A Collective Social Learning Pattern

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EuroPLoP Workshop, Klosters Irsee, Bavaria
July 9-13, 2008

Abstract

Human-caused changes to the planet have led to worldwide social and environmental disruption. Many of the changes so produced are wicked problems: that is, problems which lie outside the current capacity of the society to resolve them. Resolving such problems requires comprehensive social change. This in turn calls for collaboration among the multiple knowledges into which Western thinking has become divided: individual, community, specialised, organisational and holistic ways of thinking. The global dominance of Western specialised knowledge acts as a barrier to the collective social learning involving multiple knowledges needed for significant change. It also blocks non-Western countries from accessing their own local knowledge.

The collective social learning pattern seeks to re-align the multiple knowledges in a way that allows for collective thinking and collaborative practice. A meta-pattern takes the form of a spiral of active intervention that brings the knowledges together on equal terms at each of the four stages of the social learning cycle. Each of the knowledges is a pattern in itself. Each of the learning stage requires an integrative process linking the patterns. As a coordinating framework, the collective social learning pattern combines the multiple knowledges in answering each of the questions in turn: *What should be?* (sharing ideals); *What is?* (establishing facts); *What could be?* (creative ideas); and *What can be?* (collaborative action). The proposed pattern has been trialled in over 200 projects for whole-of-community change. Examples provided here are programs for transformational change in a future-oriented coastal city, an agricultural region, integrated research policy, and a change management workshop.
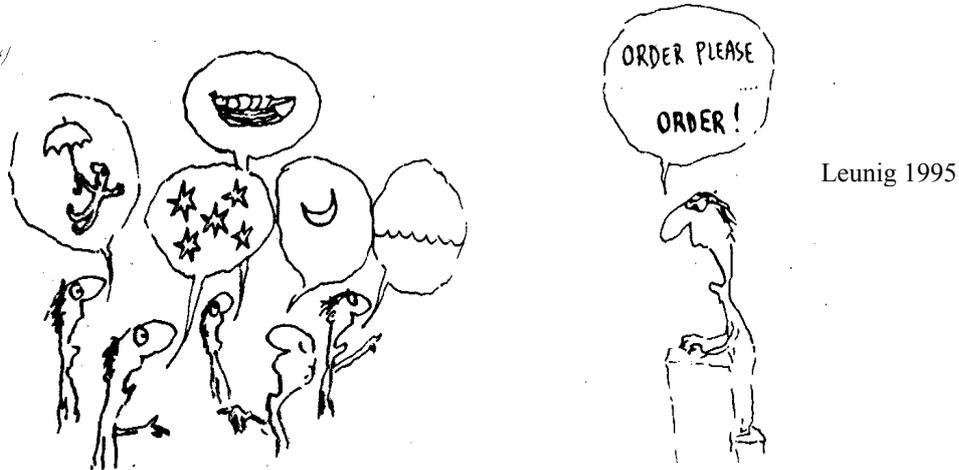
Keywords: wicked problems, knowledge cultures, social learning, collective thinking

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Leunig 1995

A Pattern:
As an element in the world, a pattern is a relationship between a certain context, a certain system of forces which occurs repeatedly in that context, a problem arising from those forces and a social re- which allows these forces to resolve themselves in a collective solution. after Christopher Alexander 2002

1. Context: Societies are being destabilised by the emergence of wicked problems

For many of the issues of the current century, specialised approaches have proved highly successful. The green revolution, extraction of fossil fuels, and giant engineering projects have been achieved through highly specialised, linear inquiry. Multidisciplinary research has been appropriate here. On the reverse side, there has been a chronic inability to bring the specialised disciplines together with the other knowledges necessary for far-sighted decisions on matters that affect the whole of humanity.

Global social and environmental changes and their accompanying local disruption have their origin in the successes of the Western scientific tradition . Yet it is within this same specialised scientific tradition that people continue to look for solutions. The situation meets the definition of a wicked problem, that is, a problem that cannot be resolved from within the thinking of the society that produced it. Horst Rittel in 1973 gives the characteristics of a wicked problem as (with the example of climate change):

> 1. **There is no final solution:** since a wicked problem is part of the social fabric in which it sits, any resolution of the problem leads to social change, and so generates fresh problems that need new solutions.

2. **Every problem is unique**: a complex social-environmental problem can only be understood as the product of a society at a given time and place.

3. **Using existing solutions can impede essential change**: concentration on what works now restricts the capacity to creatively explore *what could be*

4. **Confusion between facts and values:** in complex issues, the distinction between fact (*what is*) and value (*what should be*) becomes confused.

5. **Solutions come from unexpected sources:** paradoxes are signals of where a society is unstable, and so offer fruitful areas for social learning and change.

The global institutions charged with addressing the planet's wicked problems have been pleading for over two decades for community, specialist, government and industry collaboration as the basis for sustainable solutions (WSSD 2002, Millennium Development Goals 2001, USA Research Institutes 1999, UNEP 1995, WHO 1986, WCED 1986). While Web 2.0 allows open, shared communication among the widest range of individual players, formal organisations and social structures have not been able to follow suit.

2. **Problem: The Western division of knowledge blocks resolution of wicked problems**

The 'Scientific Enlightenment' of the 17th century has led to our addressing complex problems through a particular problem-solving style. Problem resolution by objective reasoning and reducing issues to their component parts led to semi-miraculous feats, such as eliminating smallpox and placing a man on the moon. On the other hand, the dominance of this way of thinking has blocked the development of other ways of resolving the many wicked problems that cannot be solved through this process.
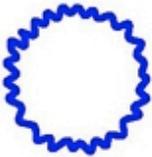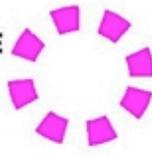
Any complex social-environmental issue provides a case in point. A sustainable resolution of a wicked problem will involve addressing the issue as a whole, thus requiring collaboration among key individuals, affected communities, relevant specialists and influential organisations (both government and industry). Persistent Organic Pollutants (POPs as described in the Wikipedia) are one example. Consider if Environmental Protection Agencies were to become serious about enforcing licensing control of discharges containing POPS into their rivers. Even in small concentrations, POPs are the triggers for a number of cancers and auto-immune diseases. Banning their use would be expected to be a straightforward decision.

There is an obvious benefit from improving the public's health and lowering the cost of the health services. Our water agencies would have lower treatment costs. Communities would avoid the fear of unknown chemicals in their drinking water, pay less rates and have lower individual health costs. A signal would be sent to global corporations that these countries were serious about managing global change, and so stir them to cleaner production. The local natural environment would revert to a self-managing system, achieving efficiencies at no cost to anyone. Surely a win-win-win.

But polluting industries pay rates and provide local employment, so governments are not over-zealous on enforcement. Scientists learn where it is better not to bother placing their research, when there is no uptake of the results. Governments and public health officials are loath to alert communities to risk, citing a greater risk from public panic. Organisations arrive at 'gentleman's agreement' on how much community participation it is politically safe to allow. Even though POPs have blamed for the worldwide 50% reduction in human male sperm there has been no public outcry on such a socially sensitive subject. So the status quo persists, even in the face of the benefits to everyone from a change, and the risks of everyone losing from lack of change.

Figure 1.

The knowledge cultures of Western decision-making (Brown 2001)

Knowledge culture	Structure	Sources of truth	Sources of of ignorance
INDIVIDUAL KNOWLEDGE Lived experience, identity		Memory Learning style Five senses	Subjective Limited Vague
LOCAL KNOWLEDGE Shared experience of people and place		Stories Events Symbols	Gossip Anecdote Inaccurate
SPECIALISED KNOWLEDGE Mono, multi & trans-disciplinarity, the professions		Inquiry Measurements Observations	Jargon Irrelevant Narrow
ORGANISATIONAL KNOWLEDGE Administration, government, industry, strategic thinking		Agendas Alliances Networks	Deals Mates Corruption
HOLISTIC KNOWLEDGE Essence, core, purpose		Synthesis Focus Creative leap	Airy-fairy Impossible Impractical

A question we continually need to ask is "Who owns the problem?", leading to "Who owns your health?" "Who owns the polluting chemicals?" "Who owns the river?" leading on to "Who owns the planet?" and "Who owns the future?". The questions are answered quite differently by different players, making it hard to achieve

collaboration on sustainable solutions to the collective problem. It proves to be even harder to bring the interests together in the first place.

In a five year collaborative action research program, the Local Sustainability Project (Brown 2008) found significant blocks in the way of collaboration among different ways of knowing were found to be woven into the social fabric. Individuals, communities, specialists, organisations and creative thinkers in all of the 200 communities in the study used different languages to describe the same issue, chose different avenues of action, worked to different action times and were directed towards different outcomes (Figure 1). Such patterns of difference were not primarily matters of right and wrong. They were different interpretations of the same reality, each internally consistent and valid within their own terms. Each produced a different version of reality, isolating each version in a different knowledge culture. An example of a two year program in Townsville, a tropical coastal city is at Appendix 1.

The five year program was able to draw several conclusions. First, each of the contributing knowledges was so self-contained as to form a distinctive knowledge culture, each with its own version of reality. Each had its own internal structure, tests for truth, accepted content and form of language, summarised in Figure 1. So-called collective decisions are usually turned inwards towards integration within each knowledge culture. Rarely are they aimed at the knowledge cultures connecting to each other. As a result, it is difficult for whole-of-community decisions to be achieved in practice (Brown 2008).

The second finding is that, in any collective decision, the familiar trio of community, specialists and organisation are joined by two further knowledge cultures. The personal perspectives of the individuals involved, and the creative contributions of holistic thinkers are rarely recognised as essential contributions to management decisions. From Figure 1 it can be seen that these are knowledge cultures in themselves. Across the field studies, the constructions of reality held by key individuals, and presence of the creative leaps of holistic thinkers, were the variables that allowed connections to be forged among the other three; bookends to the more visible knowledge cultures.

The third finding was the experiential learning process identified by David Kolb forms a thread connecting all of the knowledge cultures (Kolb 1984). One of the significant differences between the cultures is their mode of learning. Individuals learn through their personal experience, communities encase their shared history. Specialists learn through research designs, organizations through strategic planning, and holistic knowledge by free use of the imagination. In every case, however, the learning process follows the steps of Kolb's experiential learning framework (Aslin and Brown 2005). Although given different titles in each culture, the study found that learning always goes through the steps outlined in Figure 2.

The study confirmed the findings of Kolb and his colleagues that, for any given form of management, one of the four stages is given greater emphasis than others (Kolb 1984). Administrators and organizational executives emphasise the reflective, *what should be* stage, while specialists remain focused on observations of *what is*. Successful managers of social change projects and holistic thinkers make the imaginative leap of *what could be*. The skilled professions tend to be concerned with the pragmatic and objective outcomes of *what can be*. So although all learning

follows the same pathway, each different knowledge culture tends to contribute to only one of the learning stages (Kolb, D.A., Lublin, S. and Spoth, J. 1986)..

A fifth finding was that each knowledge culture protected its boundaries by rejecting the others, perpetuating the myths that separate the knowledges, namely that:
- organisational management is self-serving and untrustworthy;
- specialised knowledge is isolated and impractical;
- individual knowledge is biased and limited;
- local knowledge is anecdotal and unreliable; and
- holistic, or focussed knowledge is too difficult to achieve.

In practice, decisions allocated to any one knowledge culture were found to include unacknowledged contributions from each of the others. Every manager is an individual, a community member, has a particular expert training and can think holistically, at the same time. As an individual, all those constructions of knowledge inform every decision, explicitly or implicitly. However, each individual learns to restrict themselves to rely on one aspect of knowledge to the exclusion of the others, as a manager, a specialist or a community member, whichever is their primary concern.

Long-term change depends on including all the knowledge cultures in completing the full learning cycle. Without acknowledgement of these essential aspects of how we build our knowledge base, integrated decision-making in Western thinking can become self-defeating. The knowledge cultures at present form a hierarchy. Organisational and specialized knowledge vie for supremacy, with individual and holistic knowledge largely discounted. Each knowledge culture is likely to addressed only one learning stage. Collective decisions are then unable to complete the learning cycle as a coherent set, and so cannot establish lasting social learning.

In Figure 1 the columns represent the elements which make up each knowledge culture. The rows describe each knowledge's content, power structure, and tests for truth, in turn. These are not the problem. They are the powerful parts of a collective solution. The problem lies in fourth column: the labels with which each knowledge culture rejects and is rejected by the others. The driving forces which maintain the problem lie within the current social system built around the divisions. The solution lies within each of the knowledge cultures. Each needs to develop their own particular contribution to collective learning, rather than continue to use their skills to maintain their existing boundaries.

The phrase 'collective social learning' should be a tautology. Under current social conditions, however, neither standard interactions nor hoped-for collaboration are collective. The knowledge cultures are at best divided, and at worst generate conflict.

Therefore:
- **the solution is to redirect the divided knowledge cultures into a coherent system of collective social learning, in which each knowledge culture is respected and contributes towards a larger whole.**

3. Forces supporting and impeding the solution

Box 1. **Contra-example: One-dimensional organisational knowledge:**

An award-winning documentary film, *The Corporation* is based on a key 19th-century law that treats companies as persons under law. By bestowing on them the rights and protections that people enjoy, this allows a firm to act as singularly self-interested. Its purpose is solely to create wealth for its shareholders. It puts others at risk to satisfy its profit-maximising goal, harming employees and customers, and damaging the environment. It has no empathy, refuses to accept responsibility for its actions and feels no remorse. In short, the corporation is clinically a psychopath.

Lucy Hughes of Initiative Media, an advertising consultancy, is shown musing about the ethics of designing marketing strategies that exploit the tendency of children to nag parents to buy things, before comforting herself with the thought that she is merely performing her proper role in society. Mark Barry, a 'competitive intelligence professional', disguises himself as a head-hunter to extract information for his corporate clients from rivals, while telling the camera that he would never behave so deceitfully in his private life. Human values and morality survive the onslaught of corporate pathology only via a carefully cultivated schizophrenia: the tobacco boss goes home, hugs his kids and feels a little less bad about spreading cancer.

Company executives and foot soldiers alike will identify instantly with this analysis, because it is accurate.   Source: *The Economist* print edition, September, 2004

The fictional anecdote in Box 1 illustrates the ethical chasm between individual and corporation problem-solving. Using the organisational culture as an example, the tale highlights the extent to which each knowledge culture can eventually become inwardly turned, servicing its own internal interests, rather than the needs of its consumers, or the society in general. This has been well-documented for professional fields as far apart as medicine, economics and education. For communities it gives rise to the NIMBY (Not IN My Back Yard) syndrome of local responses to global issues.

The Local Sustainability Project identified the supporting and impeding factors from 30 collective social learning projects that were addressing wicked problems of local sustainability (Brown 2008). Each knowledge culture carried its own impeding and supporting forces into the collective enterprise:

Impeding forces:	**Supporting forces:**
Individual	
• individuals alienated from society	reflexive learning by individuals
Community	
• fragmented and dislocated communities	unifying sense of place
Specialists	
• monodisciplinary investigations	transdisciplinary scholarship
Organisations (industry and government)	
• compartmentalised organisations	learning organisations

Integrators
- lack of skills in holistic focus   icons, diagrams, and symbols

Collective thinking
- conflicts of interest   shared social learning

Many of the supposedly integrative responses to complex, dynamic issues maintain the original single-track thinking of each of the knowledge cultures. This means they deal with only one segment of a whole-of-system change at a time. Human activities are far more complex than that. The current tendency to frame any wicked problem in terms of competing interests (say, between local action and government, or between individuals and organisations) simply preserves the current destructive oppositional form of debate.

Standard pattern designs often have the same problem. Each pattern is a valuable exercise in itself. However, one static pattern alone, left without a multi-knowledge framework which recognises inter-connections and dynamic change, serves to trivialise a wicked problem. Patterns that address the complex problems associated with global climate change cannot bring about lasting change unless embedded in an encompassing framework that all participants can share. Such a pattern needs to take account of the knowledge construction of the society that produced them, and the social practices of the society that will implement the solution.

4. Solution: reconnect the divided knowledge cultures in a collective learning spiral

Many integrative frameworks are being developed to address the challenge of re-aligning the divided knowledge cultures. Examples are double and triple loop learning, critical adaptive management systems and resilience thinking. The integrative pattern described here is derived from the human capacity for social learning. It seeks to repair the Western society's fragmented construction of knowledge through a collective learning spiral which incorporates the complexity, dynamism and cumulative nature of whole-of-system change.

Figure 2 offers details of the contributions of each knowledge culture to a collective knowledge culture based on collective social learning. All the Western knowledge cultures are expected to contribute equally to each of the stages of social learning. Continually repeated, the stages form an on-going learning spiral. This process is outlined in some detail in the example of *A Sustainable Townsville* (Attachment 1).

The stages of the collective learning spiral have been derived from Kolb et al, 1984, who undertook decades of observations of effective adult learning. The result was the identification of a repeating cycle of four stages: 1. Developing principles (*what should be?*), 2. Establishing 'the facts' (*what is?*), 3. Brainstorming the potential (*what could be?*) and 4. Putting the result into practice (*what can be?)* (Keen, Brown and Dyball 2005). Unless the full cycle is completed, no long-term learning can occur. Traditionally the learning cycle is followed through separately, by an individual, or a group, an expert or an organisation. Moving to collective thinking and action means

that these different interests are reconciled at each stage. Since human learning is cumulative, in practice the cycle becomes a spiral.

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Figure 2. **The collective learning spiral (Brown 2008)**
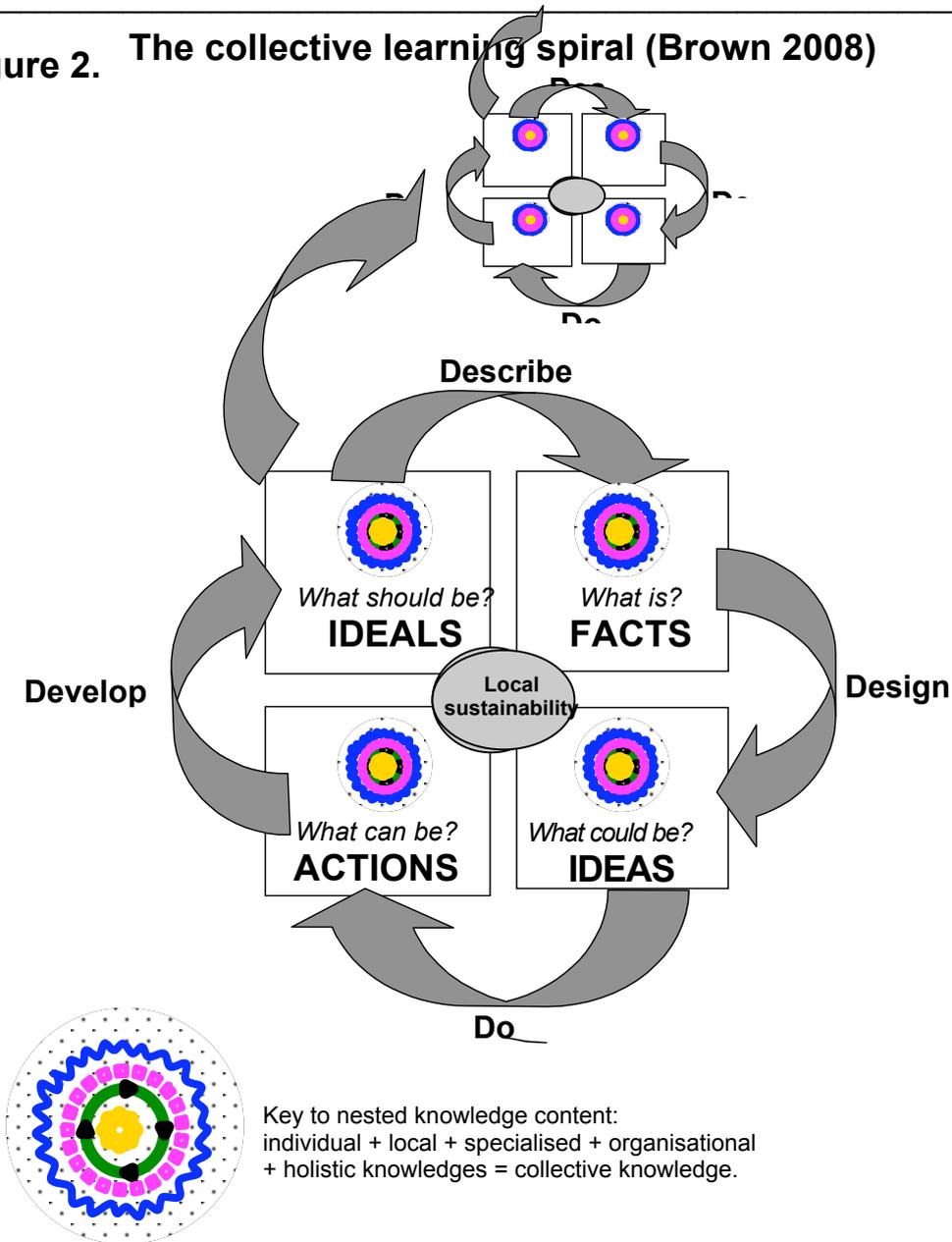
The same four stages which make up one turn of the collective social learning spiral (Figure 2) can be identified in the change processes for each of the separate knowledge cultures. These are individual experiential learning; community development; action research; strategic planning; and the creative process. The cycle is thus a consistent pattern found in the learning processes of each of the knowledge cultures. Ten in-depth action research studies of transformational social change programs established change programs using the collective learning cycle, therefore meeting Alexander's criteria for a pattern.

5. Examples of the solution in practice

Attachment 1 offers a step by step case study of the way in which the multiple Western knowledge cultures can be brought together within the proposed pattern for collective social learning. The pattern has been repeated many times in the collaborative action research program of the Local Sustainability Project. Here we describe the use of the pattern in developing a behaviour change framework for regional agriculture, a comprehensive rural research policy, and a debriefing process for a workshop team applying the pattern.

Case study 1. Sustainable regional resource management
In the case of a region of exhausted agricultural and natural resources, the focus question was: *How can this region change to support sustainable agriculture?* Those who came together to answer the question were drawn from 10 rural industries, five sub-regions, government agencies, regional opinion leaders, and the coordinating Catchment Committee who funded the study.
What should be?
> Seven characteristics of a good life in the region: managing change, having accountability systems, using market mechanisms, working with whole supply chain, establishing collaborations, finding life-work balance, achieving on-ground sustainability, and making the system work for you.

What is?
> Each contributing group described a different reality, bringing a deeper understanding of the region's strengths and weaknesses.

What could be?
> Change strategies that could satisfy the seven characteristics of a good life in the region:

What can be?
> Each industry and region described strategies from their field of interest, providing a powerful overall program of behaviour change.

Case study 2. National rural research program
For future-oriented rural research, the question was: *How can we develop a future rural research policy based on the findings of our past research programs?* This brought together research interests from city and country, government and industry, a wide range of specialists and farmers and graziers.
What should be?
> Answered almost unanimously as "through greater collaboration among aqll the members of the policy community".

What is?
> This question produced dramatic anecdotes of lack of collaboration and only a few positive examples.

What could be?
> The group developed a comprehensive agenda o unrealised opportunities for collaboration.

What can be?
> A policy proposal was put to government to fund an action research program promoting collaboration right across the rural research sector. response pending.

Case study 3.
A team which had used the pattern to run a workshop on local response to climate change used the pattern process again for their de-briefing:
Focus question: *How best for a team to apply the collective social learning pattern in a social change workshop?*
What should be?

>   Team members answered "Clarity of purpose and shared interest in the outcome; ensure participants are clear about what they are there for and have faith in the process. Team members need to establish mutual respect, honesty in personal aims for the workshop and clear lines of responsibility.

What is?

>   Each knowledge culture's skills, experiences and goals need to be translated from conflicts of interest to trust and cooperation. Essentials are rules of dialogue, a peaceful ambience, and careful mutual listening. Accept that participants are likely to be competitive, individualised and alienated.

What could be?

>   A climate of creative imagination, and hopefulness; buzz of exciting new ideas; people profoundly catalysed to think; the process used as a replacement for action; individuals angry at having to share their mental space; time needed for reflection; people confident to express a range of very creative, very different, alternative, 'way out" ideas; making unusual links or connections.

What can be?

>   We can be a fantastic team, each working from our own skills base and at the same time in a collective team process; together we can bring change. We need to share our collective techniques/tricks eg 'learning circles'; strategic futures planing; learn from what happened but do it better; follow-up with a second series of vision workshops; do something differently with music and the arts.

Applications of the social learning spiral follow the same route for each of the widely varied wicked problems. Resolution requires collective social change, although the precise problem and outcome goal is quite different in each case. In each case the collective thinking process brought innovative ideas and integrated programs to put them into practice.

In Figure 2. the social learning spiral provides a framework for collective thinking and action. The knowledge cultures are now nested in a (a system of equivalent wholes); no longer a hierarchy. Each builds on each other. The various symbols reflect the contribution of each knowledge. Community knowledge is the almost invisible matrix which underpins each community's construction of reality. Communities are widely diverse, but link together into governmental regions and nations – hence the wavy line. Specialist knowledge in its turn draws on community experience by collecting data for the dif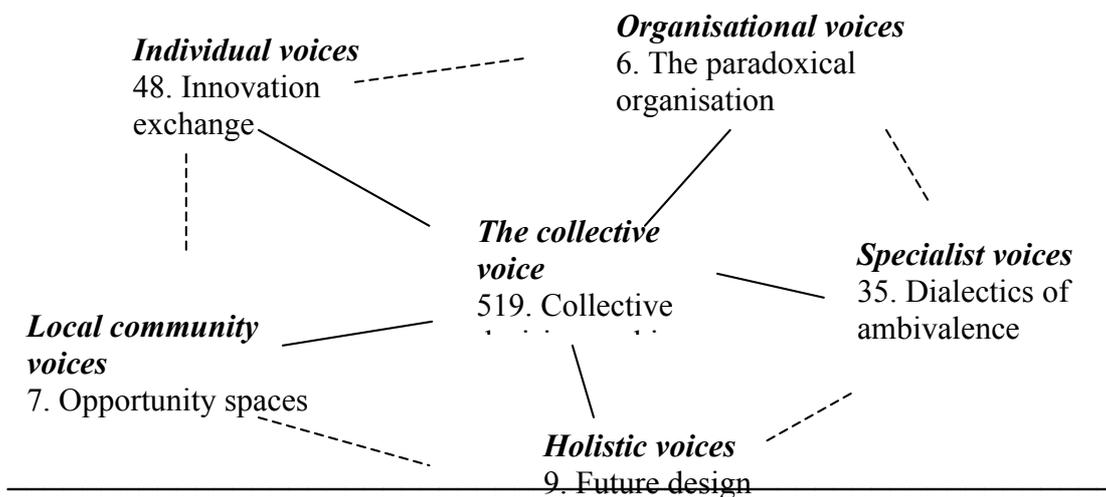ferent specialist frameworks (the ring of boxes). Administrations and governments use community experience and the collected knowledge of the specialist disciplines in setting direction (the circle with arrows). The core or holistic centre of knowledge of the issues is a shared understanding of the whole.

While it doesn't matter where one enters the nested set, or even in what order they are drawn into a collective learning framework, it does matter that all the knowledges are equally respected and involved.

6. Related links

The website http://www.publicsphereproject.org/patterns/ contains several hundred patterns, making up a pattern language for *Liberating Voices: pattern languages for civic communication* (Schuler 2008). The present pattern is No. 519 in that collection and patterns 48, 7, 35, 6, and 9 give greater depth to the understanding of the individual, local community, specialised, organisational and holistic knowledge. Schummer's *Supporting social action in NGO'* assists social change practitioners from each of the knowledge cultures to mobilise existing skills and learn from each other through the rich resources of Web 2.

Figure 4. Collective decision-making cluster

Individual voices
48. Innovation exchange

Organisational voices
6. The paradoxical organisation

The collective voice
519. Collective

Specialist voices
35. Dialectics of ambivalence

Local community voices
7. Opportunity spaces

Holistic voices
9. Future design

7. Changed context: collecti social learning brings transformational change

Figure 3 places the collective knowledge within the collective social learning spiral The pattern was applied in the examples described above (regional agricultural development, an integrated research policy, and a social change workshop) and the context changed in each case.

In the case of sustainable agricultural development, the process brought together the nine industries of the region in a set of collaborative actions, possibly for the first time.The project led to acceptance of collective behavioural change framework. In the policy development project, the collective learning process revealed to the participants that they were working competitively even though they shared a common

goal. This lead to the development of a collaboration policy for the set of research and development corporations involved.

The information technology world has been changing too. The relational foundation for Google, the interactive capacity of Facebook and the validated knowledge in Wikipedia have changed our behaviour with respect to information searches, our friendship circles, and access to the construction of knowledge, respectively. Foucault has ably summed up the situation with: until the 20th century access to knowledge meant power; with the advent of information technology, access to the construction of knowledge meant power. The collective learning pattern gives the user access to that power.

> But does the collective social change pattern meet the conditions for solving wicked problems?
> 1. **No final solution**: The recognition that learning is cumulative and open-ended is represented by the spiral of collective social learning
> 2. **Every problem is unique**: The collective social learning approach is put into operation only with a given set of people at a specific time and place.
> 3. **Existing solutions impede essential changes**: Existing assumptions ideals, facts, ideas and actions are called into question at each stage of the learning cycle. Each sage of the cycle involves double-loop learning.
> 4. **Confusion between facts and values:** the distinction between fact and value is made explicit in following the learning spiral.
> **5: Solutions bring new problems:** The learning spiral assumes that each turn of the spiral will start afresh, facing the problems generated by and unsolved in the previous spiral.

In the debriefing of a team applying the collective social learning spiral, each team member came closer to appreciating the goals, factual basis, visioning processes and practical skills of the others. This led to a richer, more effective use of the pattern at each re-iteration.

Reviewing these events, it is becoming apparent that the collective learning pattern provides a general guideline for collaboratively redefining fragmented issues of long-standing. The pattern should therefore be of use to any one with responsibility for resolving a wicked problem, defined here as a complex problem arising from the actions of the society which produced it. This includes public health, environmental management, community development, organisational managers and change management practitioners.

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