(Conference Papers)

The Metamorphosis of 'Man as Scientist' into 'Man as Modeller':

MA(R)4s as a Conversation Amplifier

Presented at:
6th International Congress on Personal Construct Psychology - 1989

Sheila Harri-Augstein
Laurie Thomas

Centre for the Study of Human Learning
(C.S.H.L) Oxford. UK

CENTRE FOR THE STUDY OF HUMAN LEARNING

The Metamorphosis of 'Man as Scientist' into 'Man as Modeller':
MA(R)4s as a Conversation Amplifier

Sheila Harri-Augstein

Laurie F Thomas
Centre for the Study of Human Learning, Brunel University, England.

PART ONE

INTRODUCTION

To signpost the structure and organisation of our paper, we begin and end with meta-commentaries on the nature of enquiry within the Human Sciences and on Self-Organised-Learning (S-O-L) as a paradigm for conversational science. Participants, (i.e. personal scientists practising Personal Construct Psychology (PCP)) are invited to constructively and creatively reflect on their own philosophical positions, and to compare these with our own. In the spirit of PCP, we invite you to evaluate our work, not from within some abstracted 'other-organised' theoretical base, but rather from within your own professional and personal experiences. Please converse with us with this in mind.

Amongst other outstanding issues you might consider:

1. Why PCP has not received more widespread acclaim amongst practitioners and researchers within the various branches of the Human and Social Sciences?

2. Why PCP is not practised more widely amongst those professionals; consultants, managers, teachers and trainers involved in supporting individual and organisational development?

3. Why those that do refer to PCP both within Psychology and related fields often reduce it to the practise of a collection of techniques? Worse even, they reduce the significance of Kelly's original theory (i.e. postulates and corollaries), to an established dogma expressed in the form of a theory of 'personality', or even of 'man-management' or 'market research'.

4. How does your own implicit and explicit model of PCP relate to the paradigm of enquiry within which you work?

5. How S-O-L and Learning Conversations, may offer each practising psychologist, teacher, trainer, therapist or manager, a systematic, controlled, content-independent, reflective and person-sensitive methodology for arriving at a richer articulation of their own professional understanding.

Footnote
Each participant is offered a hand-out which makes explicit in the form of a Flow Diagram (FD) the structure and content of our presentation. The FD technique is one of the procedures

we have developed for representing and communicating meaning. Participants are invited to use this to monitor and reflect construction of meaning as they converse with us through our presentation. The hand-out also offers some information about the Centre for the Study of Human Learning (CSHL); its activities and resources.

PROSPECTIVE COMMENTARY

An action research programme, over twenty-five years, in a wide variety of organisations, large and small, education, industry, government and social, has lead us to formulate a new science of human learning called Self-Organised-Learning (S-O-L) and a related methodology and technology called Learning Conversations. Together, these work to enhance our capacity to learn. A central tenet in our approach is that learning can only be meaningfully studied in the "natural habitat", i.e. home, school, place of work, leisure and all other social settings, in contrast to the arid conditions of the psychology laboratory, which reduces the findings of the unique and complex processes of learning to trivial incidences.

Having attempted to establish S-O-L as a new body of knowledge and Learning Conversation as a closely related methodology, we are better able to determine its claims to a scientific status. How well does it stand up to tests of refutation as a theory and practice for how we learn and how we can intervene to enhance our capacity to learn? These questions take us into the speculative realms of philosophy and in particular the philosophy of science. Into which paradigm of scientific enquiry does S-O-L appropriately fit? What contributions does it make to our advancement of the process of research in the human sciences?

Within the current climate of research and practice, we increasingly find ourselves amongst a new band of professionals drawn from diverse disciplines; engineering, philosophy, psychology, cybernetics, man-management, education and training, as well as the lay who advocate a common sense approach. Researchers, practitioners and many in society are now challenging our understanding of the nature of research into the human sciences and are posing similar questions to ourselves. Early on in our own endeavours, we found ourselves in a very different context, colleagues saw us as psychological anarchists and even personal barbarians or freaks. We found ourselves closer to those investigators within quantum physics or the TAO. Kelly was one of the few referents within our own field. However, within a cascading climate of scientific and cultural change, Kelly, Rogers, Lorenz, Bruner, Medawar, Godel, Pask, Harre, Searle, Bannister and Revans, are amongst the key figures who have orchestrated a paradigm shift within human sciences. Even so, this shift remains ambiguous, and only partially articulated. As a consequence, much research effort remains misguided, misspent and misunderstood. Through 20 years of experimentation and observation, within the 'natural habitats' of learning, we feel that S-O-L contributes not only to highlight the meta-issues involved but also takes the articulation of theory and method more constructively into a paradigm of research which we have termed '<u>conversational</u>'.

This paper aims to elaborate our approach and to specify S-O-L as a 'conversational science'.

We shall now describe and explain S-O-L and Learning Conversations, and illustrate some results of S-O-L in action from the perspective of the learners, those in charge of a group of learners, and the organisation as a whole. Some highly significant even startling benefits, (i.e. outcomes), demonstrate the value of S-O-L.

WHAT IS LEARNING?: THAT EACH OF US MAY DEVELOP IT

The action based research at the CSHL over the past twenty-five years has focused on the study of learning as a skill which can itself be learnt. This is a very different process to successfully (or not so successfully) submitting to being taught, instructed or trained. Learning involves the conversational construction, reconstruction and exchange of personally significant, relevant, and viable (i.e. workable) meanings. Our system of meaning i.e. how we model our world is the source of our anticipations, and actions, skills and competences. Two trainees do not necessarily perceive a work situation in the same way. People reading the same article do not attribute the same meaning to it. Members of a management team working on a practical problem will in all probability draw different inferences and conclusions about it. The responsibilities and experiences of each manager leads them to construe the problem differently. It is the meanings we intuitively construct out of our own experiences that drive our actions and make us what we are.

We can approach learning as an open system, capable itself of expansion and change. Each of us are perfectly capable of boot strapping ourselves into hitherto unexplored territories of skill, competence and creativity. The CSHL has studied learning in the 'natural' habitats of work, education, sport, leisure, pleasure and strife. We have developed methods, techniques and a computer-based "intelligent" learning technology for enabling individuals, teams, and organised enterprises to effectively learn to achieve their purposes and to learn to enhance their capacity to learn. Later we refer to some recent case studies which demonstrate the effectiveness of this approach.

Early Discoveries

Most of our so called learning is organised by others. This is equally true for the seven year old, seventeen year old and for professionals on the job or in continuing training. Droves of unhappy learners are not properly supported and not given opportunities to organise their own capabilities. We have become locked in a welter of myths about our own learning which condition what and how we learn and limit our horizons. The plain reality is that we do not know how we learn and we do not know how to set about to research and develop our own learning. CSHL studies show that this applies from the apparent wisdom of the boardroom, to managers, supervisors, and to our whole work force. We hold negative views about what we can and cannot learn, we are in fear of change, we see our capacities as finite, we demand set conditions for being able to learn, and we see learning as a long, arduous, and difficult process. Interestingly, in depth interviews reveal that much of the learning that we most value takes place outside the formal training and education system. We are at the 'stone age' in understanding our own learning. Yet the capacity to learn and to take control of the direction, quality and content of our learning is central to personal fulfilment and organisational success.

SELF-ORGANISED-LEARNING: WHAT IS IT?

Enabling someone to become self-organised at learning cannot be achieved through instruction. If this is attempted, the best that can be achieved is a successful submission to the process of being instructed. This is not SOL. The worst is total dependency, alienation and even negatively valued learning. This is not SOL.

To leave each person to discover how to become a self-organised learner without support takes too long, many do not succeed and many only acquire a small part of their real capacity for learning. This is not SOL.

This Self-Organised-Learning provides a science of Human Learning, for understanding the deeply personal processes involved in becoming more fully functioning. Learners can become aware of themselves as "modellers" of their own thoughts and feelings as they act in their world. Modelling their own system of meanings, they are able to elaborate these and act more sensitively, adaptively and effectively. The people-centred technology and methodology of "Learning Conversation enables a heightening of awareness so that everyone can become "expert" modellers of their own learning. Thomas L F and Harri-Augstein E S, 1985

The Self-Organised-Learning approach works. Often startling results are achieved in job performance, learning skills, and creative abilities. What's more in fully taking on responsibility for their own learning people become more motivated and involved. They also work better in teams, as they engage in various activities which demand living and working - in - change. System-seven for creating an S-O-L environment which is outlined later allows learners, the learning coach, the learning manager, the domain experts, line managers, personnel managers and policy setters to model their activities in ways which initiate fully-functioning conversational learning networks in the organisation.

What are the essential characteristics of a SOL?

Figure 1 illustrates the stages of awareness essential for developing personal learning skills and competences.

The move from Other-Organised-Learning to Self-Organised-Learning, involves three stages of awareness. Task-Bound Awareness (stage 1) is almost totally non-conscious-we just do it. In stage 2 (The Task-Focused Awareness), the robotish activity is moved into an awareness of how the task is done and of the thoughts and feelings relating to it. This enables the learner to experiment with change in the ways in which a task is performed. In stage 3 (The Learning-Focused Awareness), the evidences accruing from stage 2 become the source for reflecting upon how we learn and how we think and feel about this process.

S-O-L involves an awareness of all three stages, as ongoing activities, in the course of acting within our world. It is this which enables a breakthrough to new levels of learning skill, and so to a 'quantum leap' in our capacity to learn.

S-O-Lers who act in this way can be identified by:-

1. Accepting responsibility for their own learning, rather than dependent on others' initiatives and directives. They implement through the three stages of awareness. As a result they can:

- identify needs and translate these into clearly defined purposes
- recruit resources which sustain flexible strategies for achieving the specified purposes
- recognise the quality of outcomes achieved
- critically review this cycle of activity
- plan and implement more effective cycles of learning activity to meet future needs

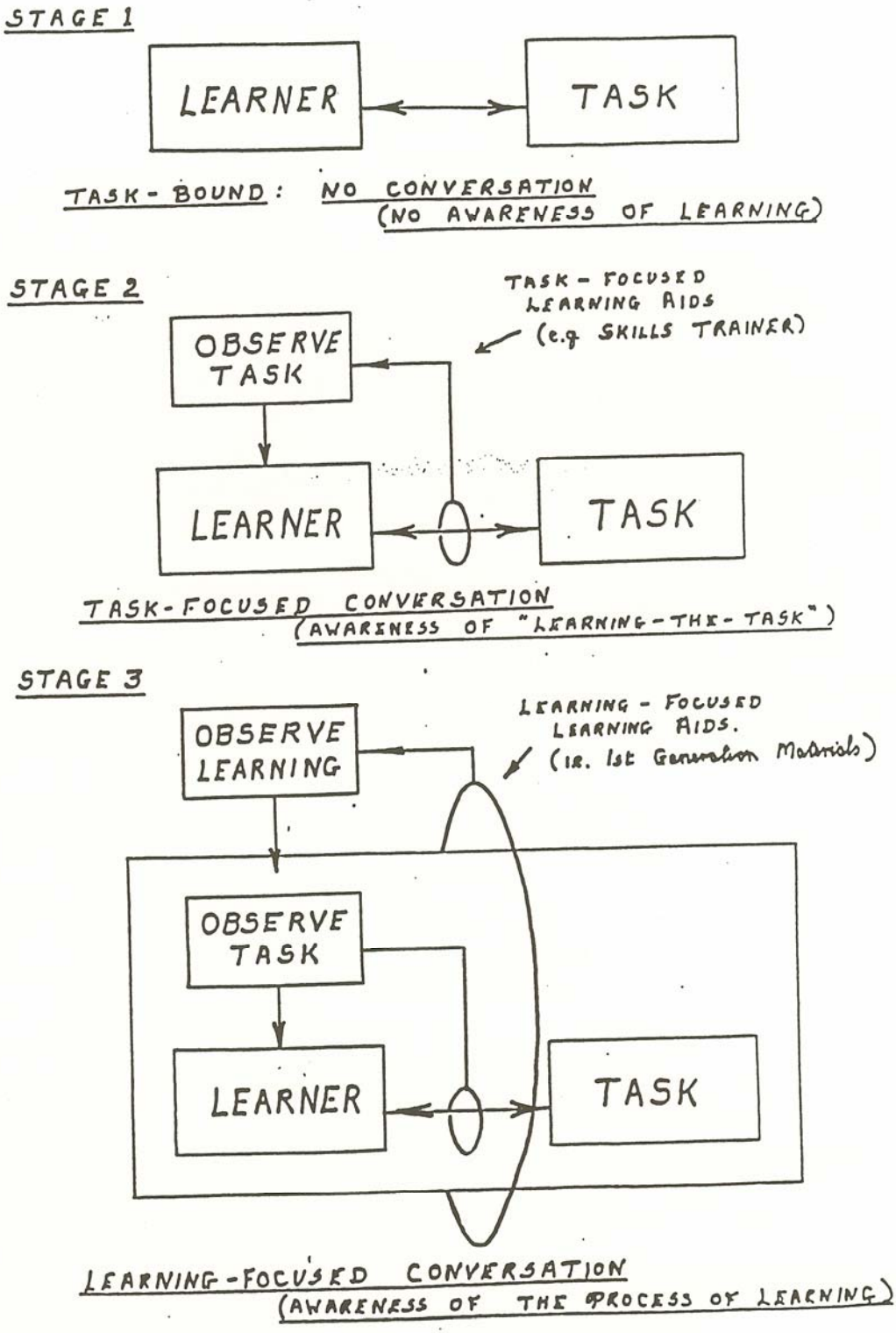


FIG 1 THREE STAGES TOWARDS SELF-ORGANISED LEARNING

2. Being able to appreciate the dynamic nature of the learning process and to continuously strive for greater self-organisation.

3. Being able to challenge existing partially developed skills and learn how to learn so that such skills are transformed to achieve greater competence.

4. Re-defining S-O-L in their own terms - this creative aspect of S-O-L generates new dimensions of personal innovation and experimentation.

5. Striving for a 'quantum-leap' improvement in their capacity to learn, which carries over into all subsequent activities, e.g. it improves a supervisor's ability to learn from experience "on the job", or learn from a training course, from experienced colleagues, and from their own or others' successes and mistakes

Thus, S-O-L becomes a way of life, in one's job, and in all personal and social contexts

The SOLer as Modeller

The underlying psychological mechanism that distinguishes an SOLer from Other-Organised-Learners is that they can converse with themselves in ways which enable them to model their activities through heightened awareness. They can therefore better control the anticipations which lead them to act. They can derive their own feed back from the consequences of their actions and so revise the meaning system which drives their anticipations.

Initially, through the help of a Learning Coach, they can also recruit additional tools to give more power to their Learning Conversations. These include tools for recording actions (e.g. video records, computer-logs and replay facilities, time-structured graphical records, or the observations of another human observer) and tools for eliciting their meanings and making these explicit (e.g. repertory grids, structures of meaning, flow diagrams, flow process charts, purpose hierarchies, personal task analysis etc.).

Tools For Enhancing The Power of the Learning Conversation

The primary 'tool' for enhancing one's capacity to learn is the Learning Conversation itself. But within it as it grows and develops in different directions, a wide range of specific reflective learning tools can be recruited. They serve to enhance power of the learning conversation, to sharpen and deepen the approach.

The CSHL has devised or adapted many techniques as aids to conducting learning conversations, which raise a person's awareness and clarify their perceptions of themselves, their job, how they do their job, and how they learn how to do their job. Each and everyone of these techniques may be recruited into a learning conversation when it is relevant and helpful. When this will be useful is different for different people, since they differ in their purposes, their experience, their situation, their knowledge, their attitude and their skills. Because of these differences they will also differ in what they find easy to learn and what they find more difficult. The "tools" are introduced only when the verbal learning conversation cannot sustain the movement towards greater SOL. The tool is selected for its power and precision in dealing with the particular aspect of learning skill to be developed. As the learner becomes more skilled and effective the enhanced skills and perceptions gained from using the tools become internalized. The tools can then be dispensed with. They are stepping stones for

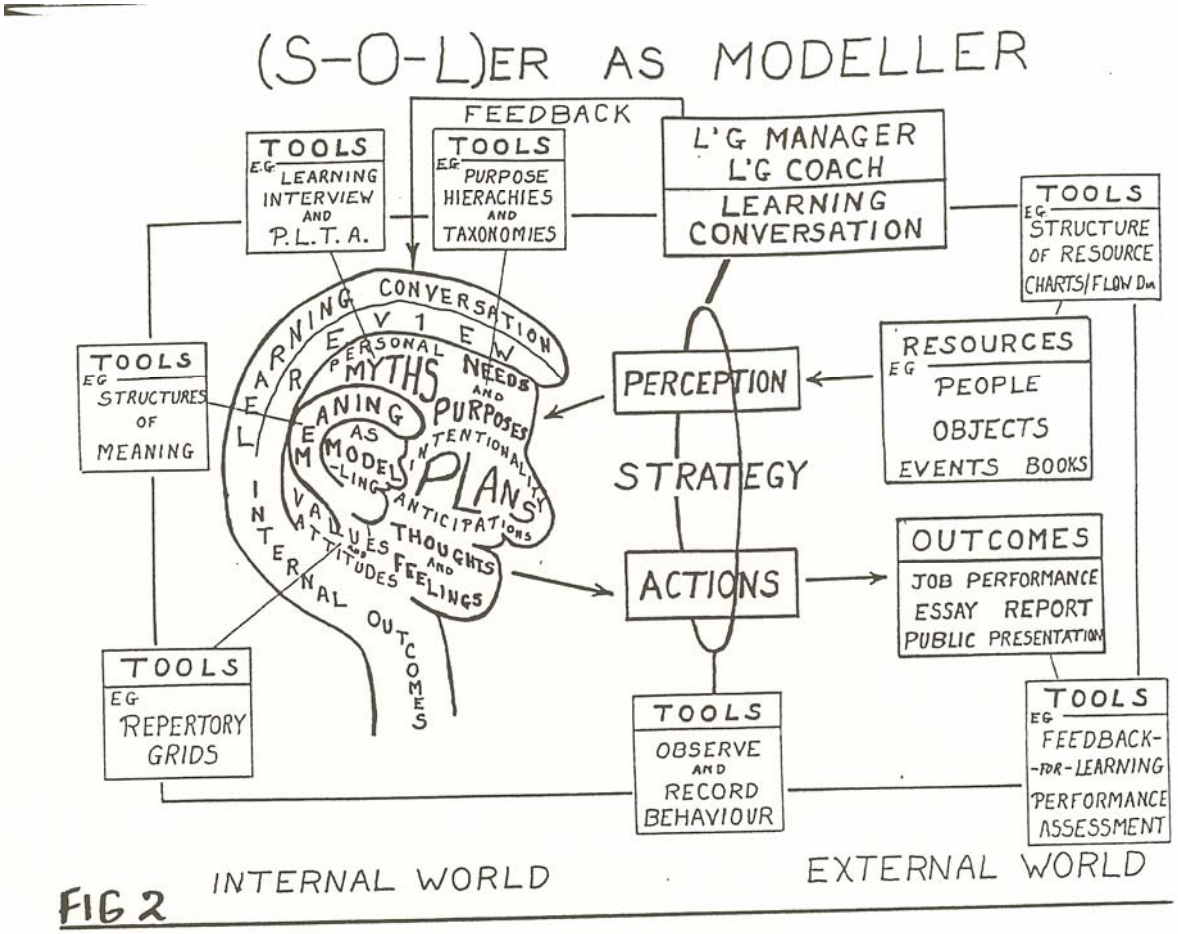

(S-O-L)ER AS MODELLER
FEEDBACK
TOOLS
E.G. LEARNING INTERVIEW AND P.L.T.A.
TOOLS
E.G. PURPOSE HIERACHIES AND TAXONOMIES
L'G MANAGER
L'G COACH
LEARNING CONVERSATION
TOOLS
E.G. STRUCTURE OF RESOURCE CHARTS/FLOW DIA
TOOLS
EG STRUCTURES OF MEANING
LEARNING CONVERSATION
PERSONAL MYTHS
NEEDS AND PURPOSES
MEANING AS MODELLING
INTENTIONALITY
PLANS
ANTICIPATIONS
VALUES AND ATTITUDES
THOUGHTS AND FEELINGS
INTERNAL OUTCOMES
PERCEPTION
RESOURCES
EG PEOPLE OBJECTS EVENTS BOOKS
STRATEGY
ACTIONS
OUTCOMES
JOB PERFORMANCE ESSAY REPORT PUBLIC PRESENTATION
TOOLS
EG REPERTORY GRIDS
TOOLS
OBSERVE AND RECORD BEHAVIOUR
TOOLS
EG FEEDBACK-FOR-LEARNING PERFORMANCE ASSESSMENT
INTERNAL WORLD
EXTERNAL WORLD

FIG 2

supporting the deep reflection and understanding of personal learning, which is a prerequisite for an enhancement of learning competence.

These reflective tools both behavioural records and representations of meaning have in common the following characteristics when used as aids in the learning conversation:

- some observational record of one aspect of learning for enabling reflection and review.

- enabling effective talk-back, so that the learning event can be re-experienced and therefore reviewed.

- a capacity to raise awareness of different aspects and levels of organisation of a skill.

- a facility for the learner to develop a language, a new way of thinking, about the learning process.

- promoting the generation of alternative ways or styles of learning for increasing effectiveness.

- a conversational support facility to enable the learner to more intensively explore and review learning skills.

- a capacity to gradually wean away from dependency on the tool, leaving an enhanced perception of learning.

The Learning Conversation: A Methodology For Achieving S-O-L

A 'Learning Conversation' is specially designed to guide and encourage learners to acquire the status of the self-organised learner and so progressively expand the scope and quality of their learning. (Harri-Austein E S and Thomas L F, 1990)

The Learning Conversation is

1. a reflective process of sustaining a conversation with oneself about <u>learning</u>.

2. This requires an ability to <u>model and observe the process itself in action</u>.

3. A learning coach may temporarily externalise this Learning Conversation, (i.e. insist that it takes place between the learner and the coach), to improve its quality.

4. A learning coach makes the nature of the learning conversation explicit to the learner <u>as they learn</u>, so that they can manage it themselves.

5. The learning coach gradually passes control of the Learning Conversation to the learner as awareness and skill in modelling their learning is developing.

6. The learning conversation can now move on and upwards as individuals, pairs and groups engage in conversations that initiate "learning networks".

7. The Learning Conversation is self-purposive, self-supported and self-evaluated from within individual and team based activities, - it is in a constant state of development.

The first stage of a learning conversation concerns itself directly with how personal meanings, anticipations and actions can be reflected upon and reviewed. Personally negotiated learning contracts enable learners to model their own learning and to generate effective feedback about their performance. By understanding the process, they see learning as a skill which can itself be learnt. They are freed to observe, reflect, analyse, search, formulate, review, judge, decide and act on the basis of creative encounters with themselves. For the experienced manager and naive teenager alike, this often proves to be an intellectually challenging and emotionally difficult enterprise. It involves as much feeling as thought. The quality of learning depends on a capacity to develop ourselves into new levels of competence.

This reflective process usually involves the disruption of existing skills and habits which may lead to a temporary drop in performance, whilst alternative skills are explored and rebuilt. Part of the learning conversation involves offering personal support through the anxieties and hostilities which are felt during the troughs of learning. If this is not sensitively provided, ultra-stable robotish skills again take over and the learner remains a victim of his or her own incompetence.

Each of us have an implicit complex system of referents against which we establish our view of our own competence at work and as a whole person. It is the practice of this system of referents which enables us to provoke the feedback by which we sustain ourselves. Effective learning involves identifying new referents and rejecting or revising old ones. Thus a third part of the learning conversation involves a sustained revision of personal referents for learning.
The Learning-Conversation thus involves three intertwined dialogues, recruiting three types of reflective technique:-

1. Awareness of the process of learning, through the personal learning contract.
2. Support through the troughs of learning
3. Revision of learning referents

The management of the Learning Conversation over time involves three different levels within a 'figure of eight' pattern of person centred activities. (Fig 3 the levels of the Learning Conversation). The central activity is the negotiation of a series of Personal Learning Contracts, (the personal learning conversation), but as these develop sorties into the whole life conversation become necessary for deeper insights into personal needs or relevances. It is this which maintains motivation within ongoing cycles of PLC's.

If a learning contract flounders through lack of skill, the conversation is steered to the learning-to-learn conversation when partially developed skills become challenged and opportunities for developing new skills are explored at the micro-level. Thus, the dynamics of a learning conversation grow out of individual needs and the diagnosis of strengths and weaknesses. Thus, the S-O-Ler can organise and structure a self-development programme which can itself be rigorously monitored and reviewed.

Many potential self-organised learners are unable to take on responsibility for their own learning, not because they do not wish to, but because they do not know how. The PLC

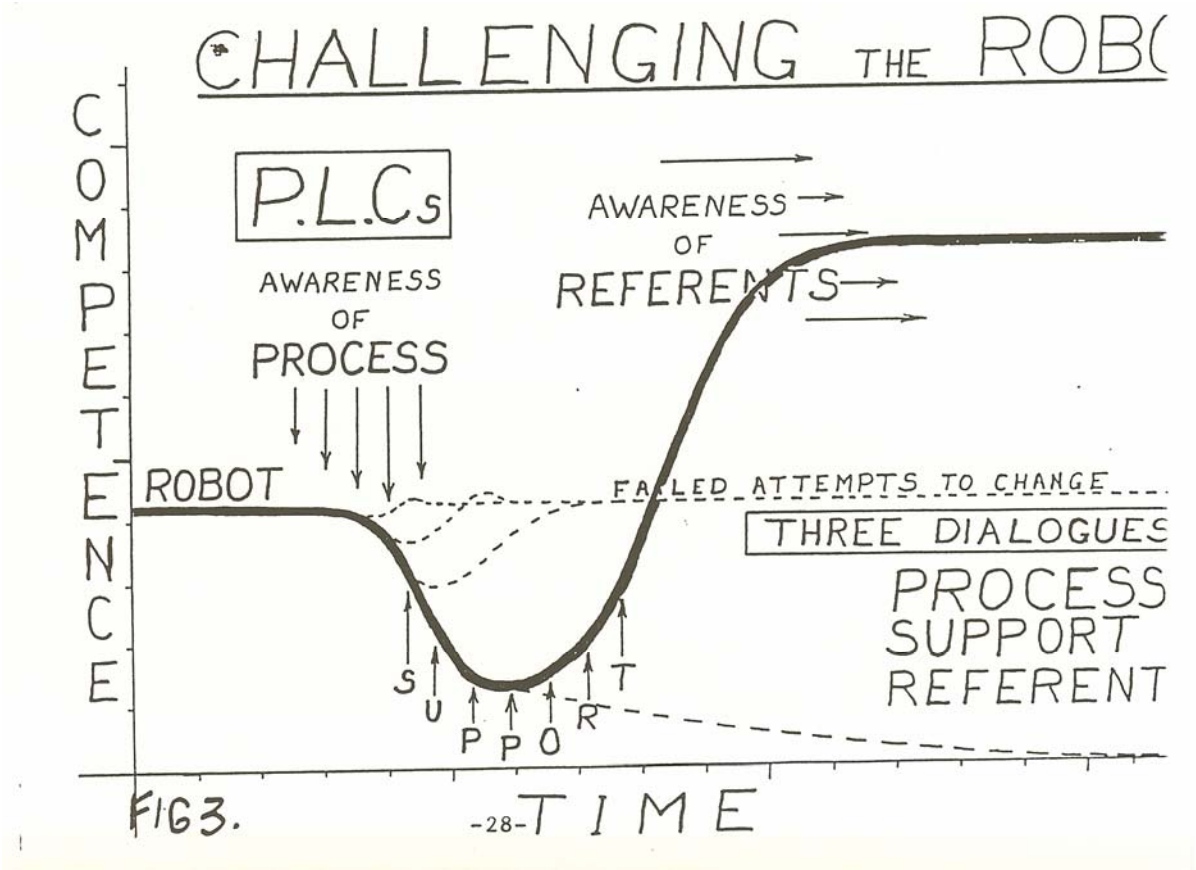

CHALLENGING THE ROB(
COMPETENCE
P.L.Cs
AWARENESS OF PROCESS
AWARENESS OF REFERENTS
ROBOT
FAILED ATTEMPTS TO CHANGE
THREE DIALOGUES
PROCESS
SUPPORT
REFERENT
S
U
P
P
O
R
T
TIME

FIG3.

-28-

(personal learning contract) is a conversational procedure which supports them. It starts as a simple algorithm for identifying:

a Topic	T
a Task in relation to the topic	T
specific Purposes in relation to the task	P
a Strategy for achieving these purposes	S
the anticipated and actual Outcome	O
criteria for Reviewing the quality of the outcome,	R
and Reviewing this cyclic process as a whole	R

Purposes, Strategies and Outcomes exist as part of a nesting set of intentions, behaviours and results. Purposes can be defined within a structure of overall purposes and related sub-purposes to give a hierarchy. As purposes become elaborated and implemented so strategies become organised hierarchically and the outcomes, i.e. personal meanings, take on the form of a hierarchy of structures of meaning. During this process of elaboration, refinement and experimentation it becomes possible to reflect upon and identify relevant resources for learning. As these are assessed, the S-O-Ler can plan and implement one or more alternative strategies for achieving specified purposes. This activity takes place within a given time structure. The PLC is thus a dynamic conversational vehicle for actualising the process of learning. It is the all purpose tool for guiding the learning conversation. It focuses on the strategic aspects of learning. It represents the core mechanism for driving the tutorial conversation which focuses on the strategic aspects of learning.

By planning, carrying out and reviewing their learning in the framework offered by the PLC, individuals can develop their capacity to learn. There are essentially five main activities within the PLC:

1. Negotiating a learning activity before the event

2. Carrying this out in an actual situation

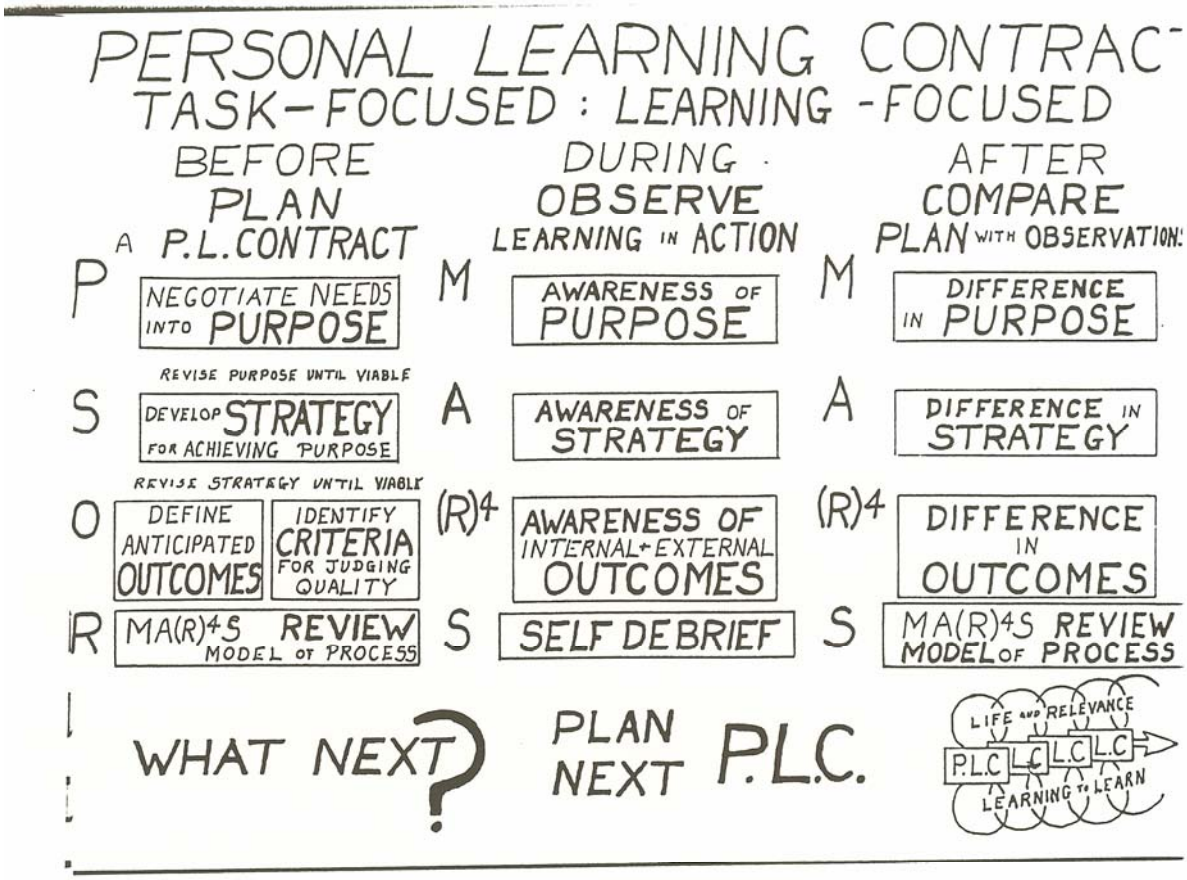
3. Self-debrief of actions taken

4. Reviewing the PLC by retrospective comparison with (1)

5. Self-diagnosis of learning strengths and weaknesses and planning new cycle of PLC.

These represent the essential activities for enabling the learning to develop the constructive and creative levels of 'modelling' (Figure 2). It is this experience that enables them to monitor and control their learning in personally relevant, significant and viable ways.

In its simplest form the PLC heuristic is illustrated in Figure 4. PLC's may be Task-Focused (Stage 2 awareness) and Learning Focused (Stage 3 awareness).


PERSONAL LEARNING CONTRACT
TASK-FOCUSED : LEARNING-FOCUSED
BEFORE
PLAN
A P.L.CONTRACT
DURING
OBSERVE
LEARNING IN ACTION
AFTER
COMPARE
PLAN WITH OBSERVATIONS
P
NEGOTIATE NEEDS INTO PURPOSE
M
AWARENESS OF PURPOSE
M
DIFFERENCE IN PURPOSE
REVISE PURPOSE UNTIL VIABLE
S
DEVELOP STRATEGY FOR ACHIEVING PURPOSE
A
AWARENESS OF STRATEGY
A
DIFFERENCE IN STRATEGY
REVISE STRATEGY UNTIL VIABLE
O
DEFINE ANTICIPATED OUTCOMES
IDENTIFY CRITERIA FOR JUDGING QUALITY
(R)4
AWARENESS OF INTERNAL+EXTERNAL OUTCOMES
(R)4
DIFFERENCE IN OUTCOMES
R
MA(R)4S REVIEW MODEL OF PROCESS
S
SELF DEBRIEF
S
MA(R)4S REVIEW MODEL OF PROCESS
WHAT NEXT?
PLAN NEXT P.L.C.
LIFE AND RELEVANCE
P.L.C
L.C
L.C
L.C
LEARNING TO LEARN

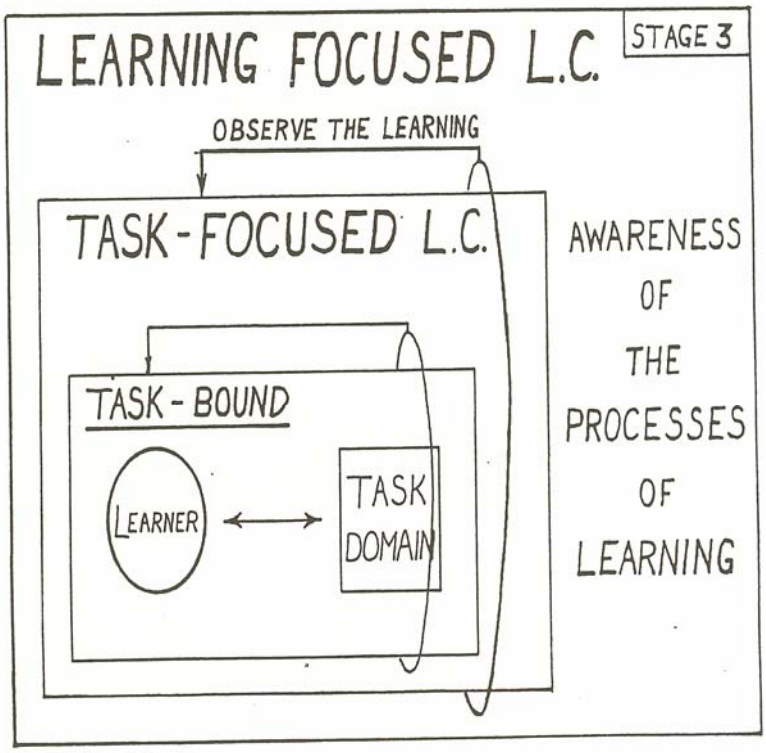

LEARNING FOCUSED L.C.
STAGE 3
OBSERVE THE LEARNING
TASK-FOCUSED L.C.
TASK-BOUND
LEARNER
TASK DOMAIN
AWARENESS OF THE PROCESSES OF LEARNING

FIG4

Underlying the implementation of the whole Learning Conversation is the reflective heuristic which we have called MA(R)4S. (Fig 5). The MONITOR, ANALYSE, RECONSTRUCT EXPERIENCE, REFLECT, AND REVIEW, AND SPIRAL ACTIVITY ensures that each topic, task or skill is experienced as a first generation process. Thus, it becomes fresh and alive for each learner. It is this which drives the three levels of SOL awareness, which enables modelling (Fig 1).

MA(R)4S is fundamental to all SOL activities and can be applied not only to individual learning conversations but also to groups of learners, within an organisational system. The next section describes this.

A System-Seven SOL Environment

So far we have talked about S-O-L for individual learners. We have found that even greater personal successes can be achieved when learners see themselves as part of an S-O-L team. The socio-heuristic for creating a conversational SOL Environment involves 7 systems. Fig (6) summarises this. Each node executes a MA(R)4S-type reflective conversation in order to drive the whole system. Thus, learners, the learning coach, learning manager, domain experts, line managers and personnel managers, and top executives setting organisational policy can learn together as an S-O-L team. In a S-O-L Environment 'experts' are seen as people with a variety of unique experiences, which can be recruited as a resource for learning.

TOOLS FOR MANAGING THE SOL ENVIRONMENT

When SOL becomes seeded as an ongoing integral activity for promoting job effectiveness within an organisation, additional procedures are needed, for supporting an evolving system of Learning Conversations. (Thomas L F, 1987)

I: The SOL Spreadsheet for Monitoring and Managing Learning Conversations

The conversational evaluation of each learner's progress on the job can best be monitored by means of the SOL SPREAD-SHEET. This monitors day by day Learning Conversations on and off the job and records these activities using an agreed coding system. The content of each Learning Conversation remains confidential to the learner and the learning coach, but the progress made and the type of activities engaged can be made available to those responsible for managing the learning.

Records of Learning Conversations recorded at weekly intervals are organisationally linked with weekly records of self appraisals and staff appraisals, using institutionally generated criteria. These records are also linked with quarterly staff appraisals by a nominated member of staff, using criteria elicited and generated by the staff themselves from within specific offices and departments; such criteria are elicited using the CSHL Feedback for Learning Package.

The SOL Spreadsheet allows for effective monitoring and control of individual progress covering a variety of tasks and duties within an organisation. The spreadsheet can be further developed into a Personal Learning Biography which records each learners progress. It records their own evaluation as well as those made by their immediate supervisors and as seen by the organisation as a whole.

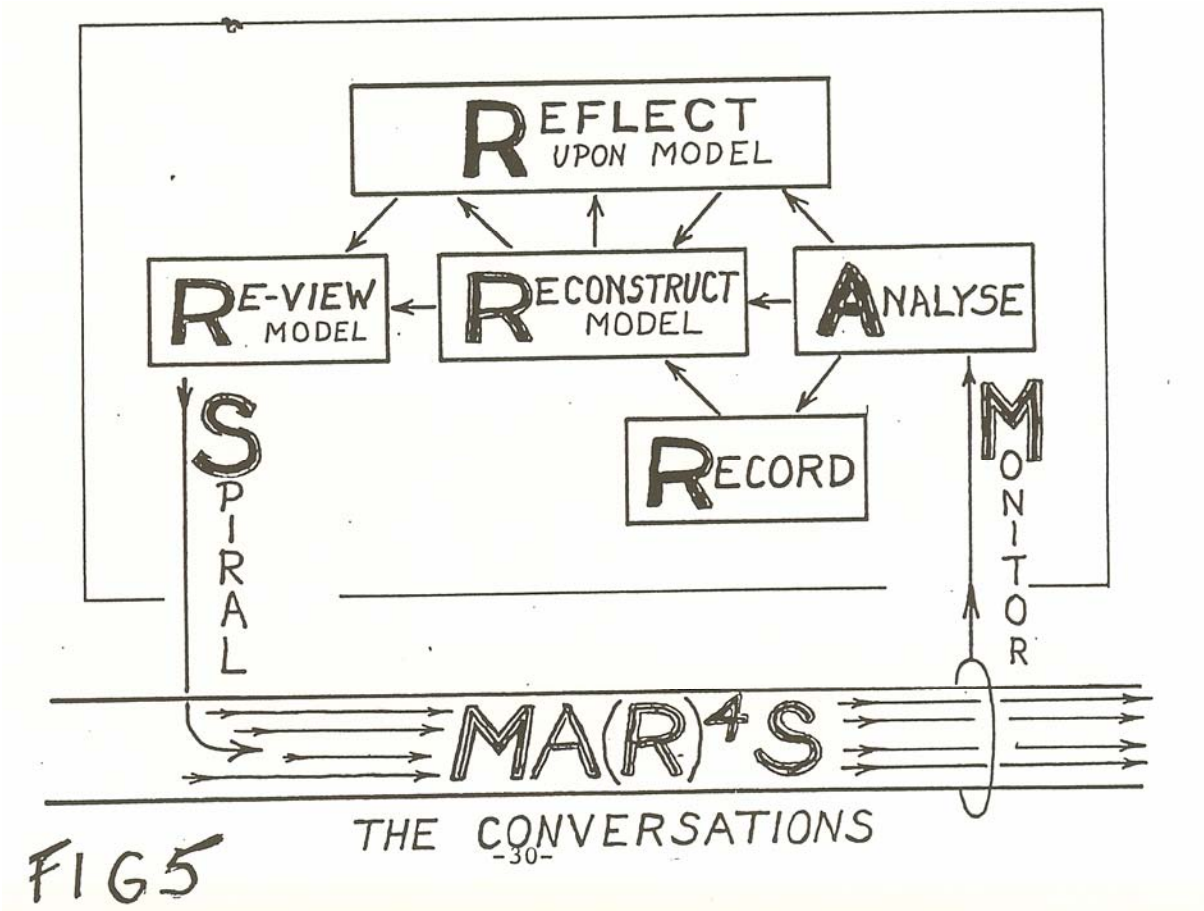

REFLECT UPON MODEL
RE-VIEW MODEL
RECONSTRUCT MODEL
ANALYSE
RECORD
SPIRAL
MONITOR
MA(R)⁴S
THE CONVERSATIONS

FIG 5

-30-

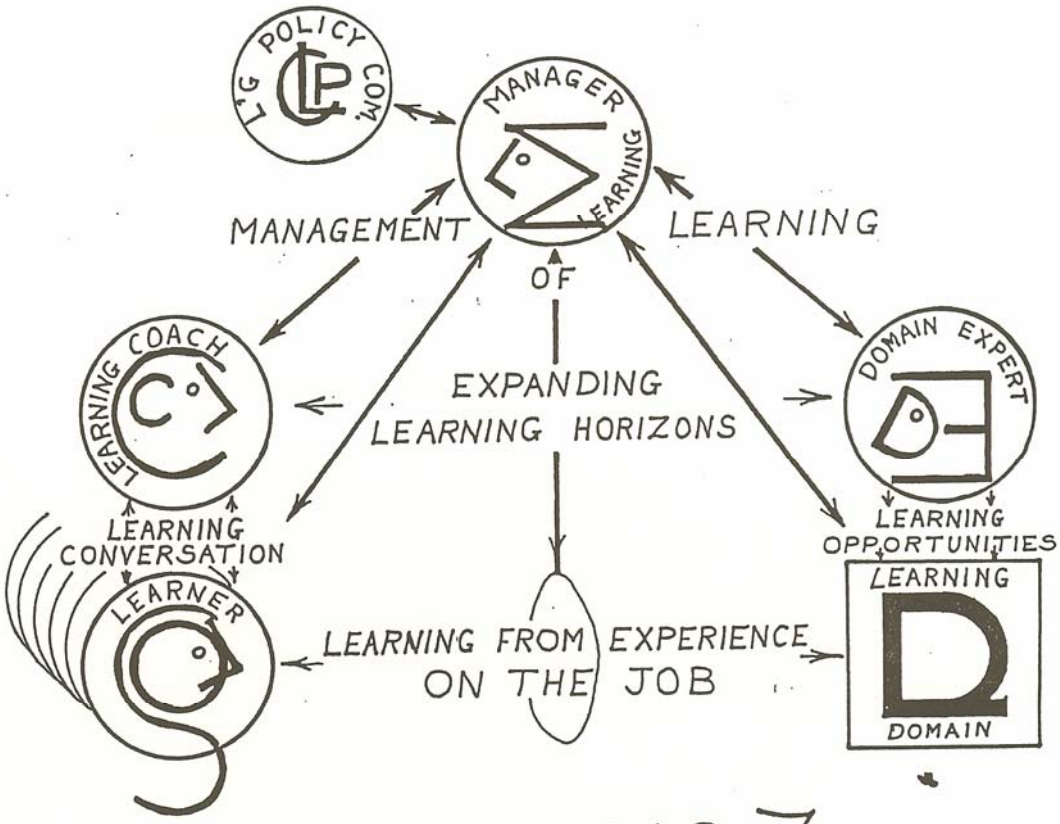


FIG 6. SYSTEMS 7

II: The Feedback-for-Learning and Appraisal Package

The CSHL Feedback for Learning Package is designed to offer learners systematic commentaries made by those that are responsible for them within an organisation.

This identifies the local values of effectiveness by eliciting an interlocking system of criteria which allows relative judgements to be made on a given scale. A variety of methods of analysis offers feedback:

> (1) - to the learners so that they can diagnose their strengths and weaknesses as seen by those responsible for them.
>
> (2) - to the learners and learning coach so that they can initiate PLC's based on (1)
>
> (3) - to the supervisors (i.e. judges) who can calibrate each others subjective judgements and learn to improve these as well as to use (1) and (2) above to manage their team more effectively.

Linked with the SOL Spreadsheet and Personal Learning Biography the effects of SOL in the system as a whole can be monitored and managed.

A "Conversational Evaluation" of SOL involving the learners, the Learning Coach, the Learning Manager, other supervisors, managers and the organisational head, based on the results of the Feedback for Learning and Appraisal Package, becomes an ongoing activity. Part II reports such results within one organisation; the Post Office.

Some Implications

Education, Psychology, Training, Industry, Commerce and Government can benefit from this radical S-O-L approach. The results reported in Part II of the paper offer evidence for this. In a world of change which can easily spin into the chaos unless sensitively managed, S-O-L offers a body of knowledge and skills which enables people to grow their competences, on-the-job. This has profound implications for Training Policy, for the ways in which Expert Systems are used, for managing people, and for Management Development. In a climate of intense competition and uncertainty, the skills and knowledge of today (i.e. content-based knowledge and task-based skills) can easily become the chains of tomorrow's mind. Our metamorphosis towards a more humane and efficient future depends not on the forces of Natural Selection, but on Intelligent Participation involving individuals and groups. Modelling learning through S-O-L and Learning Conversations, enhances our capacity to learn. It is this which determines our prospects for survival and our trajectory for growth within the 'natural habitats' of home, school, work, and society as a whole.

PART TWO

SELF-ORGANISED LEARNING IN ACTION

Part one of this paper has used 20 years of action research in a wide spectrum of industrial and commercial organisations, as well as educational and training institutions. This has enabled us to develop S-O-L as a practical science for promoting our capacity to learn. We have conducted Learning Conversations on the shop floor and in the board room, on a frigate, on a rugby field and a skating rink, in schools, polytechnics and universities, in a bank, in the Post Office and in a chain of shoe shops as well as in a number of research and development establishments. We have offered back-up support for S-O-L as a growing enterprise in the UK and abroad. We have run workshops and seminars for officers of the Royal Navy, educational psychologists, psycho-therapists and counsellors, foremen and supervisors, personnel managers and line managers, sales managers and their customers, as well as teachers and teacher trainers as far afield as Mexico City, Adelaide, Madras and Singapore, and nearer home in Paris, Berne, Strasbourg, Cardiff, Edinburgh and Limerick. We have acted as consultants for many organisations, large and small and acted as advisors to general practitioners, architects, athletics coaches, teacher trainers, family counsellors, marriage guidance counsellors and prison governors.

Working with people from many walks of life across a whole range of tasks and at different levels of responsibility, involving direct line management as well as advisory training and educational services, we have demonstrated the power and effectiveness of Learning Conversations. For ourselves and many of our clients the experience has been and continues to be challenging, exciting and deeply fulfilling. This article has been written with them continually in mind.

Throughout there have been two main trends of action research. One is the continuing development of appropriate techniques and tools for supporting individual and group learning conversations. The other is to use the results of our action research to build a developing science which we have called Self-Organised-Learning. In our MOD project with the Applied Psychology Marine Technology Establishment, and micro electronics project for schools, (DES), we have developed "intelligent learning support systems" (ILS). Learners learn a given task, such as intercept control or reading-to-learn by simulation on a computer. As they learn, their protocols are logged so that they can be supported by a machine addressed 'learning coach' whose function it is to generate learning conversations with them. We have used these computer-based experiences to sharpen our understanding of S-O-L and of the methodology of the Learning Conversation. This has transformed our research contract and consulting activities by firstly adding more precision within the Learning Conversation and secondly enabling us to back this up with a sophisticated technology. Here we shall briefly describe our work with the Royal Mail Letters Business, over a 5 year span, to convey the flavour of one endeavour. We begin by commenting generally on the context of Learning Conversations in Organisations.

The Learning Practitioner: Organising a System of Learning Conversations

Conversations about learning take place in every organisation. They will probably be scattered and unrelated one to another; and there may not be very many of them.

These conversations could appear in the form of an experienced man nearing retirement informally taking young newcomers under his wing. Such elders take a real interest in the youngsters far beyond merely instructing them in the job. Much of their conversation is spent reminiscing about the old days' since the times when the older man first joined. Tedious though this may appear from the outside, threaded through it is caring attitude, concern for how the newcomer is getting to grips with things and a willingness to listen to their problems. This ability to really converse catches the interest of the novice, increases awareness and supports them in their search for personal meaning in the work.

Conversations about learning can also occur among a group of people concerned with some project; work study, budgeting, a new curriculum, quality assurance, a special training programme, a new examination scheme, introducing new technology, fighting a redundancy plan or coping with the new micro-computers in an automated office. These people have from necessity had to learn. They learn from each other, pooling their resources and working out their own innovative enterprises often looking back on that period nostalgically, as an exciting, stimulating and enjoyable episode in their working life. They feel that they were really alive, acquiring new skills and learning significantly about themselves, about each other and about their jobs. Such an experience is almost always associated with intense high quality conversations among members of the group, and in each person's head.

More mundanely, in most organisations, people talk shop over meal breaks, exchanging experience and solving lots of little problems; experienced people become the centre of a small learning network; not through their technical expertise but because they seem able to encourage and enable learning conversations among the others.

Despite these examples, good quality conversations concerned with learning are in most organisations, few and far between, and those that do take place are almost always task-focused. The quality is often not good, and the conversations are not usually sustained. Very little happens which might increase people's capacity for learning. In most organisations there are departments and areas in which no such conversations take place. There is usually very little conversation about learning between departments or up and down the chains of command.

Over 5 year’s consultancy with the Royal Mail Letters Business illustrates how a coherent network of learning conversations can be developed within an organisation. They can be built into a robust system which rapidly becomes cost-effective.

S-O-L and Supervisory/Managerial Effectiveness in the Post Office: An Example Project

This project was structured as follows:

I The Feasibility Study (2 months)

II Introducing S-O-L intensively into two large Head Post Offices (2 years), and running parallel National Workshops and seminars for equipping selected Direct Line Personnel with S-O-L. (Two hundred and fifty Learning Coaches from 84 offices and their Learning Managers).

III Ongoing Programme for the Cascade of S-O-L and for developing a procedure for the conversational evaluation of the project. The cascade included:

(1) Ten S-O-L workshops for all office site teams
(2) A series of S-O-L tutorials for the headquarters team so that they:-
-could be accredited as S-O-L Workshop Leaders
-could offer effective on site back up to the site teams
-could form a National Network of Learning Practitioners

I The Feasibility Phase

Fifteen days work spread over a ten week period in one Post Office sorting office allowed CSHL consultants to test out if and how S-O-L and the techniques of the Learning Conversation might be used with Supervisors and Middle Managers. We used Personal Learning Interviews, Personal Learning Contracts, Repertory Grids, Reflective Flow Diagrams, Self-evaluative group discussion, paired shadowing, to heighten awareness of learning. All these techniques were found to be variously applicable in helping supervisors to become more aware of how they had learned their job, how they were still learning from experience on the job and how the quality and quantity of this learning might be improved. We also generated some preliminary discussions among supervisors and between supervisors and managers about what they thought were the essential features of supervision. We were able to report and substantiate our findings, that Learning Conversations would prove an effective way of helping the three grades of postal executives, PEs(D); PEs(C); and PEs(B) to become more effective. As supervisors began to accept responsibility for learning more effectively from their work experience they could gradually become more self-organised. Subsequent work over the past three years has shown just how effective this can be.

II One Trial Office

The Post Office retained CSHL to develop a system of Learning Conversations in two large district sorting offices. One in the South and the other in the North of the UK. Here we report in a very simplified form what happened and the results achieved in one of the "trial offices".

Two operational PEs (D) attended CSHL Self-Organised-Learning Workshops and were offered temporary promotion to PEs(C) as Learning Coaches. With back-up from CSHL consultants for 2 or 3 days every 3 weeks. These coaches worked with all the 30-40 PEs(D) on the three shifts in the Machine Letter Office (MLO). Using a mix of small group and individual Learning Conversations they enabled each supervisor to become much more aware of just how he or she did their job (Stage 1). They encouraged each person to diagnose their own strengths and weaknesses as a supervisor and to formulate a series of personal learning contracts and to carry these through, learning reflectively from their experience on the job. After this had developed over a six month period PEs (D) began to meet in a series of two-hour discussion periods to share their views and understanding of what good supervision is really all about. This fed back into the Learning Conversations. These began to identify "learning resources" within the office, these included other more senior or more experienced supervisors, the productivity services, PEs(D) who had been assigned to special service jobs, all sorts of records and printed resources which had until now been merely routinely collected and filed.

The Chief Inspector (PEs(B) took on the role of Learning Manager, which was shared with the MLO Manager. As the two Learning Coaches returned to operations, they were replaced by newly 'trained' coaches. In this office, eight PEs (D) have gained experience as Learning Coaches. Five of the six that have now returned to operations have been promoted operationally, three by two grades (i.e PEs(D) - PEs(C) - PEs (B).

The Measurement and Assessment of Learning

Learning cannot be perceived directly. It is inferred from changes either in the behaviour or in the immediate experience (i.e. thoughts feelings and perceptions) of the learner. Only the learner has access to their immediate experience, other can better observe changes in behaviour.

Results of increased S-O-L can be categorised under three main headings.

The procedures for recording the three types of result was outlined in Paper 1 (The S-O-L spreadsheet and the Personal Learning Biography).

1. Learning valued by the learner.
2. Learning valued by the learner's supervisors or managers
3. Learning valued because it contributed to the objectives of the enterprise as whole.

At the end of the first trial year in this office the results were evaluated. It became clear that whilst there were massive and clear results under Category 1 and a lot of positive subjective comment under Category 2, the organisation was not in a position to evaluate results under category 3. The CSHL consultants had rapidly become aware of this problem. People who were accepting more responsibility for their learning began to ask for more robust and authentic information about their job performance. This was not available. We had begun to work with the managers of the MLO on this problem: but before discussing this next step, let us look at the types of results that were beginning to accrue in categories (1) and (2).

Results Valued by Learners Themselves

The primary purpose of S-Q-L is for people to become more involved in their own learning. Thus the primary perspective on the changes produced by Learning Conversations is that of the learner themselves. Learners in the trial office spontaneously commented in and recorded in the following ways Personal Learning Biographies.

1. I enjoy work and life more. I feel more alive. I actually find myself looking forward to work.

2. I want to learn, I can make sense of my job, I am interested. I find all sorts of questions bubbling up.I can see what I ought to know and what I ought be able to do; and thats half-way to learning it.

3. I learn more easily. I learn quicker, I am interested in in the detail because I see the relevance. I find myself setting higher standards, why should there be all those mis-sorts? Why isn't my throughput higher?

4. I am more questioning, I want to understand why things happen the way they do, does it have to be like that. I surprise myself with the ideas I am having, some don't work but a lot of them are really quite good and I have improved my (control) area in all sorts of little ways.

5. I actually seek feedback, I find myself judging my own performance and then I want to know whether my boss agreed with me. I want appraisal, but its got to be good, based on actual observation of me at work and not on prejudiced, second-hand or out-of-date information. Mind you I can evaluate my bosses appraisals better now. I can see when what he says is valid and when its not, but I don't get as resentful about it as I used to.

6. I think more about what I do. I find myself going over my day in my head on the bus going home. Not only that but I reflect more about the long term, do I really like what I am doing, what are the prospects of special (assignments) or of swapping duties. I am beginning to get interested in Quality of Service (Q of S) and have been wandering about getting on the new Q of S team. Promotion seems a distinct possibility if I work at it.

7. I am really beginning to understand how the office works all the work-in-progress, W.L.A quality modules, throughout figures, sorting rates, coding rates, disparity traffic streams it all begins ·to make sense. But all sorts of things could be done better. I had never thought about how one control area relates to another. If you are going to make suggestions you really have to work it all out, justify your ideas and show what the improvements would be.

8. I find myself remembering all kinds of things I have not thought about for years. I really do have a lot of skill knowledge and experience that I did not know I had, I am beginning to understand myself a lot better, why I do what I do. I had never really observed myself in action before. I begin to understand my own processes. I don't 'blow my top' like I used to. I can trust my feelings now, I don't have to suppress my good feelings, I can express them without being soft'. I am more confident in tricky situations. I can talk to 'bosses' on equal terms.

9. I find my self worthy to be part of the team. I fit in more easily. I can cooperate without feeling taken over. I am my own man, but I really want the office to do well.

10. What has really surprised me is the kick I get out of helping other people, young entrants, acting men, 'difficult' postmen who just really need a bit of understanding and encouragement.

Outside of Work

I find S-O-L has helped me with my family, with my wife and her job, with kids school problems. I really was able to help my son when he got into trouble with the police. It has changed how I am with my family and with my friends. I have started a D.I.Y extension. I would never have done that before S.O.L. I have become a much better sports (badminton) coach.

Trial Office

Results Valued by Learners' Immediate Boss

The Supervisor (Learner)

- is more motivated
- appears to get more job satisfaction, higher morale
- takes more pride in his work
- is easier to work with (not so prickly) but makes more demands
- is more responsible
- is more questioning
- is much better informed.

The Supervisors' (Learner's) Handling of Individual Postmen

- handle young new entrants firmly but much more sympathetically
- knows what mix of mail each of code-desk operators likes and
- plan/anticipate to provide it.
- know how to treat each postman to get the best out of them.

The Supervisors' (Learner's) Team Building Activities

- are briefing their teams each week and monitoring day-by-day
- have a regular de-briefing session with their postmen
- are much more aware of throughput hour by hour, despatch times and mis-sort rates
- are setting clearly defined targets.

The Supervisors' (Learner's) Awareness of Other Control Areas

- monitor all those areas that supply them with mail and liaise with their PEs(D) to ensure a regular supply of the 'right' work (i.e. 1st class, 2nd class rebates….appropriate collections)
- liaise with those areas that receive work from them so that they can plan their flow of traffic to meet their needs
- liaise with me about the movement of staff.

The Supervisors' (Learner's) Support of their Postman and their Team

- provide good "knowledge of results" to the team as a whole and about each individuals performance.
- brief their team at the beginning of each shift
- make sure that there is always enough work and enough equipment e.g. trays, bags, labels, trolleys,
- make sure all paperwork is available and up to date e.g. work plans, despatch book, train/platform cards etc

The Supervisors' (Learner's) Innovative Activity and Suggestions for Improvement

- are "thinking on their feet" and making detailed improvements to working methods.

- have lots of ideas but are careful to discuss them with colleagues
and
thoroughly work them though before making formal 'suggestions', but then persists in having it properly considered and evaluated.

Overall Comment

The Learning Coaches seem to be the best informed people in the office. Lots of them have been promoted back into higher grade managerial operational jobs.

Results Valued against Organisational Objectives

It is often difficult to obtain objective measures of a supervisor's performance. Sometimes the actual numbers were questionable; but more often the measures do not map back one-to-one onto the control areas of particular supervisors nor onto the time structure of their shifts. It was therefore difficult for them to develop an "explanatory model" of how what they do contribute to the 'Productivity', 'Quality of Service' and 'Cost Effectiveness' of the office. Much work had to be done with the Domain Experts (System-Seven, Paper 1) before they saw the relevance of providing valid 'knowledge of results' in real time. When they did the improved 'capacity for learning' of the supervisors was quickly demonstrated. In addition to often startingly improved individual performance figures, the office performance also improved. Fig. 7 illustrates that:-

Over 18 months Productivity improved by 24%
Over 13 months Quality of Service improved
1. For 1st class mail from 97% to 99% of letters delivered on day A
2. For 2nd class mail from 93% to 98%
(since one cannot exceed 100% this is quite outstanding)

Over 12 months Cost-Effectiveness improved, costs per standard hour dropped by 19%.

III The Cascade

The original 10 workshops for Learning Coaches were evaluated by the Post Office Policy Training Policy Personnel and by the Post Office, S-O-L Headquarters team as highly successful. Every coach had attempted to implement some aspect of S-O-L in their office. Those that were supported by their Learning Managers on site went on to develop their own brand of S-O-L, adopting CSHL techniques to meet their office needs. All agreed that the Learning Conversation was helpful for improving job performance. Despite and because of the lack of 'training experience', most coaches were able to grasp the 'spirit of S-O-L' and implement the approach effectively, after a 3-day workshop, a 2-day follow-up and minimum back-up from the headquarters team. But, the 1-day seminars for the Learning Managers, proved not to be sufficient to help them to back up their Learning Coaches on site. Many coaches felt totally unsupported, few gave up, but some carried on almost subversively, when supervising on-the-job.

Each office was invited to form an S-O-L site team, made up of a Learning Coach, Learning Manager and a senior manager from P and IR; often workshops were run for them in groups of 6 to 7 teams. One part of these workshops lead to the formulation of an S-O-L site plan.

POST OFFICE ROYAL MAIL LETTERS BUSINESS

TRIAL M.L.O. (MACHINE LETTER OFFICE)

PROD. CHANGE OVER 18 MONTHS	RAISED BY	24%

		RAISED	FROM	TO
Q OF S CHANGES OVER 13 MONTHS	MAX 100%	1ST. CL.	97%	99%
		2ND CL	93%	98%

COST-. CHANGE OVER 12 MONTHS	REDUCED BY	19%

Fig 7

Despite many difficulties not connected with S-O-L, several offices have carried out a range of interesting S-O-L initiatives. These are reported elsewhere.

Three members of the headquarters S-O-L team have been accredited as S-O-L workshop leaders within the Royal Mail Letters Business. S-O-L tutoring has enabled them to develop a model for back-up on site, and a system for developing a National Learning Network.

The CSHL S-O-L team have developed a scheme made up of a 3 by 3 matrix for the conversational evaluation of the project. The matrix consists of.

(1) Results valued by the learner expressed in terms of their thoughts, feelings and actions.

(2) Results valued by the learners' immediate boss, in terms of the behavioural outcomes of each learner

(3) Results valued by the organisation because they contribute directly to the targeted 'objectives'.

Each of these is evaluated for short-term, medium-term and long-term results.

CSHL have used the S-O-L spread sheets, the results of the Feedback for Learning Package, and the individual Personal Learning Biographies (Paper 1) to collect the conversational data for the evaluation scheme. This is also reported elsewhere.

IMPLICATIONS:

THE PROSPECTS FOR SELF-ORGANISED-LEARNING AND ORGANISATIONAL GROWTH

Self-Organised-Learning offers a science of human learning and its methods, techniques, principles and practice have been developed at the CSHL for over twenty years of action research.

The S-O-L is unique in:-

(1) the emphasis given to learning from experience 'on-the-job' at all levels from the shop floor to top management and director level.

(2) its content-independent techniques and procedures which directly address behavioural <u>and experiential</u> aspects of personal learning.

(3) the development of self-responsibility and self-organisation in personal learning.

(4) the introduction of the 'learning coach' and 'learning manager' as <u>human resources</u> for conducting and supporting Learning Conversations within an organisation.

(5) its promotion of operations personnel for the seeding and growth of an S-O-L Environment in an organisation.

(6) the wide range of spin-offs from an enhanced capacity-to-learn and job competence, including the increasing number and quality of suggestions for improvements, better motivation and job satisfaction as well as a more flexible attitude to problems at work.

(7) its cost effectiveness, since individuals are guided to become more responsible for managing their own learning. Training programmes and packages, experts, and experienced staff are recruited as resources to meet these needs.

For over 20 years, we have been arguing that the core curriculum for the in-service training of psychologists and for education, training and management development should directly address the processes of learning itself. Others in the forefront of training initiatives are joining us in this vision. S-O-L offers a well tried science, which could form the foundation for such a venture.

Given the political will and psychological insight, this approach can massively raise standards of skill, for the achievement of excellence. The technology and know how is now available to develop "powerful intelligent S-O-L learning Environments". But who is to take up this challenge? Who is to resource its continuing development? In our own studies we have demonstrated the uniqueness of this self-organised methodology; external agents including the conversational technology itself, become obsolescent as S-O-L becomes internalised, i.e. seeded within individuals and organisations as a whole. When effectively managed System-7 S-O-L cascades from within its own momentum spiralling upwards, sideways and downwards to form conversational learning networks, capable of adaptive and creative change. The phoenix of self-organised learning can arise out of the ashes of other organised learning, leading to the renaissance of a sense for personal responsibility, competence and innovation.

Those who are involved in research training and organisational policies should take careful note that the S-O-L approach is not only extremely cost-effective but that the enhanced quality of learning performance carries over to every new opportunity to learn, on-the-job, on courses and in life. The cumulative rewards in increased competence and versatility open up new vistas for individual and organisational destinies. Looking further ahead to a new kind of prospect, we can put the humanity back into an enterprise by enabling individuals at all levels of responsibility to create new kinds of social contracts. In our view whether changes in the destiny of our industrial society is brought about by Darwinian forces which have often in the past lead to "crisis management" or by "intelligent participation" largely depends on the resources and experiences we now offer in the work place, in education, the family, and society as a whole.

RETROSPECTIVE COMMENTARY

We end this paper by offering our meta-view on how S-O-L and its related Learning Conversation contributes to a paradigm shift for the Human Sciences; and within this to a conversational science for investigating and enhancing our capacity to learn.

To return to our invitation to converse with us through the medium of our presentation, you will have monitored and reflected on the values and assumptions being exhibited. Hopefully, you will have been provoked into stages two and three of S-O-L AWARENESS explained earlier. We now invite you to consider further whether you may be model-bound, or even

paradigm-bound, i.e. STAGE 1-The NON-REFLECTIVE ROBOT? Should this be the case, even to the mildest degree, how does this affect the future of PCP?

To implement PCP in its fullest sense, implies a paradigm shift, which even some of those within PCP itself have not appreciated. The possibilities within it are not exploited and challenged. Elsewhere, we have offered a detailed critique of both Personal Construct Theory and Method. It is too reductionist to interpret personal meaning systems as bipolar differentiations of specifics in our world; rather we see STRUCTURES OF MEANING as NETWORKS OF CONSTRUCTS, in multidimensional time and space. The repertory grid, and the personal biography fail to represent meaning within this, PCP lacks a truly AWARENESS corollary so that self-organised change cannot be supported. Again the social dimension is not fully developed and as Marie Jahoda so lucidly argued in her keynote address at the Sixth Congress in Cambridge, UK; PCP fails to offer a paradigm for the social sciences.

One of our most disturbing findings in introducing S-O-L to educational psychologists was that all were locked within their own myths (theories) to the extent that they were almost totally myth-bound, and therefore unable to reflect upon and review their professional positions. In Learning Conversations they were challenged to make aspects of their models as practising psychologists. Explicit using STRUCTURES OF MEANING and PERSONAL BIOGRAPHIES, they found that their own meaning systems which consisted of, ad hoc bits of various psychological theories, remaining fragmented and non-operational. Their practice was driven by an implicit model in which, here and now, pragmatic solutions and a crisis-management approach, predominated. This applies to most professionals and to most people as observers in our societies and cultures.

People have a low-level of awareness of their own processes and of their own constructions. Often in professional situations and in all walks of life it takes some calamity to shock the person into some significant level of awareness which may lead to change. Those that do change barely cope, rather than see this process as a constructive and creative engagement. Few learn to transcend their myths to create new futures for themselves and others.

S-O-L offers a well-tested approach for individuals and groups to achieve a deep awareness of their own processes, and through this to control and change the direction, content, and quality of their interactions with the world. The experience of S-O-L can lead to a personal paradigm shift. As such it offers an exciting and radical approach for education, training and the human sciences.

In our books, Self-Organised-Learning (Routledge & Kegan Paul, 1985) and Learning Conversations (RKB, Spring 1990), we trace our steps out of the 'physical' science and 'humanistic' or 'personal' science paradigms towards a 'conversational' science. In acknowledging the 'experimenter effect' as an intrinsic phenomenon with the 'social experiment' we have had to fully recognise that as we are conversing (experimenting) with our learners, they are experimenting with us. The physical science paradigm fails to stand up to this refutation and must be renounced. Rogers' approach amongst others in the humanistic mode describes the conditions necessary for change, but leaves the person to complete the flowering process without method. For us this carries an unhealthy innate connotation.

Following from Husserl and Schutz, Kelly's radical move towards a systematic yet person-based approach offered us a breakthrough. But even so the nature of the paradigm remained

underspecified and we turned PCP on its head to grow a model of human enquiry to suit our purposes. In so doing, we may offer to PCP some new dimension for its growth as a movement in psychology. S-O-L has shown that a stringent yet deeply personal technology is a prerequisite for challenging our robotish myths and enabling enduring growth. The S-O-Ler as their own modeller fully in a position to converse with themselves and others to develop hitherto unimagined levels of skill, competence and creativity, offers an operational theory for the individual. SYSTEM-SEVEN-S-O-L, allows learners, in groups and even a whole organisation to achieve conversational networks of change. The Learning Conversations and MA(R)4S provides a heuristic for each and all 'conversational beings' to self-organise their constructive change.

Self-Organised-Learning as one Paradigm for Scientific Enquiry

The characteristics of this conversational paradigm are:-

1. The Nature of a Conversational Endeavour

The constant, the irreducible functional entity within this paradigm is the Conversational-Being which is the vehicle for two symbiotic conversational processes.

a) A C-being is composed of Meaning-Generating Constituents and is itself a M-G-Constituent of its own Conversational-Community. It is therefore a conversation within itself and participant in conversations with others. This combination of inwards and outwards orientated conversation defines each C-Being. A C-Being may be a person, or it may be a pair, a group or a whole organisation.

b) The C-Being, its M-G-Constituents and its C-Community are each and all "conversational entities". When seen in these relationships one to another they define a conversational endeavour. Such a C-endeavour may become one temporary focus of attention for C-scientific enquiry within the conversational (S-O-L) paradigm. Against this "constant" of the C-Being all else is "relative". Any C-entity may be viewed as a C-Being with its own M-G-Constituents and its C-Community. Thus C-endeavours may co-exist and overlap. Each has its own perspective.

c) A C-endeavour is bounded only by the domain of meanings it may generate. The generation of meaning is a process of modelling which includes extending, refining, elaborating, validating and re-viewing our understanding of that to which we attribute meaning. When these meanings include a modelling of its own process the C-Being achieves awareness. Awareness endows the C-Being with Godel-theorem-like, open system properties.

2. The Process of Conversation as Negotiation of Meaning

Meanings are the sum total of experience. They are a dynamic relationship between that which is attributing meaning and that to which meaning is attributed. Reality and any part of it, is infinite in extent and complexity. Thus meanings can never encompass reality but they can purposefully model certain aspects of it. They are therefore both more and less than that which is modelled.

Meaning is the coinage of exchange within any C-Community; and yet paradoxically if meaning is to remain significant, relevant and viable it must continually be re-generated

afresh by each C-Being. Explanations of the process of conversation must transcend this paradox. This will be achieved by describing how the self-generated meanings (or first-generation knowing) of one C-Being can develop coherently, maintaining their integrity whilst deeply influencing and being influenced by the meanings of others.

Meaning cannot be transmitted or received. It can only be negotiated through a process of representation and interpretation. Meaning can never be fully re-presented. Each mode of representation (i.e. language e.g. verbal, visual, musical, non-verbal etc.) has its own forms which offer constraints as well as opportunities for the formulation of meaning. A C-Being is influenced by another when they attribute meaning to (i.e. generate meaning refreshed in relation to) the representations of the meanings of that other, within a shared C-Community. This process of attributing meaning to another's' representations is analogous to the process of interpretation. Meaning is negotiated when two C-Beings are representing their own meanings and interpreting the others representations within a shared C-community. As these processes synchronise and begin to operate iteratively with feedback over a period of time the state of conversing is achieved.

(Our descriptions of the Learning Conversation are a sustained attempt to represent some of our experience as a C-Being in generating less and more successful conversations for enabling S-O-L in other C-Beings).

3. The Methods feed the Knowledge and the Knowledge Informs the Method

The methods of investigation within the Conversational (S-O-L) paradigm are intrinsic to it. They are reflective, content-independent, systematic and person-sensitive (or to be more precise, they are sensitive to the nature of the C-Being at the focus of enquiry). The process of sustained, coherent conversation is the core ingredient of this methodology. Each tool is to be viewed as a specialist amplifier or refiner of some contributory component to this conversation. Each tool is therefore used in context to enhance the quality of the whole conversation. MA(R)4S has a special position within this activity since it can be applied to each and every component and to the conversation as a whole. Its function is to amplify and refine the quality of the modelling process, thus by sharpening various aspects of awareness, it improves and sustains the quality of the C-Being.

Thus the skilled C-scientific investigator can create and sustain a C-Being consciously evolving and developing as part of a program of self-organised change. The knowledge of the conversational process which guides and drives the skill of each investigator must be first generation knowing, (i.e. it must arise out of each investigators' personal experience and be generated in the content of representations of the meanings of other investigators who share the paradigm). Thus, the development of the methodology is itself a C-endeavour. The awareness achieved by each investigator through modelling their own processes are the primary sources which feed into the shared understanding which is the living core of this conversational (S-O-L) paradigm. Thus, we are gradually developing the skeletal structure of a shared language (mode of representation) which can facilitate such C-endeavours. But behind this are the personal, private languages of each contributing C-Being. Thus the knowledge is the method and the method is the knowledge.

4. New Insights into the Nature of Scientific Enquiry

The carefully negotiated and scrupulously shared meanings from other C-communities of scientific enquiry do not offer an adequate language with which to pursue a Conversationally-Scientific Enquiry. Quite the converse. The explanatory systems of meaning generated by much traditional science are destructive of the conversational process. Terms such as 'cause and effect', "repeatable experiment", "subject v object", "probability", "induction-deduction", "logic" etc. Define a domain of meaning within which conversation may not be conceived. This is why the paradigm shift is required. The new language of the C-scientific (S-O-L) paradigm must arise out of a system of humanly significant, relevant and viable meanings generated by those involved in this same C-endeavour. C-Beings involved in the non-human sciences are becoming un-easily aware of the non-reflexive nature of the activities in which they are involved. Physical scientists for example are aware that they need to describe their activities in terms which are very different from those in the language of their own science. Philosophy of science, personal biographies of scientists and attempts to create psychologies and sociologies of science represent different attempts to model the scientific activity. We would suggest that the human sciences have progressed far enough to invite practitioners from other C-Communities of scientific endeavour to join us within our C-science paradigms. This would not only help them to understand their own endeavours better, it would also help us see a wide range of scientific methods as special examples of conversation in which one participant (the investigator) assumes that the other participant (the subject matter) cannot converse. Konrad Lorenz and Niko Tinbergen have shown that the conversational paradigm can be more fruitful than Skinners physical science stance towards animals. Perhaps a conversational approach to our environment (e.g. certain Indian tribes) could also prove more productive. There is a growing domain of meaning within the general area of Philosophy of Science that indicates that this process is already well underway.

5. Conversational-Science, Change and Freedom

As C-Beings begin to model their own processes, they achieve self-awareness. The C-scientific (S-O-L) endeavour recruits each and every C-Being and their M-G-Constituents into this reflective conversational activity. As each begins to model their own processes of enquiry they achieve awareness of change. The C-scientific (S-O-L) paradigm contains the processes of self-organised change inherently within it. As greater awareness of the processes of change is achieved by each contributing C-Being and as they converse one with another about this, we can glimpse the potential of this paradigm. S-O-L becomes the vehicle through which the processes of change can themselves be harnessed. As our understanding grows, we can organise ourselves to identify our real needs, negotiate shared purposes and achieve these through our insights into the processes of change.

It is this reflective 'awareness of the processes of personal change' component in the C-endeavour that offers each C-Being, widening opportunities for exercising more freedom. The degrees of freedom to be achieved are limited only by the domain of meaning to which C-Beings open themselves. The range, quality and depth of meanings generated defines the freedom that can be exercised.

Where the C-Being is a person we achieve the individual freedom that is mental health.

Where the C-Being is a group (a pair, a family, a team or an organisation), we achieve the social freedom which is the powerhouse of true democracy.

Where the C-Being is humanity or the living world, we can achieve a yet unimagined universal freedom which might …..

At each level the C-Beings can synchronise to produce a C-community of Self-Organised-Change.

The Metamorphosis of the Person and the Metamorphosis of Scientific Enquiry

In challenging our own myths about action research and human learning, we have transformed our own model of scientific enquiry. We have had to become our own scientist, artist, philosopher and modeller. We have self-organised our own metamorphosis as practising psychologists. We have used our model to enable others to achieve their own metamorphosis. Surely, this is a valid test for a conversational science? We invite all those who may be inspired by it to join us in exploring the universality of its refutation. Researchers, as self-organised learners themselves may consider how to interpret our model within a Popperian or Kuhnian mode. Falsification and deductive nomologicalism or a revolutionary science may offer them a resource.

They may see themselves as Logical Positivists, Empiricists, Romanticists, Hetmeneuticists or phenomenologists. They may be inspired by Lakatos, Feyerband, Sartre, Wittgenstein, Popper, Poetics or Dadaism. It is through this personal search for their own position, that each achieves their own metamorphosis.

S-O-L can be all this and more. As long as they reflect, reconstruct, create and experiment (i.e. investigate and observe) and evolve their own myths through their own experiences in time, space and quality, they are practising their own paradigm shift.

Kelly has shown us the way. In the UK, our PCP colleagues, Don, Fay, Phil, Miller, Eric, Mantz and Sharon are constructing their own PCP ways. Each of us within PCP can make new and exciting contributions to the paradigms of human endeavour, thus ensuring a more enduring and widespread future for PCP. We all owe Kelly and Don that.

S-O-L SOURCE BOOKS

Thomas L.F & Harri-Augstein E.S (1985)	Self-Organised Learning: Foundations of a Conversational Science for Psychology. Routledge & Kegan Paul. London
Thomas L.F (1987)	CSHL Intelligent Learning Systems: Software for Teachers, Trainers, Managers and Psychologists. Routledge & Kegan Paul. London
Harri-Augstein E.S & Thomas L.F (1990)	Learning Conversations The S-O-L Way to Personal and Organisational Growth. Routledge. London.

NOTE

The CSHL at Brunel University offers seminars, workshops, and postgraduate qualifications in Self-Organised-Learning. It also offers S-O-L Consultancy Services to outside organisations, large and small. The CSHL Intelligent Learning Software Systems (ILS) for supporting S-O-L are also available, as well as over 200 Technical Papers, based on Action Research. Two books, jointly authorised by L F Thomas and E S Harri-Augstein "Self-Organised-Learning" (RKB 1985) and "Learning Conversations", (Routledge 1989 in press.) can also be made available from CSHL. For further details write to:-

The Secretary,
Centre for the Study of Human Learning
Brunel University
Uxbridge UB8 3PH