theory: Implcations for public policy

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Oultline

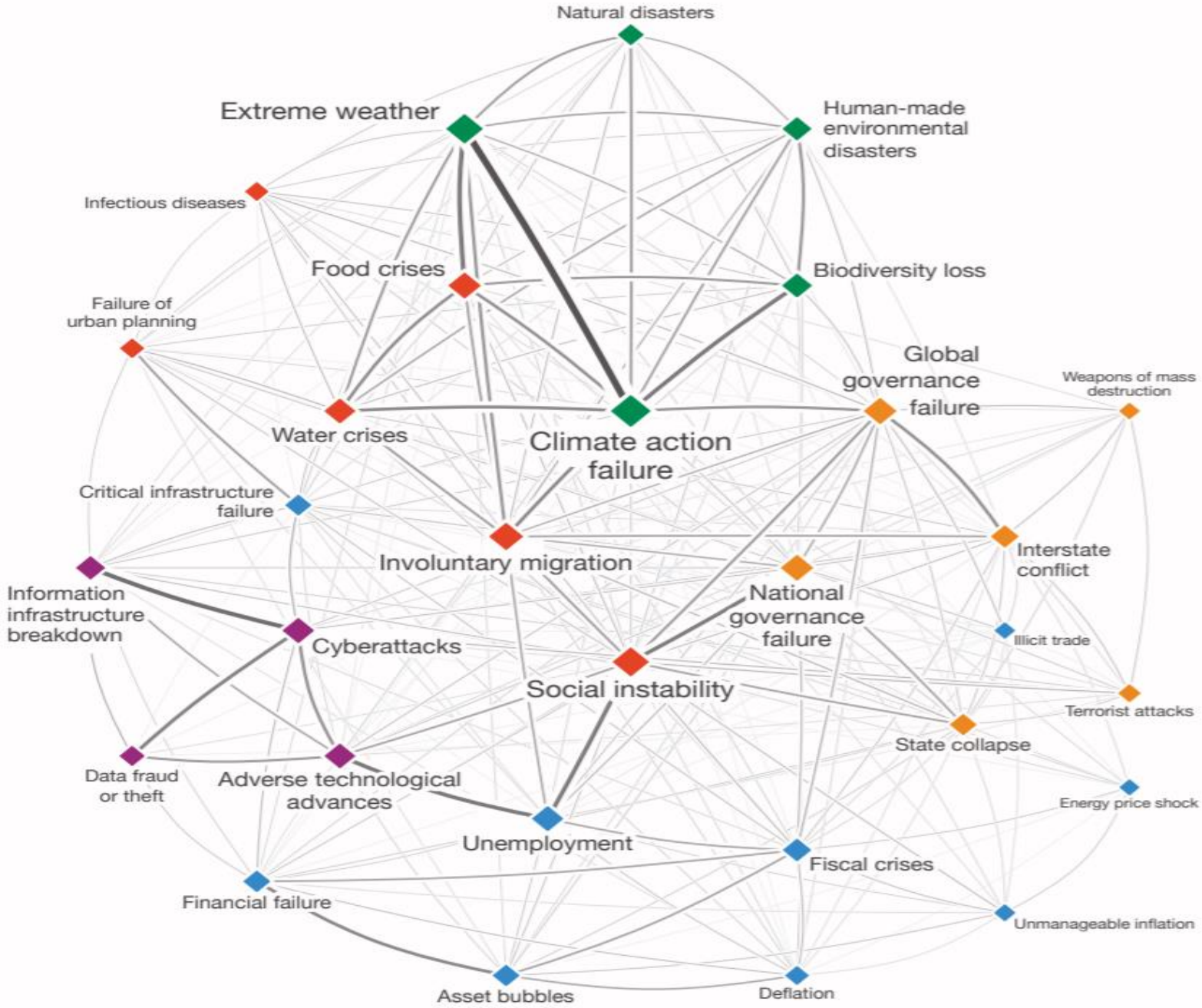
- Complexity in Public Policy
- Simple, Complicated , Complex and Chaotic systems
- Making Policy in the Face of Complexity
- Designing programs in complex situations
- Evaluations in complex situation

UN SDGs: (Sustainable Development Goals)

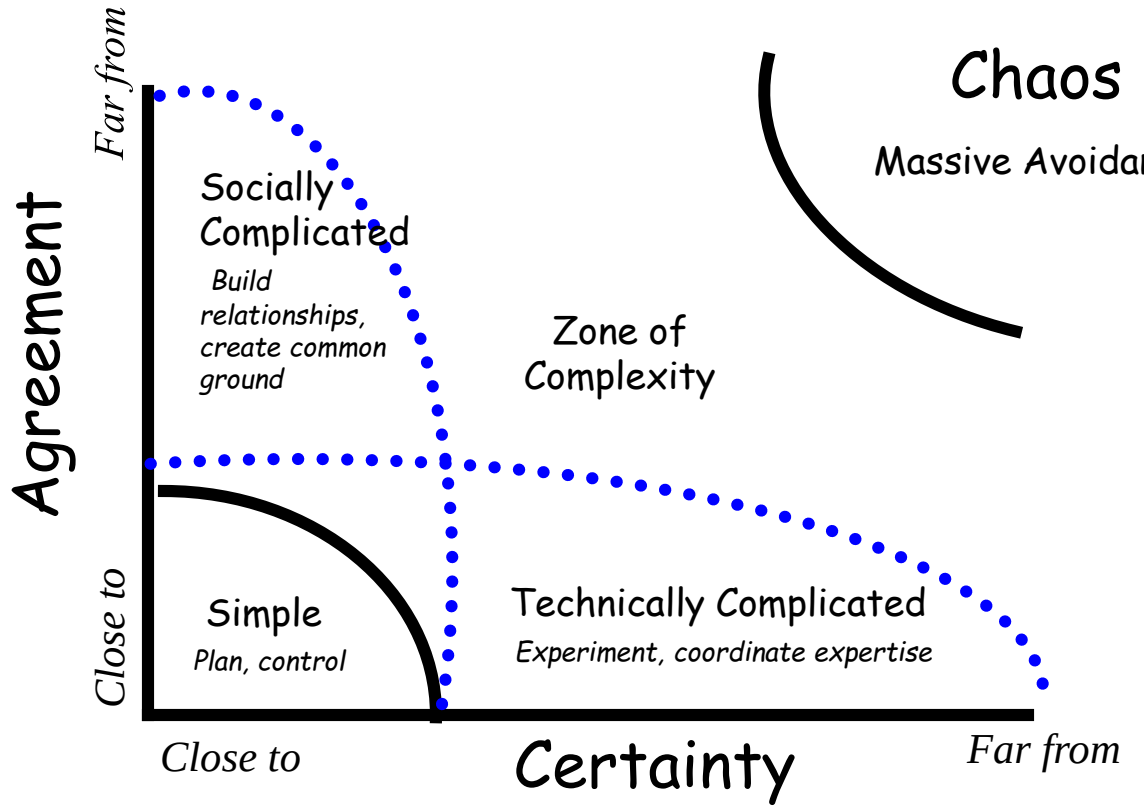
- 17 Goals from ending poverty and hunger, fighting inequality and exclusion, to reducing climate change and promoting peace and justice. (169 targets and associated indicators to be achieved by 2030)
- Requires transformational change in financing models, technology applications and economic thinking and models leading to shifts in public policy.
- Nothing less than a fundamental rethinking of the way we understand the world and how we relate to it and with each other.
- The fundamental challenges stems separateness from one another and the earth .
- From where can we get some new insights and inspiration ? Interest in

Wicked Problems (Rittel and Webber : Policy Sciences. 1973. “Dilemmas in a General Theory of Planning.

- Some problems are not just tough, or persistent they are wicked. They can be tamed but not solved.
- Wickedness isn’t a degree of difficulty. A wicked problem has innumerable causes, is tough to describe, and doesn’t have a right answer.
- Not only do conventional processes fail to tackle wicked problems, but they may exacerbate situations by generating undesirable consequences.
- **Every wicked problem is essentially unique.** An ordinary problem belongs to a class of similar problems that are all solved in the same way. A wicked problem is substantially


Natural disasters
Extreme weather
Human-made environmental disasters
Infectious diseases
Food crises
Biodiversity loss
Failure of urban planning
Global governance failure
Weapons of mass destruction
Water crises
Climate action failure
Critical infrastructure failure
Involuntary migration
Interstate conflict
Information infrastructure breakdown
National governance failure
Illicit trade
Cyberattacks
Social instability
Terrorist attacks
State collapse
Data fraud or theft
Adverse technological advances
Energy price shock
Unemployment
Fiscal crises
Financial failure
Unmanageable inflation
Asset bubbles
Deflation

Many Wicked Problems Are In the Zone of Complexity



After Michael Quinn Patton May, 2008

Characteristics of complex adaptive systems

- A set of actors/variables/drivers coupled in such a way as to produce constant surprise , uncertainty, creativity and adaptation.
- Examples: Economic Systems, Ecological Systems, Social Systems, (a flock of birds flying, the human brain, New York City,
- Non complex but complicated : sending a rocket to the moon, building the Taj (physical systems)
- So bring up a child is complex, but sending a rocket to the moon is not (just complicated)
- Non linearity, feed back loops, inherent uncertainty, unpredictability, and surprise; tipping points.
- Systems far from equilibrium : Energy dissipation and Self organization.
- Emergence and (evolution) in The Adjacent Possible. (TAP)

Public Policy: Rethinking the fundamentals

- *“We live in a world where there is more and more information, and less and less meaning.”* –Jean Baudrillard
- Currently much of human civilization is dominated fossil fuel driven capitalism
- But the climate crisis shows we are now exceeding the planets ecological boundaries
- So much of the SDGs depend on continuous economic growth .
- Can we have prosperity without growth ? (See Tim Jackson , 2017)
- Self actualization, poverty eradication, reduced inequality and exclusion
- In addition to ecological economics, can we get new insights from

Can unpredictable evolutionary economic systems be treated with ~~mathematical tools~~

- Kauffman and Longo (2011) and Kauffman (2017) argue for the end a physics world view of economic growth (whether classical or quantum physics). For classical physics the arguments seem stronger than for quantum physics which needs deeper analysis.
- For example path integral (Feynman-Dirac) can treat a multidimensional system with infinite degrees of freedom. But whether path integral can be done over stochastically evolving state space itself remains an open question (some would argue). Might this provide an operational interface between natural and social worlds?
- Baaquie (2018) (student of Feynman) has used path integral in a new way to develop a theory of the firm which might be applicable to a “creative evolutionary economy”

The public policy Process (in democracies)

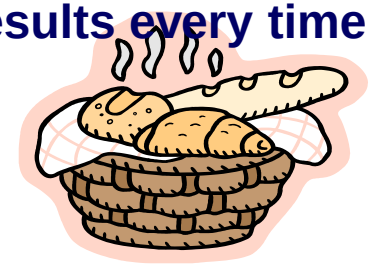
- Sources of public policy: political party platforms, social movements, interest groups, media, catastrophes, etc.
- Policy Process : identification of alternative options, data and evidence collection and analysis, cost benefit analysis, political salience, compromise among competing actors and options.
- Implementation, monitoring and evaluation. The expected outcome is defined, plan is costed, performance indicators developed
- Assumptions : implicit and explicit. Some of the implicit assumptions are linear determinism using the log frame. This

Program Design and Evaluation assuming Determinism and Linearity

- Log Frame: Inputs, Activities, Outputs, Outcomes (Immediate, Intermediate, Ultimate)
- Theory of Change
- OVIs, Baselines, KPIs, M & E.
- Assumptions : Linearity, Determinism, Predictability (Certainty)

Simple
Following a Recipe

- The recipe is essential
- Recipes are tested to assure replicability of later efforts
- No particular expertise; knowing how to cook increases success
- Recipe notes the quantity and nature of “parts” needed
- Recipes produce standard products
- Certainty of same results every time



Complicated
A Rocket to the Moon

- Formulae are critical and necessary
- Sending one rocket increases assurance that next will be ok
- High level of expertise in many specialized fields + coordination
- Separate into parts and then coordinate
- Rockets similar in critical ways
- High degree of certainty of outcome

Complex
Raising a Child

- Formulae have only a limited application
- Raising one child gives no assurance of success with the next
- Expertise can help but is not sufficient; relationships are key
- Can’t separate parts from the whole
- Every child is unique
- Uncertainty of outcome remains

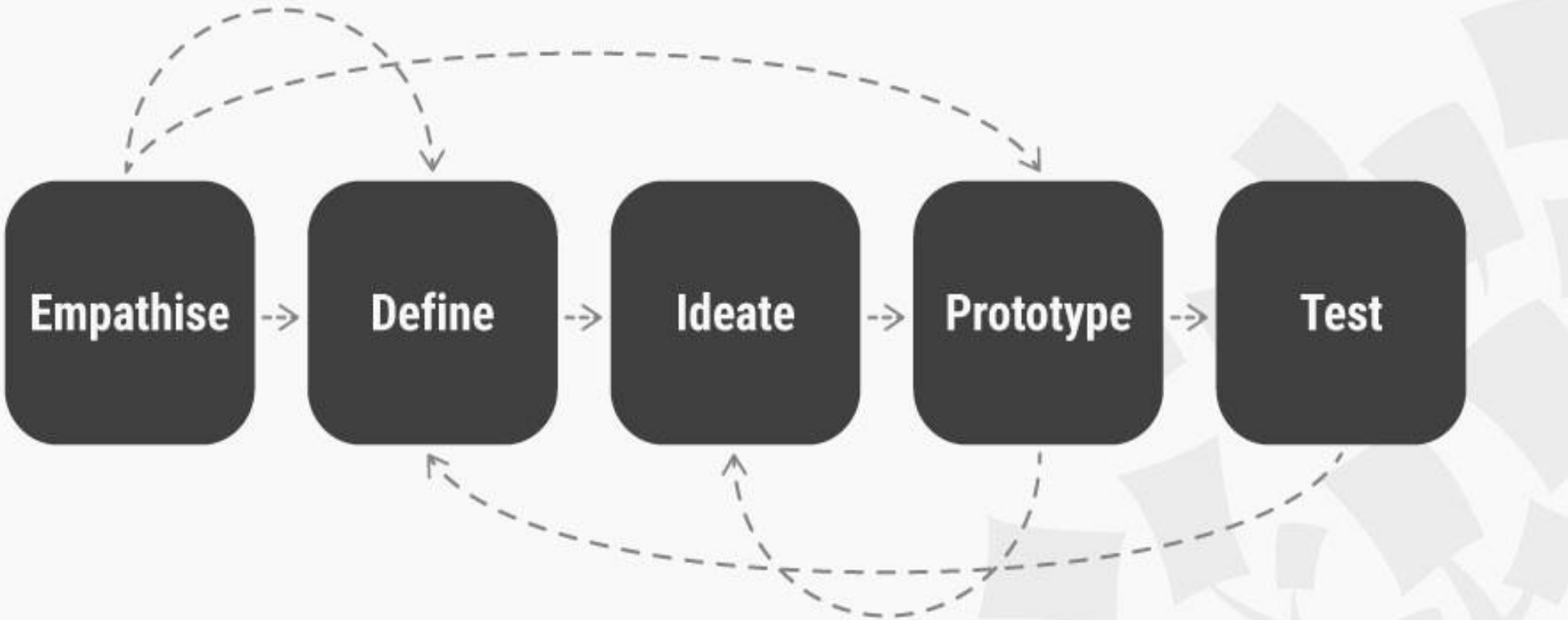
Making Policy in the Face of Complexity

- Policy requires predictability. Complexity implies inherent uncertainty.
- Create adaptive policies through: integrated and forward looking analysis, multi-stakeholder deliberation, decentralize governance, enable self-organization and social networking capacity of communities, review and learn (Swanson and Bhadwal ,2009)
- Use triangulation such as coupling cost-benefit analysis with narrative policy (see recent book on narrative economics, Shiller 2019), and local justice systems (Roe ,1998)

Design Thinking

- “Design thinking has been defined as a non-linear, iterative process which seeks to understand users, challenge assumptions, redefine problems and create innovative solutions to prototype and test”
- *Birkinshaw et .al. HBR. Oct, 29, 2019. The Kind of Creative Thinking That Fueled WeChat’s Success*

Design Thinking: A 5 Stage Process



Complexity Science Tools and their policy uses

- Tools: agents based modelling, data mining, dynamic systems modelling, scenario building
- Situations of Low Predictability. Complex systems science focuses on identifying and analyzing trends and probabilities, rather than seeking to predict specific events.
- Control not possible in single cause-effect terms. Complexity science offers many insights into finding and exploiting desirable attractors; identifying and avoiding dangerous tipping points; and recognizing

Practical policy applications

- Complex systems concepts have led disaster management officials in Japan to begin to adopt practices appropriate to self-organizing systems:
  - ❖ Enabling bottom-up (rather than top-down) community-based disaster response capabilities.
  - ❖ Enacting more proactive approaches to disaster preparation and planning, particularly employing “imagination-activating” policy simulations.
- The European Union uses complexity science methods to mine the contents of large numbers of web sites for patterns in news stories that may presage outbreaks of violence in regions that are prone to social or political instability

Practical policy applications 2.

- The most advanced climate change models are already based on complex systems concepts and methods, reflecting the complexity of the atmosphere, geosphere and biosphere. What is often missing, though, are the social and human aspects – the connections between economy, finance, energy, industry, and the natural world.

- a complex systems model of the German economy, explicitly developed for policy-making, has been endorsed by the German government and Deutsche Bank. It has been used to identify mechanisms through which Germany could decrease greenhouse gas emissions by 40% by 2020 (compared with 1990 levels) and

What is Gentle Action ? (After David Peat quantum physicist)

- An exploration of the subtle and deeper energies of nature and people to foster change in conflict resolution/transformation, sustainable development, and reduction of poverty and inequality.
- Gentle Action is a method of non-violently bringing about change by leveraging and working with the subtle dimension of situations.
- The action taken is very gentle and almost imperceptible because it takes into account the entire dynamics and all the web of connections of the system. “In a deeper sense the source of this action lies within ourselves.”
- ***“Imagination is more important than knowledge. For knowledge is limited, whereas imagination embraces the entire world.” —***

Project Design Using Emergent Creativity through Gentle Action

- Start with assets of the poor not with needs
- Build in flexibility through iterative steps to create room for innovation, emergence, self organization , use of unintended effects
- Use participatory multi-stakeholder approach
- Be alert to feedback loops through which the macro emerges from the micro
- Use the log frame but be aware of its limitations and go beyond.
- Use CAS theory to inform your PMF

Gentle Action : Sustainable Livelihoods Approach

1. Starts with what people have not needs, Assets Mapping
2. Facilitate a vision of what community sees as more sustainable livelihoods with indicators for measuring change.
3. People define what they can do on their own to get to their vision
4. Only then what help is need from outsiders is negotiated.
5. Local and external action plans are integrated in a participatory manner to ensure synergies, inclusion, gender equality etc.

Evaluating the complex (Patton)

- “The range of what we think and do is limited by what we fail to notice. And because we fail to notice that we fail to notice, there is little we can do to change, until we notice how failing to notice shapes our thoughts and deeds.”
- Scottish psychiatrist, R. Laing

M & E : Traditional Approaches

- Based on culture of compliance and accountability: evaluations tended to be narrowly focused, requirement-oriented, and operational in perspective.
- Timeliness issues: Results too late to affect projects. At best influenced accountability and funding decisions.
- Limited sharing of results with partners or the general public and little learning in spite of best intentions

Purpose and scope of traditional evaluations vs complexity-oriented evaluations

Traditional	**Complexity-oriented**
Measure success against predetermined goals	Develop new measures and monitoring mechanisms as goals emerge & evolve
Render definitive judgments of success or failure	Provide feedback, generate learning, support direction or affirm changes in direction
Aim to produce generalisable findings across time & space	Aim to produce context-specific understandings that inform ongoing innovation
Creates fear of failure	Supports hunger for learning

Some useful tools

- Outcome Mapping: An impact evaluation method which assesses a programme's theory of change and changes in the behaviour of people, groups and organisations with which a programme works directly.

- Most Significant Change :Qualitative method that collects and analyses personal accounts/stories of change among stakeholders.
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- Outcomes Harvesting: This method collects ("harvests") evidence of what has changed ("outcomes") and, then, working backwards, determines whether and how an intervention has contributed to these changes.
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Tools contd

- Contribution Tracing : A rigorous quali-quantitative method that is used in impact evaluations to test the validity of claims. It allows you to not only test a contribution claim (is it valid or not), but to also determine a quantifiable level of confidence in contribution claim. The developers of the method calls it 'putting a number on it'
- Qualitative Impact Assessment Protocol (QUIP) An impact evaluation method that uses narrative causal statements that are taken directly from intended programme beneficiaries. This method provides an independent verification (or not!) of a programme's theory of change.

- **www.annmurraybrown.com**

Developmental Evaluation Resources

- Michael Patton (2010) Developmental Evaluation
- Jamie Gamble (2008) A Developmental Evaluation Primer (McConnel Family Foundation)
- Dozois et al. (2010) DE 201. A Practitioners Guide to DE. (McConnel Family Foundation)
- Sarah Earl et al 2001. Outcome Mapping. IDRC.