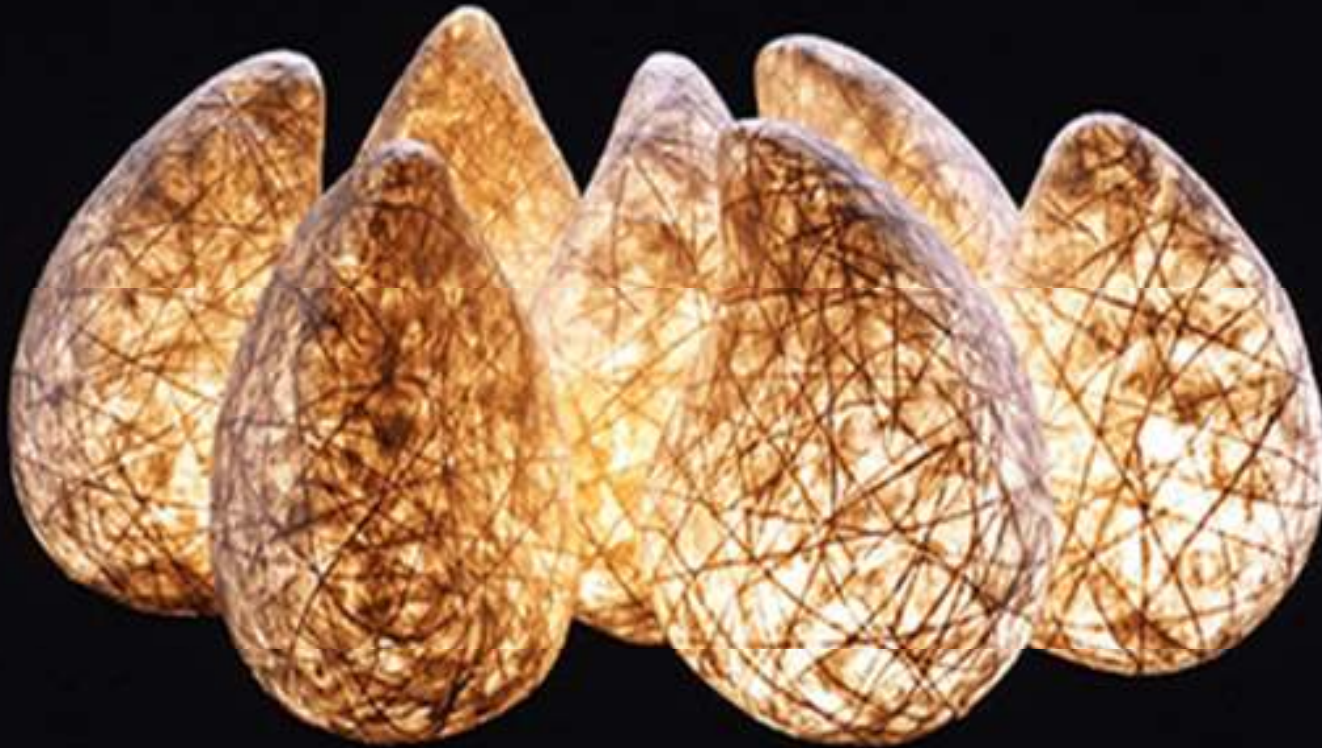


The Stockholm Declaration



Stockholm, Sweden
April 22-24, 2013

Charles Fadel

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Source: Eriko Horiki

With Sincere Thanks to



With Sincere Thanks to

The Speakers:

“You give but little when you give of your possessions. It is when you give of yourself that you truly give.”

Kahlil Gibran,
“The Prophet”

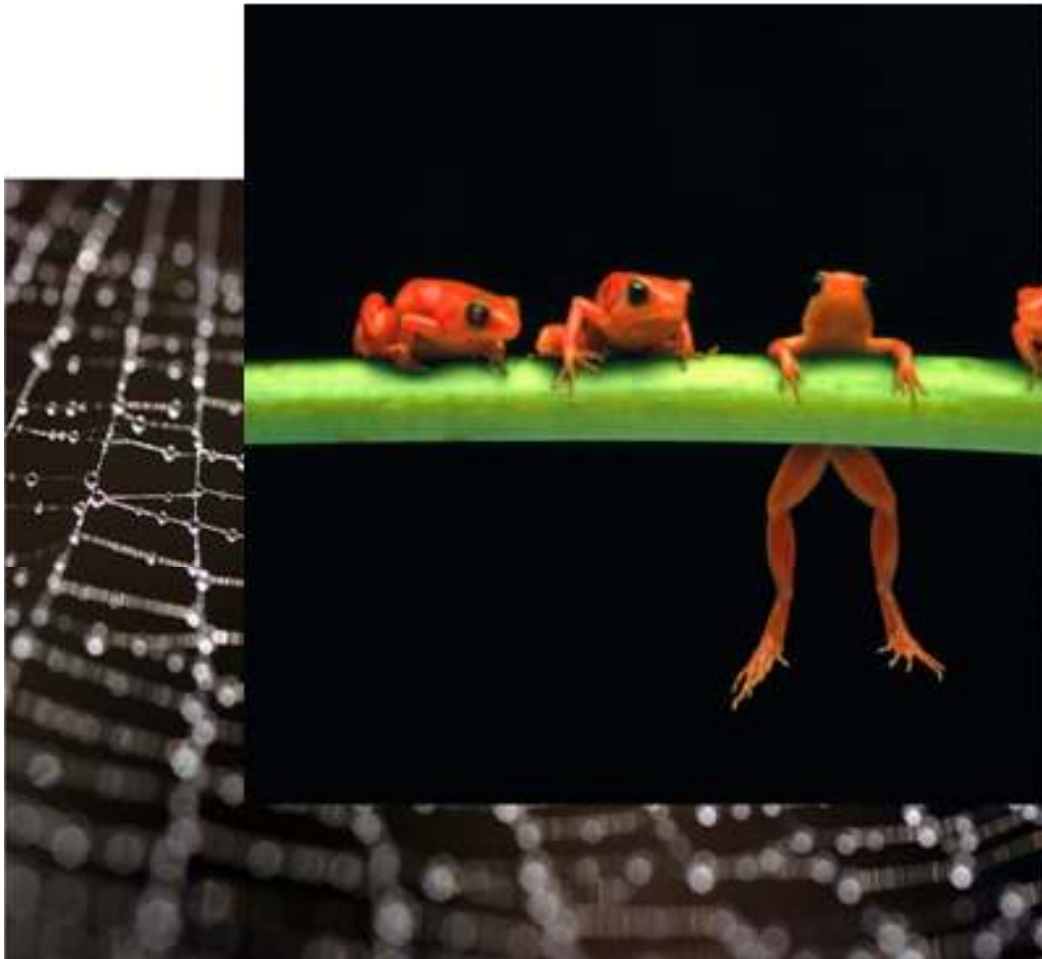
Change = Opportunity !

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Relevance is a choice

Occupation (below)	Algebra	Applied Maths	Calculus	Discrete Mathematics	Foundations	Geometry	Numbers & Operations	Statistics & Probability	Topology & Recreational
Taxonomy & Ontology: Wolfram Research →	Matrices, Operations, Vectors etc	Complex systems, Control, Game theory, etc	Analysis, Transforms, Polynomials, etc	Automata, Graphs, Computational maths etc	Sets, Logic etc	Curves, Dimensions, Transformations, Trigonometry, etc	Arithmetic operations, Fractions, Sequences, etc	Distributions, Analysis, Estimation, etc	Knots, Figures, Folding, Spaces, etc
Agriculture						X	X	X	
Architecture		X				X	X	X	X
Astronomy/Cosmology	X	X	X	X		X	X	X	X
Biology, Botany, Zoology		X		X			X	X	
Biotechnology, Genetics	X	X	X	X		X	X	X	X
Business		X					X	X	
Cinematography/Photography						X	X		X
Civil engineering	X	X	X	X		X	X	X	X
Communication		X					X	X	
Computer science	X	X	X	X	X	X	X	X	X
Craftsmanship						X	X		X
Dance						X	X		X
Design						X	X		X
Drawing						X	X		X
Economics & Finance	X	X	X	X		X	X	X	
Education	X	X	X			X	X	X	
Electrical engineering	X	X	X	X		X	X	X	
Environmental science	X	X	X	X		X	X	X	
Ethics							X		
Geography/Geology	X	X	X	X		X	X	X	X
Health							X	X	
History/Archeology	X	X		X			X	X	
Journalism	X	X					X	X	
Languages/Linguistics	X	X		X			X	X	
Law		X					X	X	
Materials Science/Nanotechnology	X	X	X	X		X	X	X	X
Mechanical engineering, Robotics	X	X	X	X		X	X	X	X
Medicine/Pharmacy/Veterinary		X					X	X	
Music	X						X	X	
Painting						X	X		
Philosophy		X			X		X	X	
Physics	X	X	X	X	X	X	X	X	X
Poetry/Prose							X		
Psychology/Sociology/Anthropology	X	X		X			X	X	
Sculpture						X	X		X
Sewing/Knitting/Tapestry						X	X		X
Spirituality/Religions							X		
Theater/Acting							X		X

Skills, Character and Metacognition need time too



And a Sobering Reality

“...there is nothing... more dangerous to manage than a new system. For the initiator has the enmity of all who would profit by the preservation of the old institution and merely lukewarm defenders in those who gain by the new ones.”

Niccolo Machiavelli

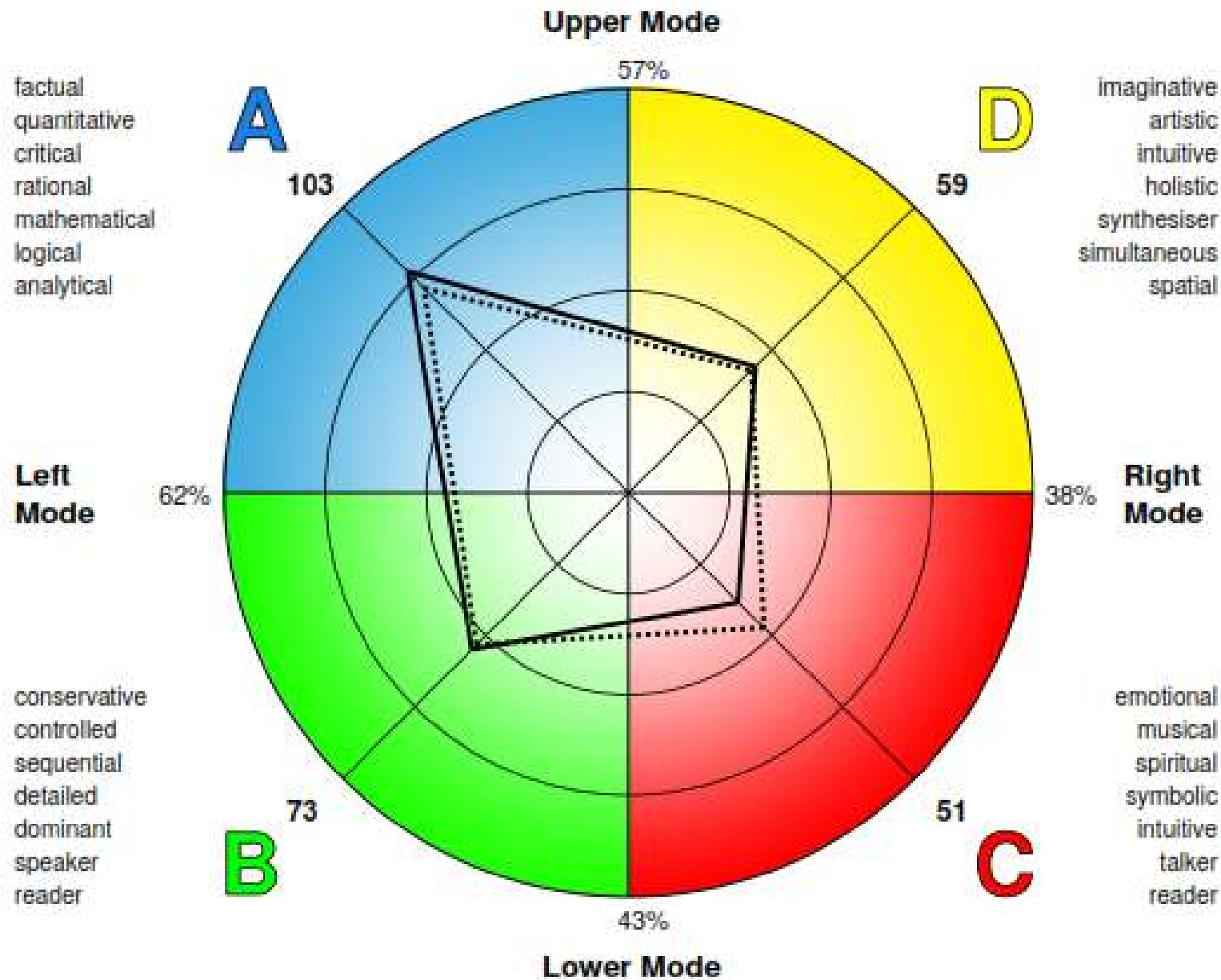
“The Prince”



Change Management



Mathematicians' Personality (HBDI) Profile



N = 100

But Emotions and Systems have Inertia



What Branches or topics should be *de-emphasized or removed* ?

Free text entry at:

[Poll - What Maths should be DE-emphasized/removed ?](#)

What Branches or topics should be *emphasized or added* ?

Free text entry at:

[Poll - What Maths should be Emphasized/Added ?](#)

Change is Hard

From NSF report:

- “more emphasis on estimation, mental maths...”
- “less emphasis on paper/pencil execution...”
- “content in... algebra, geometry, pre-calculus and trigonometry need to be... streamlined to make room for important new topics.”
- “discrete Mathematics, statistics/probabilities and computer science must be introduced”.

Date of report: **1982 !**

Stockholm Declaration Draft

“We call for a far deeper and greater understanding of Mathematics by the entire population as a critical right, requiring:

- a significant rethinking of what branches, topics, concepts and subjects should be taught in Mathematics in schools,
- open-mindedness to changes to the existing Mathematics standards as presently conceived,
- open-mindedness to changes to assessments at the global (PISA, TIMMS), academic entrance (SAT, etc.), local (jurisdiction-specific) and classroom-level (formative and summative) levels to help such progress.”

Co-Designing the Stockholm Declaration

10 minutes at URL:

[Wiki - Stockholm Declaration](#)

What's Next ?

- Standards redesign meeting #1
- August 5-11, East Hampton, New York



Open Conversation - All

How do we get acceptance for change ?

Four elements of paralysis:

- Traditionalism
- GroupThink
- Assessments
- College entrance requirements

Leadership lessons from the dancing guy



감사합니다 Natick

Grazie Danke Ευχαριστίες Dalu

Thank You Köszönöm

Спасибо Dank Gracias

谢谢 Merci Seé
ありがとう

Obrigado

Join us !

“***What*** should students learn in the 21st century?”



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