

THE DEVELOPMENT OF PICCO THROUGH ACTION RESEARCH

J.R. Stephens & T. Haslett

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Abstract

This paper involves action learning as 'continuance of mindset'. It describes a four-year work in progress Action Research (AR) study exploring organizational viability. Involving two separate organizations and four cycles of AR, the study has seen the researcher and to some extent the organizations develop action-learning mindsets. The paper is an attempt to stand back from the case study and its associated learning from an organizational perspective - and to associate learning from the mindset of an action researcher. The paper contends that adopting the mindset of an action researcher contributes to the transfer of learning from one organization to the other. It advocates that action researchers do not resume their initial methodologies in a new setting and the latter organization acquires learning from the first interaction. It is concluded that an action learning mindset gains cumulative wisdom from both organizational and methodological perspectives.

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INTRODUCTION

This paper is a continuation of work presented at the 2001 ANZSYS conference (Stephens and Haslett, 2001) exploring organisational learning and Stafford Beer's Viable Systems Diagnosis (VSD). Hopefully viewed as a collection of fragmented stages of learning the paper is an attempt to stand back from the work in progress and learning from an organizational perspective - and to share learning from the mindset of an action researcher.

The organizations concerned are Not For Dividends (NFD). The first generates income of \$5 million on turnovers of \$70 million pa. Organizational 'social fabric' rather than specific managerial competency dominates the influence of its Directorate. The organization faces major change associated with globalization and the information technology wave. The second is the legislated controlling group responsible for 14 operations like organization one. It is accountable for turnovers of \$1.4 Billion and has an income approaching \$30 million pa. The Board of organization two is appointed by the relevant Minister pursuant to identifiable business proficiencies.

Background Thoughts – Mindset

Three fundamental tenets permeate this action researcher's mindset. These tenets are not suggested as 'only' or 'conclusive' but rather as some predominance in personal thinking.

I have a mindset based in systems thinking. It has developed from management studies (Graduate Diploma, Masters and current PhD) – is dispersed with management practice and is influenced by organisational learning, open systems theory, cyclic learning frameworks, and the notion of learning organizations.

Secondly my thinking seems increasingly punctuated by a 'matching' learning theme, which materialises when I confront complex issues. By matching I mean trying to map what is happening, onto what me, the action researcher wants to happen. The significance of system variety contributing to any mismatch is also 'real'. This mismatch or incongruence equates to Ashby's (1956:207) Law of Requisite Variety - 'Only variety can destroy variety'. Today the law is more commonly quoted as 'only variety can absorb variety' (Beer, 1974). It is increasingly mentioned in management literature (Espejo, 1989, Nonaka, 1994, Nonaka and Takeuchi 1995). I find that appreciation of requisite variety is limited in the workplace, surely it is not well understood. I like the John Barton (2002) expression of requisite variety as 'simply being smarter than the situation you are trying to manage' helps in its comprehension. In the latter part of this paper I assert that requisite variety is identifiable as an enabling condition for knowledge creation.

Finally my thinking revolves around the notion of continuous learning cycles. In the twentieth century cyclical knowledge creation models, usually involving four stages emerged. Deming (1982), Dewey (1943), and Senge (1990) are some having similar versions. Others including Kolb, (1984), Revans (1982) and Weinstein (1995) have further adapted action-learning cycles. The Kolb model is particularly useful in provoking - thinking about learning. It "has been actively used as a basis for helping individuals identify the kinds of learning activity which they will find most satisfying and will improve their learning achievement, also identifying weaknesses in learning styles," Gulick and Urwick (1994:99). I also use the 'Four Stages of Competency' to assist in the understanding of the learning process. Kitaoka (2002) suggests these stages emanate from Neuro-linguistic Programming (NLP) tracing back to Bateson (1973). In this paper I use the 'Four Stages' model to position, illustrate and systemically connect my mindset, suggesting advancement in my work and possible improvement in AR.

Figure 1 about here

My Threads of Learning – From the Mindset of an Practicing Action Researcher

Cycle One

This study began by questioning whether an accepted competence of company Directors ‘vindicated’ through years of experiential learning, gut feeling and economic rationalism amid stable times, may effect organizational viability in dynamic environments. Or in this case study whether ‘social fabric competency’ could match now required managerial competencies. It questioned how conventional methods of inquiry, identifying existing viability strangulation - failed to promote any desire (let alone action) to address behavioural change. This inaction appears not uncommon as we question whether current thinking will suffice in wildly dynamic environments (Drucker, 1997, Ruggles and Holtshouse, 1999, Flood and Jackson, 1995) or how we approach ‘learning within an unknowable’ (Flood, 1999).

Cycle one quite assertively sought creation of awareness of current competencies within the organizational Directorate. Designed on the Lewin (1946, 1948) unfreeze/refreeze theory and without reference to the people at whom the action was directed, the Flood concept of learning within an unknowable was then the furthest thing from this researchers’ mindset.

Comprising three parts linking external professionals to the organization, cycle one began with a session outlining corporate governance and fraud prevention. Followed by a précis of a successful change process involving major corporate growth, it concluded via participation in the "beer game" a production/distribution system simulation as outlined in Senge (1990:27).

The exercise attempted to draw attention to required competencies and to active competency adaptation as a means of addressing organizational viability. The aim of the cycle was to push for change (unfreeze/refreeze) through the disclosure of knowledge and experience from recognised experts. Subsequent to cycle one the mindset of the Directorate remained as it were before – frozen. The cycle plan had ostensibly failed but hinted at behavioural characteristics including Double Loop Learning and defence mechanisms (Argyris, 1982, 1993) and lack of requisite variety (Ashby, 1956) as progression inhibitors connected with the research. It is important to document that during cycle one any ‘unrest in mindset’ dealt squarely with Directorate (in) competence rather than that of the action researcher.

In evaluating the cycle one failure I assessed my mental model of the situation as an action researcher. In hindsight four mindset observations – prospects for learning emerged.

- My mental model was based on rote learning and cause and effect thinking. My logic was – ‘I understand this issue, I will follow a rational progression and I will work out the issue’. ‘If I consciously do this - then that will eventuate - quite simple QED’.
- Recognition of ‘unrest’ concerned a division between the researcher and the researched (The Directorate) - the issue under investigation was ‘out there’ – concentrated in the mindset of an unconsciously incompetent (UI) Directorate – it was unconnected to any competency of the researcher.
- My ‘Unrest in the mindset’ had not considered any personal shortfall or the possibility of an unknowable outcome. A total expectation of success - in situational appraisal, action plans and end result pervaded the cycle. My preparation assumed researcher conscious competence (CC).
- And finally an at first unrecognised offhand retort (following conclusion of the beer game) – ‘but where is the beer?’ gained significance. Thought of the process, or any relationship of the process to corporate competencies – had not been remotely understood by the Directorate.

As an action researcher I began to realize that I needed to be very careful in ‘assuming some sort of linearity sequence and causation’, even in a cyclical sense:

Figure 2 about here

Cycle Two

Moving on to cycle two – an adapted mindset included both an awareness of the non-linear interconnectedness of the issue, process, outcome cycle and a consideration of researcher (in)competencies. The second cycle-involved systems thinking under a stronger FMA (Framework of Ideas, Methodology and Area Of Application) template [from Soft Systems Methodology (SSM), Checkland, 1985, 1991] to better plan the (still linear?) process – having aims and objectives similar to those of cycle one in mind.

It is beneficial to note the FMA template. Lewin’s model implies the importance of feedback in the unfreeze/refreeze process. In FMA I believe the interconnection of the iterative process is clear.

Figure 3 about here

Cycle two also comprised three parts.

- Completion of two diagnostic instruments - Learning Style Inventory (Kolb, 1976) and Management Teams (Belbin, 1981) by the Directorate.
- Consideration and dialogue between the researcher and the Directorate involving a series of journal documents ‘Paradigm-Creating Loops’ (Kim, 1993), ‘Teaching Smart People How To Learn’ (Argyris, 1991) and ‘Developing the Competitive Organisation’ (Beer and Walton, 1990)
- Using results from the diagnostic to revisit the current Directorate electoral process involved analysis of the ‘required competencies’ of any new Director.

The intent of cycle two was to highlight recognition and activation of competency learning. But the redesign of framework and methodology had now focussed on allowing the Directorate to perceive their involvement in cycle two as specifically "real world" - yet the underlying intention was to promote dialogue tending toward a systems thinking world.

Cycle two showed signs of success. The competencies required of any new Director were revised. Dialogue relating to learning styles and team behaviours occurred and the cycle teased out some primary Directorate behaviours.

In evaluating cycle two - from an AR perspective, my mindset for establishing situation awareness had changed. I had taken the initial ‘static’ cycle one and iterated perceived deficiencies to create the FMA for cycle two.

FMA is a useful template for intervening in human systems - because it gives structure to a flexible process. It seems this action researcher (people?) values aligning with some sort of structure to the process being employed. I seek fluidity within structure. In allowing feedback to abridge mismatches within F, M and A - SSM deals with the dynamics of the system. It confronts deficiencies uncovered in the researcher, the processes used and the overall subject matter. In Senge terms it produces a balancing process encouraging improvement.

Figure 4 about here

An inherent danger exists in this causal sequence. As the perceived ‘gap’ contracts there will be a growing pressure on the action researcher to maintain responsiveness of need. The balancing cycle underscores a requirement for continuous learning.

My action learning from cycle two also enabled me to revisit the cycle one failure suggesting:

- I had not been conscious of my coming from a personal incompetent base. I had UI relating to the situation - when I first thought that I had CC. My UI played a part to the downfall of cycle one

- That by creating my cycle one plan with perceived CC – I had closed the door to learning. I had in effect cancelled the feedback loops now apparent in my cycle two SSM.
- The situation was more intense than originally thought. What I was really concerned about in cycle one implicated a paradigm shift in the Directorate mindset.

By involving FMA, I discovered, from an organizational perspective, that the gap between current Directorate competencies and required competencies was more significant than expected. From an action-learning aspect, this had affected their ability to embrace the thinking behind the methodologies employed.

In summary, an expectation that systems thinking methodologies, embedded in reflective Double Loop Learning, will be successful - must be appraised in the context of the learning behaviors of the subjects at hand. Action researchers must ask of themselves – ‘Is it reasonable to think that those experienced in rote learning and cause and effect analysis will find action learning easy to embrace?’

An action-learning reflection of the cycles used provoked the following ‘information flow’ issues:

- Adaptive behaviors or (conscious) action in cycle two did not validate its design or context was necessarily correct. From an action researcher outlook - there is more importance in noting that a second cycle occurred. Cycle one (even though a ‘conscious failure’) may possibly have ‘prepared the way’ for cycle two. And this ‘preparation’ may not be apparent to the researcher at that particular time.
- Did the regressive attention of (a few) tiers of inquiry associate with any more or less than (somewhat UI) consideration of requisite variety? If the rundown of ‘what happened in cycle one?’ - is (UI) nothing much, does the action researcher then need to feedback into the process, ‘well I know nothing never happens, how can I make explicit (move from UI to CI) what was not obvious at this former time?’ Is the action researcher then establishing anything other than addressing the question - ‘How can I become smarter than the situation I am trying to manage?’ [How can I deal with the requisite variety which, at that time I was not aware of? - And so the contention that consideration of requisite variety (resulting in either UI becoming CI or CI becoming CC) may be acknowledged as an enabling condition for the knowledge creating process.]
- Is this ‘recursive nature’ (the movement of UI to CI) to some extent unfamiliar to SSM? – In using SSM to progress, is there a more explicit need to recognize that going forward may initially require going backward? [Checkland would claim my actions negate this statement – what I am highlighting is that especially for novice action researchers an iterative procedure linking irregular stages of regression and progression may not be instantly clear. From an AR outlook – reflection is not a time based linear sequence]
- Cycle two concerned individual self-learning, which fashioned group learning. Cycle one aimed at collective group based inquiry and essentially ignored the prospect of individual learning.
- ‘Carry’ occurs from study 1 to study 2

As a constructive comment from cycle two - emergent reflection involves the Argyris (1991:103) stance that it is a universal human tendency to design one's actions according to four basic values:

1. To remain in unilateral control
2. To maximise "winning" and minimise "losing"
3. To suppress negative feelings
4. To be as rational as possible

In cycle two I concluded that the behavioral characteristics of this action researcher seemed to have congruence with the views of Argyris. But whether these four basic values form a tenet for (my) action research needs to be challenged. Should action researchers seek unilateral control of their research? Do they maximize winning and minimize losing? Do they not seek and grab negativity as a legitimate learning opportunity? If rationality (in this context) pertains to linearity - is that what action learning is about?

Could it be that action researchers tend to mull over their findings at odds with the Argyris’ ‘universal human tendency’? If so, does it add or take from the process under study? Could stepping outside universal human tendency be pivotal to AR process improvement?

This in mind I started to question if the AR mindset should acquire a greater consideration of information flows entering into any structure/process/dynamic as a means of investigating the learning/viability dilemma. In a pensive departure (if that is possible) from cycle two the mindset still however concerned recognition and activation of competency learning as a means of enhancing organizational viability in more turbulent times.

Cycle Three

Promotion changed my role from running one operation to being CEO of the State system controlling 14 operations like my old one and being accountable for product turnovers of \$1.4 Billion pa. [It should be noted that the prospect of action research in the new organization was paramount to the appointment].

This scope of accountability further emphasised the importance of researching organisational viability within the Not For Dividend sector. Viable System Diagnosis (VSD) (Beer 1985) was reasoned as a suitable methodology to expand on previous SSM work because of its linkages to information flows and requisite variety. Thus cycle formed the basis for a 'structured' action research PhD thesis.

In Checkland' FMA terms cycle three became:

- Framework of ideas - investigation using previous SSM learning, intertwined with VSD
- Methodology - Action Research
- Area of application - Organisational Learning and its relationship to viability in the organization of which I am the CEO.

The thesis sought answers to questions such as:

- What constitutes a viable system in a Not For Dividend (NFD) sector case study?
- What is Organisational Learning in the context of this system?
- What variables determine viability in this case study?

The intent of cycle three was to research Organisational Learning and its relationship to viability in the organization, using AR as a methodology to implement pure VSD into three hierarchical levels. These levels are designated as Senior Management, Middle Management (both internal) and Subsidiary Management (external - in the context of autonomous bodies under some control of the parent body).

To declare that cycle three failed is subjective to time (see cycle four). Cycle three however did ascertain that 'F' - the introduction of VSD in this context, was – just too challenging. Pure VSD came to an end under remonstrations as 'too difficult to understand' and 'its' learning got in the way of 'normal work'.

I reflected on cycle three trying to consider variables of both consciousness and competence challenging the implementation of pure VSD. I informally interviewed employees - here are some of their responses followed by my thoughts.

- **The competence and status of the action researcher?**

'Well he has qualifications, and he is the CEO' [shades of action researcher CC in the mind of the employees?] – 'so we had better listen and give this a try' and 'I respect the CEO- he would not do this for fun, I am willing to put in some effort' [Suggesting cooperation from employees through respect of position rather than understanding the process. Some UI and CI of the employees?]. **People/employees in the area of application "A" appear to need to have some understanding of the content of 'F' and the mindset of the action researcher.**

- **The competence and status of the people to which the methodology is applied?**

The interviews revealed links between employee academic status and cooperation [employee CC - in the eyes of the action researcher], and employee ambition and cooperation [Employee UC in the eyes of the action researcher]. [Current learners or those with a desire to learn did show some enthusiasm]. **The action researcher at "F" needs to consider the competencies of people/employees involved at "A".**

- **The degree of difficulty in understanding VSD?**

VSD is difficult (as is AR), particularly in the minds of those based in linear cause and effect thinking and rote learning. Understanding and willingness to try to understand seem linked to both competencies and desire. **For learning to occur (people/employees need to move initially from UI to CI) there needs to be desire and motivation.**

- **The relative importance of the learning versus ‘normal work’ conundrum?**

A ‘What’s In It For Me’ (WIIFM) mentality exists [there is a separation of ‘real work’ and seeing learning as an approach for getting better at that real work. Some employees are only interested in getting their job done – they ‘learned’ at school, there is too much on their plates to be motivated into new learning]. **For people/employees to have desire or motivation they may first have to learn about self.**

Revisiting cycle three established both consciousness and competence variables affecting the implementation of VSD - I began the evolution of a ‘Four stages of Competency within FMA’ model.

It seemed to me that this AR needed to be clearly defined by two fundamentals:

1. That the AR methodology (M) requires a more structured reflective cycle – this helps reiteration, turning the methodology over. In this case the ‘Four Stages’ cycle attempts to move UI toward CI and eventually CC
2. That a similar structured reflective cycle must occur at both F and A.

Figure 5 about here

I worked through and reflected on the ‘Four Stages’ – at each of the FMA phases and realized that during cycle three:

- I had looked to treat people individually – there had been an unconscious (on my behalf) carry over from the previous cycles. There had been an avoidance of the group learning process.
- I had made a theoretical jump – from talking to ‘the group’ to talking individually to people about learning ideas [Continuous improvement, learning styles, learning cycles, common vision, time management].
- I had moved the ready employee support base from their learning about a process - to their learning about learning and found that it helps to be involved with those who have had recent new learning experiences. [By this I mean employees who were involved in current/recent studies or had of late changed organizational position].
- The stronger the individual competency base – the greater emphasis to drive and encourage. [Is there an individual level, below which you do not attempt this sort of thing? Are my conclusions valid? Are my methods sufficient, correct, and competent?].
- There was little support from groups of people seeking group learning.
- I still have a tendency to regress to a linear cause and effect expectation. If I do this - then an intended result will necessarily follow.
- I commence with the notion or assume that the people/employees involved were UI (why?) and that my methodologies could (quite easily) move them to (wards) CC or alternatively that the people/employees involved were CI and they would see what a great thing VSD was as a result.

So now from three cycles came a learning summary desirous of creating a flexible, living (in the everyday organizational sense), working model that needed to encompass the following elements:

1. Easy to understand phases
2. Strongly systems orientated but based on VSD, FMA
3. Structured but cyclic and flexible
4. Encourages iterative (Four Stages) learning cycle at each phase

In progressing to cycle four, ending or beginning is not suggested. In depicting cycle four, as in the other cycles, I am categorizing merely to designate pivotal points of continuous learning in this AR.

Cycle Four

Cycle four was designed to address the required elements via adaptation of VSD from its classical form embracing five operative components - implementation, coordination, control, information and policy into an uncomplicated isomorph - PICCO. The mnemonic incorporates an about face of the original order of components with the implementation component replaced by 'operations'.

PICCO is envisaged as a first phase 'contextual VSD' with possible evolution toward a truer VSD down the track. The five systems assimilate the operative components of classical VSD and an overarching feedback system allows system improvement as the person/group/department moves between from S 1 toward S5, not in any particular order. In its simplest form PICCO is embodied as:

Figure 6 about here

This simplification present a model that provides for two fundamentals necessary to address requisite variety in this organization - people/employees retaining a capacity to own projects through a better understanding of hierarchical information flows concerning their project – and then being able to position their projects within the organizational hierarchy.

The recursive format applying to the PICCO template is just as important a factor in the need to address requisite variety – being smarter than the situation/operation we are trying to manage. Irrespective of the 'status' of the employee, department or process using PICCO – a commonsense (smarter) chain of decision making is apparent.

Figure 7 about here

In using PICCO any departmental project/paper/strategy policy statement (S5) progresses to the next level of management as intelligence (S4).

PICCO has to date been increasingly successful in attaining results in; process development, a better understanding of hierarchical information flows and isolation of specific areas for various process improvements. Examples of the utilization of PICCO in this organization include:

- **Attention to previously unsuccessful legal defence.**
Using PICCO the company has been able to weld industry knowledge with legal processes to win a significant case (The first in some 40 years of operation). The company identification of issues at S1, S2 and S3 and legal contribution at S4 formed a successful defence strategy.
- **Human Resource Management**
The base PICCO template shown as Figure seven has been used very successfully to both explain and improve on management decision-making processes.

- **Board Policy**

The Board, in seeking a paper on animal welfare policy, has been recently presented with a ‘left-field’ concept - addressing fundamental change to industry culture - that has emanated from the figure six template. The template was used to tease out the issues involved and to formulate a radical (S5 for the middle manager involved) course of action. That middle management S5 has passed onto senior management as intelligence (S4) and with minor adjustment has become senior management S5 policy. A recommendation for animal welfare reform would bring about major change in strategic direction for the industry.

It must be noted however that these examples have originated from, if not been driven by the CEO, and then expanded by the relevant department in the organization. Recently an Information Technology/Marketing Internet strategy has been offered to management (for the first time) as a self-initiation of PICCO usage. The ultimate endorsement of PICCO would see CC in its use throughout this organization.

At this early stage it seems PICCO has been able to:

- Contribute to the management expertise and overall viability of this organization
- Provide this organization with rational pathways to improve management skills
- Instil a suggested ‘contagious learning’ in the organization

Closing Thoughts – For Now

The mindset of this action researcher is not at rest. The questions now are how did we move a ‘not working’ learning psyche into ‘really working’ learning psyche? And does ‘now working’ give a sustainable advantage - promoting organizational viability?

By reflecting on preceding cycles we confronted linearity and encouraged learning, perhaps hoping to influence organizational viability. The outcome is a systems thinking learning model having structure differentiated by iteration, flexibility and ease of understanding for mere mortals not necessarily aware of modern thinking patterns or action research.

Figure 8 about here

PICCO is a focussing template; it enables unconscious need to become conscious. It enables people in organizations to map what is really happening, onto what they want to happen - it addresses system variety contributing to primary mismatch. PICCO is shown to focus information achieving requisite variety – the ability to be smarter than the situation we are trying to manage – and is this not what we are all about?

As such it is suggested that addressing requisite variety is an enabling condition for the knowledge creating process.

It is further argued that the recursive nature of PICCO can create ‘local’ information flows revealing the influence of system variables on organizational viability. Finally it is contended that the amalgam of PICCO with emergent inquiry techniques can address system variables surfacing tacit knowledge.

As such PICCO is suggested as a technique that provides enabling conditions for refining organizational learning and viability. Does action learning and the emergence of PICCO suggest organizational learning in this case study? According to Argyris and Schon (1978):

Organizational Learning occurs at both individual and collective levels. Individual learning is a critical and essential condition of Organizational Learning. Alternatively, an organization is able to learn independently of some individuals, but not independently of all individuals. Organizational Learning is the logic that learning is a primary process affecting the way in which successful organizations consciously learn and manage their responses more successfully than those who do not.

This work in progress advocates AR as a sensible methodology that can contribute to the transfer of learning from one organization to another. It advocates that action researchers do not resume their initial methodologies in a new setting and that latter organizations acquire learning from the first. Finally an action research mindset gains cumulative wisdom from both an organizational and methodological perspectives. There is individual learning in the mindset of this action researcher. Other individuals within this organization have shown induced and self-initiated use of the PICCO model. The next step in this research involves strengthening PICCO toward truer VSD – yet still retaining its simplicity. I see good management as having the smarts to control unusual and unexpected situations. VSD/PICCO needs to be visualised and used as a straightforward variety dial – turn it up (ameliorate) or down (attenuate) when addressing the ‘noise’ in the situation you are managing. In closing although this organization is beginning to have conscious learning competence – we need to keep working on the development of PICCO through Action Research.

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Figure 1: One - Four stages of Competency (Bateson, 1973)

Stage One – Unconscious Incompetence (UI)
 You are unaware that you have incompetence in a chosen area

Stage Two – Conscious Incompetence (CI)
 You learn and become aware of your incompetence in a chosen area

Stage Three – Conscious Competence (CC)
 You become aware of your competence in the area. You know what you are doing and you realize what you have learned

Stage Four – Unconscious Competence (UC)
 You do things and achieve in the chosen area without thinking about it. The process of learning is/has become of second nature – natural to you

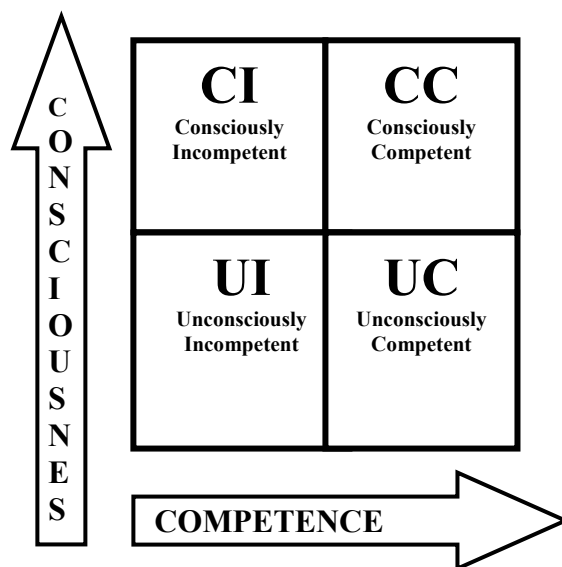


Figure 2: Learning Cycle One

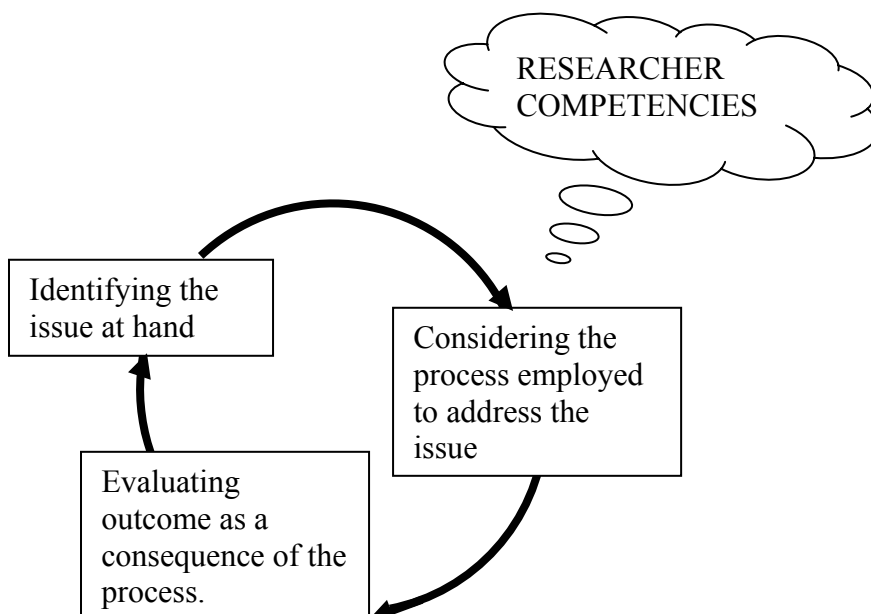


Figure 3: FMA from Soft Systems Methodology (SSM) – Checkland and Scholes (1990)

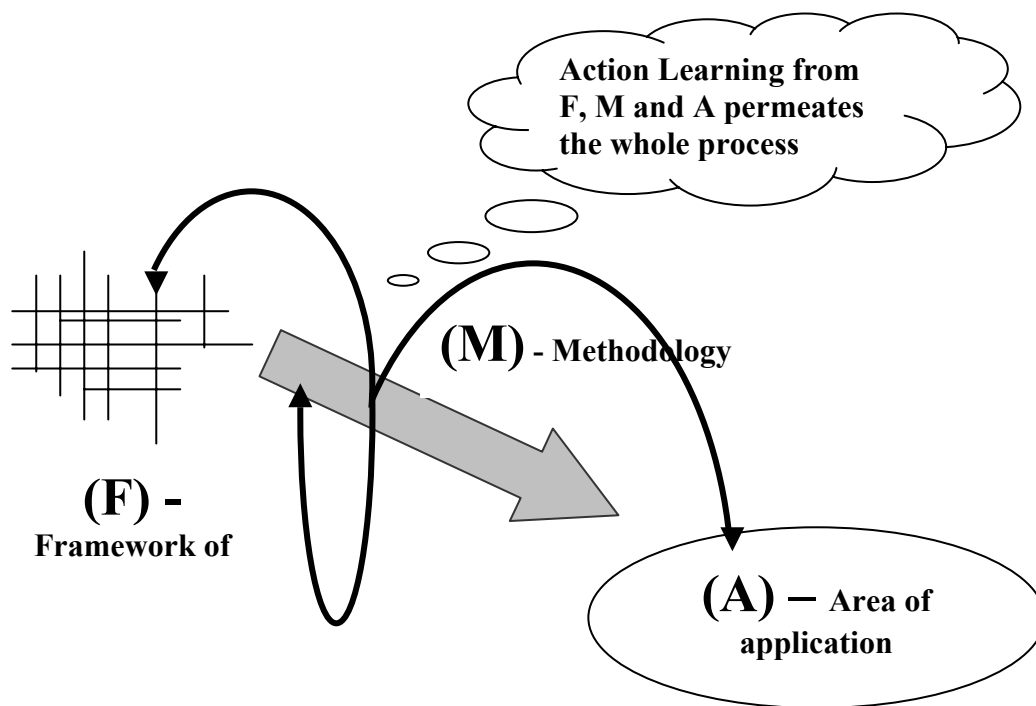


Figure 4: Causal Loop Diagram ‘competencies’

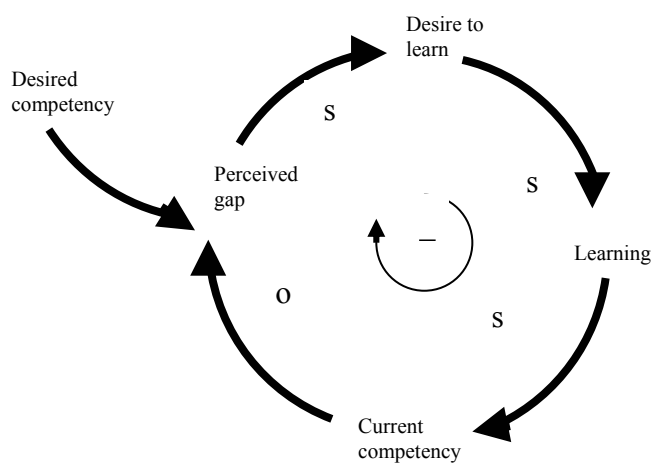


Figure 5: Bateson within FMA

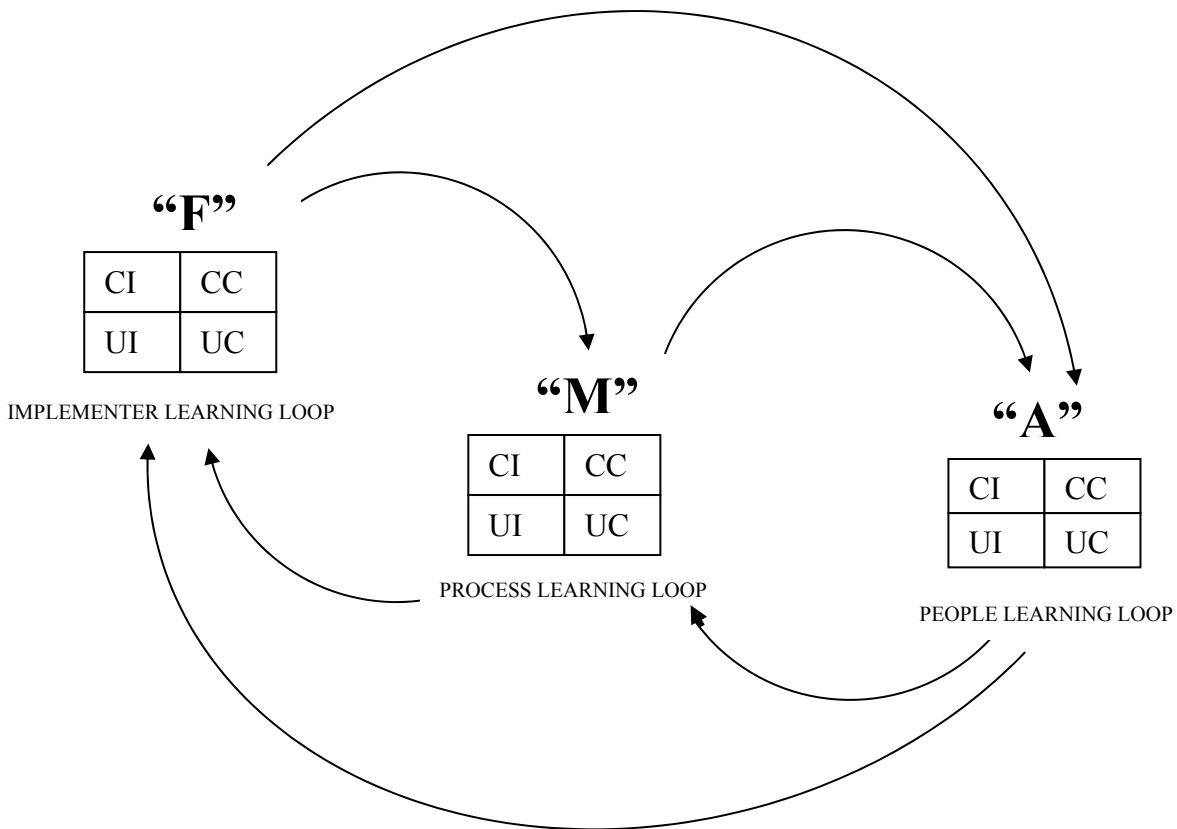


Figure 6: PICCO

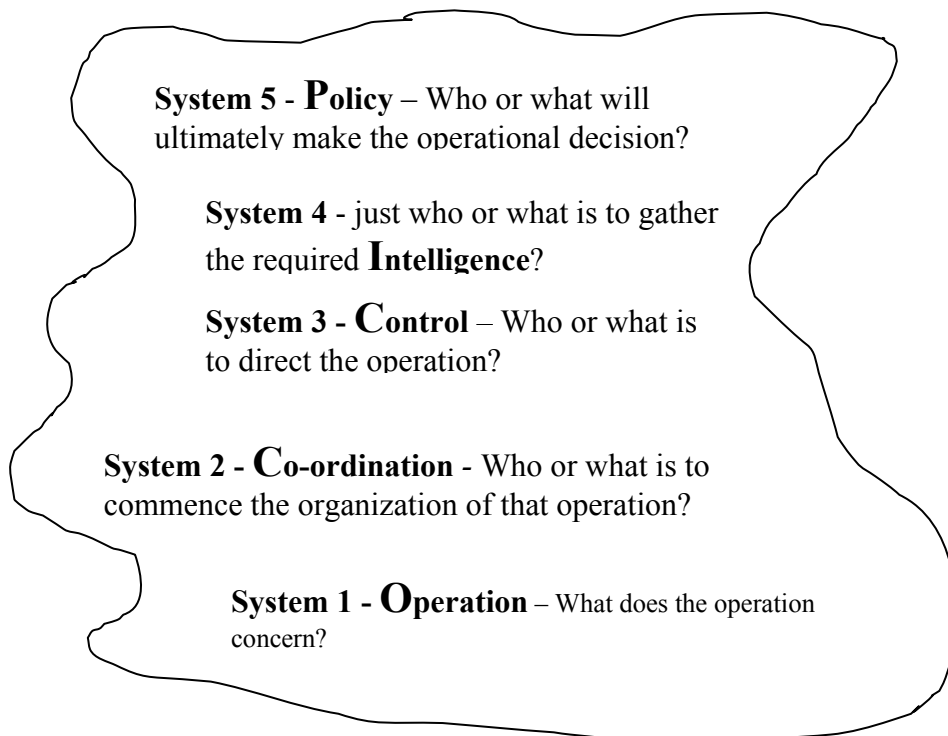


Figure 7: PICCO hierarchy

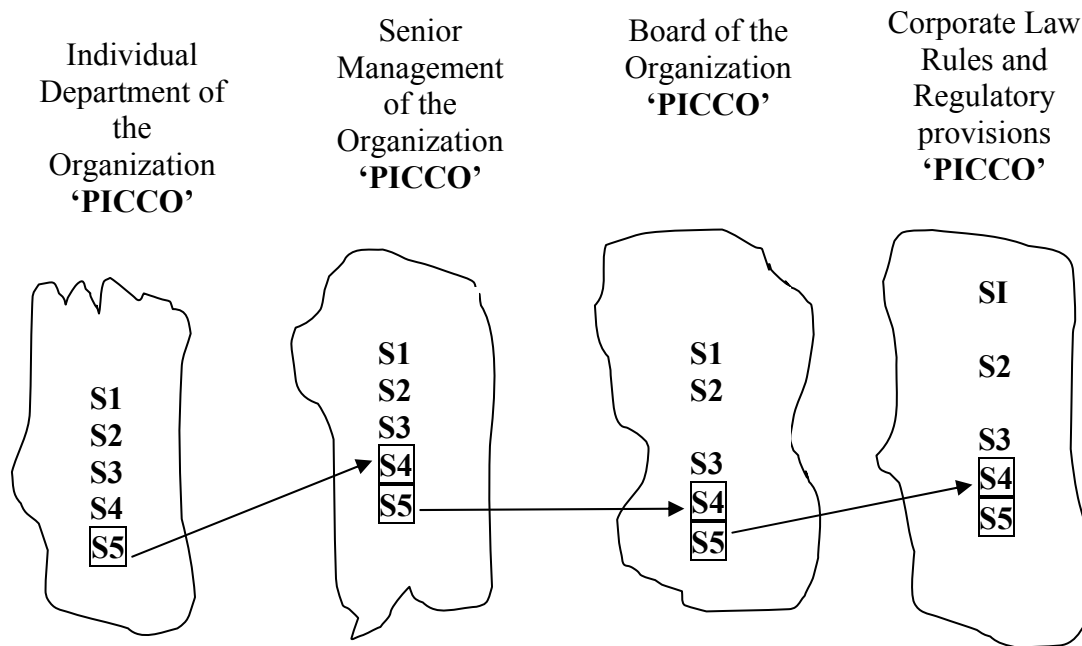
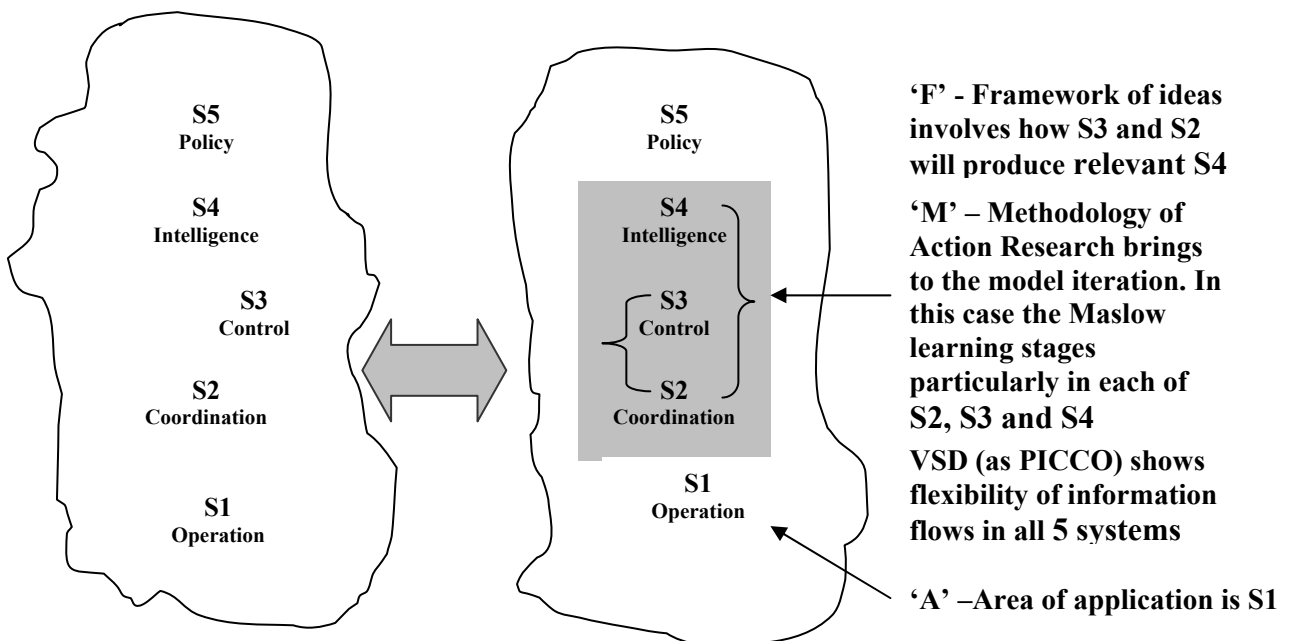


Figure 8



Simple PICCO showing information flows from area of application to formulation of policy

Action Research PICCO detailing VSD, SSM, iteration