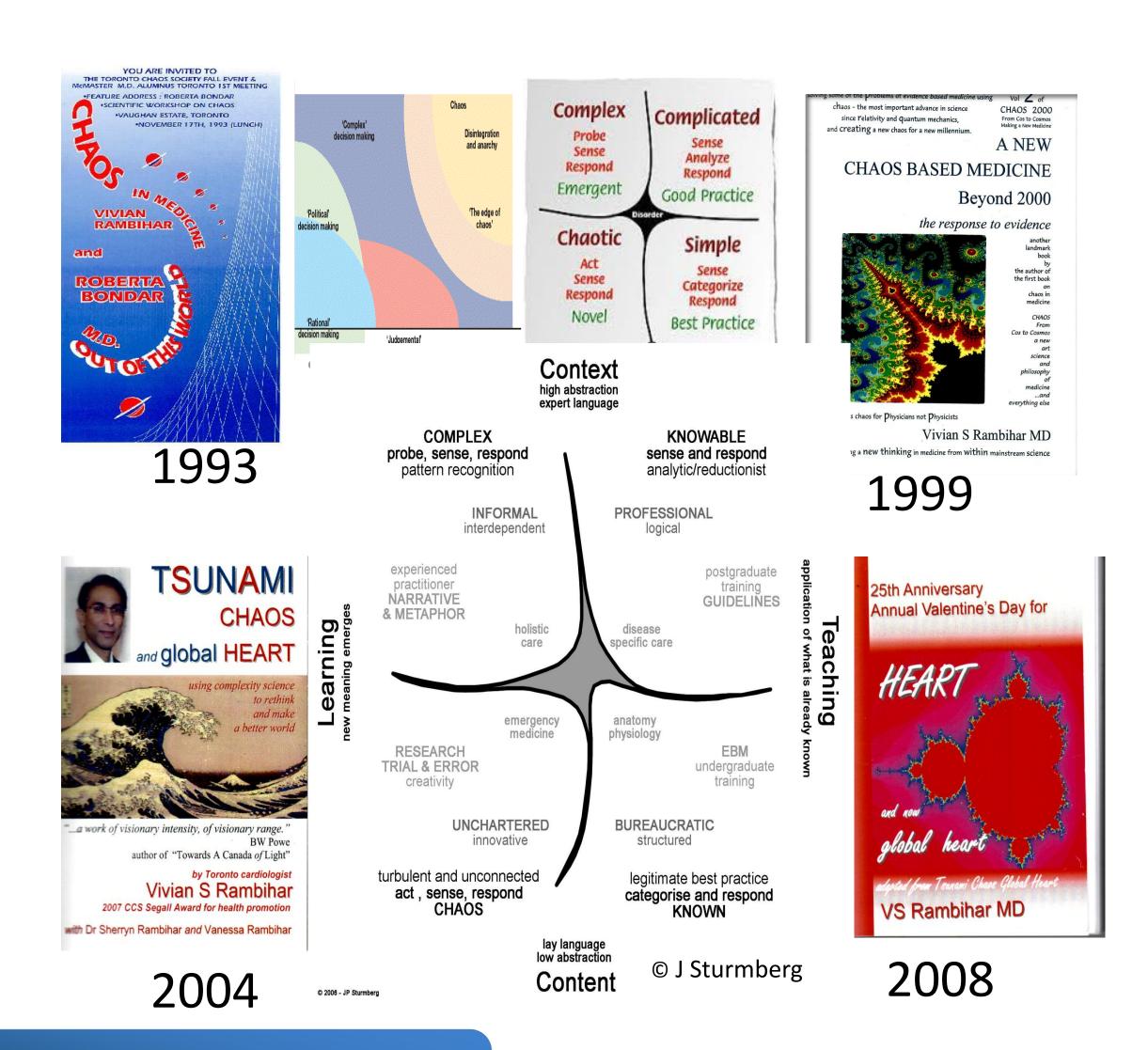
I think that complexity will be the science for the 21st century - Stephen Hawking, 2000 Proposal: "Thinking complexity" for educating health professionals for the 21st century.

First Steps - Action Plan - suggestions Learn and think complexity — search web See the world differently, and act differently Apply this new thinking to new/usual actions Create change using complexity thinking/methods Translate evidence to reality using complexity Use social and other networks for change Your views...

Methods



Review of literature and the authors'
30 year experience teaching complexity.



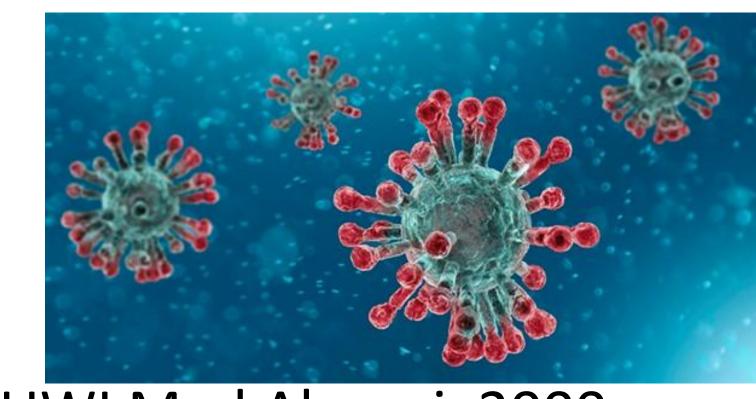
References

Search Rambihar complexity health or Rambihar ICENET medical education, or Tsunami Chaos Global Heart for free complexity book or at femmefractal.com

Traditional	Complexity
Ordered and predictable	Self-organization and uncertainty
Silo, top-down, control	Interrelated, distributed, manage
Didactic, teaching, expert, test	Learning, co-learning, evaluate
Additive effects, linear	Emergence, surprise, nonlinear
Linear cause and effect	Web-like network cause effects
Fixed plans, vision, mission, test	Add feedback, adaptation, change
Central, hierarchy, authority	More flat/autonomy/collab

organized organi

Results



- •Lectures: From 1990: Conf UWI Med Alumni, 2000 Cambridge U UK, 2014/15 ASME Brighton UK, OMA Toronto,
- Books: on chaos/complexity in medicine/health/society
- Commentaries, Can J Cardiol, Letters to the Ed and Blogs eg. Lancet, BMJ, Royal College ICENET, femmefractal.com
- •Nursing UT symposia, Chaos as Science of Nursing, etc.
- McMaster as complexity method of education, beyond PBL
- Proposing Complexity Based Medicine to update EBM with 21st century science, and book Chaos Based Medicine.
- •Using chaos and complexity in health and medical practice
- *Using/teaching* chaos and complexity for community health promotion and to reduce disparities, etc.
- **Proposing** complexity as the Science for Health/Creating a Pandemic of Health, Dalla Lana SPH Global Summit 2014
- •Brief Report 2010 "Thinking Complexity" for Educating Health Professionals for the 21st Century.
- •Letters to Ed BMJ, CMAJ 2020 and advocacy for/on Chaos Complexity and COVID-19 complex dynamics

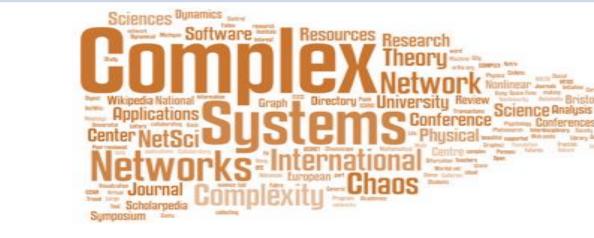
Summary

30 Years of Teaching Complexity

Advocacy: complexity as a science of medicine and health, complexity based medicine/practice

Lectures, books, conferences, networking, health promotion, community and global change

Use as art/science/practice of medicine/health
Use for diversity and health/disparities in health
Thinking complexity for 21st century global issues





Conclusions

- The Lancet Report on Educating Health Professionals for the 21st Century proposes systems (includes complexity) as an innovation for medical and health education for the 21st century.
- A 30 year experience using and teaching health professionals complexity is described, and "Thinking Complexity" is proposed for educating health professionals for the 21st century.
- •This extends to the social, biological and other complex dynamics of COVID-19 and to help prevent/contain/manage.

