(Chapter in Book)

Reflecting on Structures of Meaning: A Process of Learning-to-Learn

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1. INTRODUCTION

1.1. Personal Knowing and Public Knowledge

The culture of any given society (its Arts, Science, Technology, Religion and Social System) is characterised by a vast array of artefacts; products which represent the ways in which individuals and groups have sought to express and record meaning. A Tibetan 'thangka' * (illustrating The Peaceful Buddas, the Buddas of Knowledge and the Wrathful Buddas) which summarises Tantric-Buddisticonography offers one pertinent and beautiful example. Equally relevantly, one could have chosen a Welsh love spoon, a Bob Dylan folk poem, the Great Pyramid of Cheops or a 3-dimensional model of D.N .A. These artefacts represent a store-house of society's strongest and most enduring systems of public meaning; the mindpool of a culture, (to draw an analogy from the neo-Darwinist concept of the 'gene pool').

A personal construct psychology must inevitably concern itself with how each individual interacts with this mindpool to construct personally satisfying, significant and viable meanings. Such 'meanings' will enable the individual to continue transacting effectively with the events, people and objects which make up the realities of his or her world. These personal understandings offer better insights into individuals' own processes and enhanced communication with the processes of others.

In slow changing societies the equilibrium between processes of socialisation and self-actualisation is such that the structures of public meaning and the purposes embodied in these remain fairly stagnant. The 'mind pool', stabilises into a system of meaning which is preserved as ritual land dogma. Within such societies the individual, for example an architect, is expected to learn the rules and content of the mindpool and to practise these in the ways specified by the culture. In our contemporary society, partly because of the pressures created by the fast-changing social and technological conditions and partly because of the person-centred philosophical creed of the times, the balance is much more towards the renaissance of the individual. There exists an increasing emphasis on innovation, on a questioning of existing realities and on a celebration of awareness as Illich ardently expounds.

Within the crisis-ridden conditions which prevail in current societies, the structures of meaning of today can become the chains of tomorrow's mind. Emphasis needs therefore to be given to the processes whereby personal understanding is achieved rather than to content of knowledge per se.

*Footnote: Throughout the presentation of the paper coloured slides were used to provide alternate non-verbal stimuli for construing.

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Awareness and control of the process by which meaning is attributed enables the individual to develop a mode of construing which facilitates competency in ongoing transactions with chosen realities. It is this which becomes the selective factor in the struggle for personal growth and social survival, not knowledge and expertise in the content of the mindpool itself. Learning how to learn therefore has a central function to play in contemporary education, and a self-organised learner can create personally viable structures of meaning from within a repertoire of idiosyncratic needs and purposes. Both the content and the purpose of the mindpool become changed as individuals seek to personally express and find themselves within their social context.

Becoming a self-organised learner depends on overcoming the basic tendency towards the maintenance of stasis and the practise of habitual mechanisms of thought and behaviour, so that alternate ways of acting on, and experiencing the world can be sought. The robot-in-man then becomes servant rather than master, and the learner is freed to explore and develop competence. An individual can then stroll around the system of public meaning in a given society and remain free to interact with it in personally meaningful ways. Despite this fairly obvious argument, current educational practice gives much too much emphasis to dogma at the expense of personal knowing. Ranulph Glanville's work with architectural students is a particular exception which proves the rule.

1.2. A Multi-faceted Approach to Meaning

Individuals experience and express thoughts and feelings in many forms. Meaning is expressed in the kinaesthetic sense of the voluntary muscle system, in the visual, auditory, tactile and olfactory sensory systems as well as in a symbolic pattern of relationships which are continually being constructed as a person interacts with the world through the mediation of language. In riding a motorcycle, chairing a meeting, or reading a book, the emphasis given to each form within the total system of meaning will differ, but each plays its part, within the person's construing.

Our use of language plays a key role since the symbolisation of things, events, people and ideas relates richly and complexly to our sensory and behavioural experiences. Often we are only partially aware of this vast and complex system of meaning within which we operate. It becomes difficult to communicate this meaning to oneself or to others. To attempt to teach another to ride a motorcycle shows one, that although this understanding is represented in our personal knowledge, very little of it is in symbolic form. Rather the meaning is in the muscle sense and organisation, in visual experience linked to balance and motion, in the feel of the hand on the throttle and the foot on the brake, and the visual perspective of the road. Similarly, the architect's appreciation of space is largely non-verbal.

This partially tacit understanding influences the ways in which we anticipate, act out, and revise our views of our personal world. Attempts at the outward expression of this multi-faceted and tacit system of meaning can facilitate the construction of more personally significant and viable representations of knowledge. This depends on the development of an awareness of the 'self in process' and of 'others in process'. The outward expression of meaning can be used as a MIRROR of process and reflecting on this reflection can enable individuals to review and develop their competency as learners. This mirror should reflect meaning in terms which are compatible with the original experience.

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Unfortunately, education gives too much emphasis to symbolic forms of meaning, these cease to be means, becoming ends in themselves, a pattern of abstract relations divorced from other forms. This monolithic concern with symbolic understanding, particularly in the middle school and in higher education, may well result in other aspects of meaning degenerating into vestigial modes of representation so that an individual's potential for creating a wide-ranging system of personal meaning becomes impoverished. The word 'academic' often conveys this. Also too little emphasis is given to developing insights into personal processes, so that a high percentage of 'the educational product', society's youth, end up as fairly effective robots, totally vulnerable and unable to cope in a rapidly changing and stringent environment.

2. EXAMPLES OF WAYS OF REPRESENTING MEANING

During socio-psychological evolution, man has devised means of expression which have become very powerful instruments for embodying different classes of meaning. A few selected examples of how meaning can be represented serve to illustrate the wide variety of ways of construing that can be generated by man and woman.

A Christian view of the act of creation as interpreted by Heronymus Bosch depicts Adam and Eve in the original garden. On the other hand the shri-yantra which is the most powerful meditative yantra in Tantric-Buddish philosophy, interprets creation as a reversal of genesis depicting time as a projection of human experience and knowledge.

The idea of 'womanhood' has been represented in infinite ways within various cultures. Kirchner within the movement of German expressionism and Corot within French impressionism, depicts woman in her daily life, smoking a cigarette in a cafe and reading at home. In Tantric art Radah awaits Krishna, adorned for her daily life, and the woman as Goddess is depicted in the Tantric Kali.

The relationship between man and woman has been expressed in sculpture, painting, and in symbolic prose. Maillol illustrates the pair as a loving couple, Henry Moore as a family unit and Tantric Art as joint seekers of self-actualisation within a sexual relationship. The Tantric view of psychological process depicts man and woman (Shiva and Shaki) in complete union joining in the totality of experience an separating into an acceptance of a subjective-objective view of the world.

Another completely different class of meaning is represented in the findings of science. The double-helix model of D.N.A., the structure of the Retina are two typical examples from Western science. A Talisman for tapping the vitality of the brain represents an Eastern example.

Within different cultures a variety of ways exist for exhibiting the structure of knowledge. Gordon Pask has developed the Entailment Structure and Laurie Thomas the Focused Grid. Within biochemistry, flow diagrams describe the complicated pathways of physiological processes. Lama Govinda depicts the structure of consciousness as pyramidal planes of existence, and Chinese calligraphy represents 'happiness' in 100 different symbols.

Two very different ways of representing the human body are epitomised within the physio-anatomical systems in the tradition of analytical Western medicine and as a system of energy forces or chakras in the tradition of Eastern psychology.

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Again, in verbal language there exists a vast range of different forms of representation from Joycean prose, Bardic stances, Haiku poems to Sufi tales. Noh or Pinter drama, ballet, mime, mathematical proofs, chemical formulae, maps, plans, temples, Zen drawings, and Islamic carpets are all equally valid forms that man and woman have sought to express meaning.

Each example is highly selective, enhancing some aspects of meaning at the expense of others and represents an end point in a specialised search for expression. The problem is that such particular artefacts or final forms have become objects of knowledge rather than examples of how personal meaning is sought.

Even when examples show the processes of expression quite clearly, as in some Art sequences, mathematical proofs or in music, the teaching emphasis is toward selling existing languages, rather than in creating wide-ranging personal means of expression. Often in educational curricula, attempts at the exploration of meaning have been packaged into separate historical studies. Education fails to emphasise the importance of early attempts at grappling with knowledge, whereas it should consist of such battles. The 'discovery method' should be implemented within a pedagogical framework describing the conversational interaction of 'the learner in process' exploring the chosen resource. This is quite a different view of discovery learning to that embodied in the Nuffield syllabus and to that held by those exponents who believe that the process itself needs to remain semi-mystical.

3. REFLECTING ON THE REFLECTION

Individuals can be encouraged to experience the processes whereby meaning is created and hence learn to learn by systematically reflecting upon the terms in which they think, feel and act. This depends upon a conversational interaction which accepts both the learner and the tutor, therapist or researcher as potential equals. Each represents a semi-autonomous mode of communication and control. Whilst the contributions of each may be of a different kind, they are of equal value. The learner can tap his or her own experience aided by the researcher's technology, and conversational skill.

This technology must enable the researcher to mirror the learner's processing so that this can be made at least partially explicit. The mirroring device must be capable of tapping the multi-faceted resource of personal meaning experienced by the learner.

Many of the artefacts in society can be recruited as mirroring devices. Either by constructing such artefacts or by attributing meaning to the artefacts created by others, individuals can be helped to become aware of and review process. The contemplation of a Gerald Manley Hopkins poem, writing an article, building a boat, reflecting upon a Surrealistic Still Life by Griz or Dali, can be equally powerful ways in to process. Again, observing the strivings of others, for example the paintings by Van Gogh from 1886 to 1890 or the drawings of Leonardo de Vinci as recorded in his Notebooks displaying experimentation with the visual representation of beauty through perspective, light and shade, can lead to insights of personal process. The problem with using these artefacts as 'mirrors of process' is that they represent highly developed and content focused devices and one level of purpose is embedded in their form and content. Unless the individual learner is capable of transcending this to arrive at a meta-description of the processes involved in constructing or attributing meaning to these artefacts, he or she will remain imprisoned in content and therefore almost totally unaware of process. Specialist psychic mirrors on the other hand can be designed so that the learner is

elevated to a description of process. But, what kind of descriptive system and display device best captures the psychological processes of construing?

Psychology has fallen into the trap of continually producing statistically-based descriptions such as Personality categories, IQ and Creativity measure and Semantic Differential scales, with which the individuals concerned feel uneasy as descriptions of 'the self'. Rogers' gigantic step inwards into process laid the foundation for exploring the conditions of change but he pays little attention to the modelling facility itself, the unique inner processes which initiate, sustain and restyle the 'cognitive maps' of a person. Husserl opened up a new vista of phenomenological investigation, but psychology had to wait for Kelly's metaphorical conception of 'man the scientist' for the development of the personal biography and the repertory grid as tools for the personal description of meaning. It was through Kelly's craft that a breakthrough was achieved into a Humanistic Technology that allows meaning to emerge in individual terms and yet retain some systematic form.

Let us consider very briefly the necessary attributes of a psychic mirror. The device must be capable of:

i) exhibiting meaning as part of a hierarchically organised system,
ii) tapping personal meaning in all its fullest aspects, as experienced by the individual;
iii) enabling the individual to become aware of the intentionality which influences thought, feeling and action;
iv) allowing the exploration of meaning in its most bizarre or idiosyncratic form;
v) realising the anticipatory nature of the construing process.

4. A REVIEW OF THREE PSYHIC MIRRORS

Within Humanistic psychology a number of mini technologies have emerged for facilitating awareness and change. The Encounter Group Movement, Psycho-drama, and Role playing are some examples. Within Personal Construct Theory, the Personal Biography and the Repertory Grid represent two powerful devices.

4.1. The Personal

This allows a personal self-image to emerge and uses the complexity and innovativeness of the free form of natural language, but this linear form of expression is so well practised that it may fail to raise new levels of awareness and the learner remains within a robot-like routine of thought, feeling and action. As a free form of self-observation the biography presents a useful tool once the person has experienced more systematic procedures for awareness-raising and control.

4.2. The Repertory Grid (Fig. l - The Focused Grid)

This allows personal constructs to emerge as a representational model of an individual’s world. These constructs are hierarchically organised into a system within which meaning is attributed, stored and applied. But, the use of the grid as a mirror of process depends on the skill and sensitivity of the elicitor. As an interpretive image of personal meaning the grid only partially captures the model building and 'acting out' process of construing. The technological and methodological innovations developed by members of the Centre for the Study of Human Learning as reported in the symposium, serve to develop the grid as a more encompassing

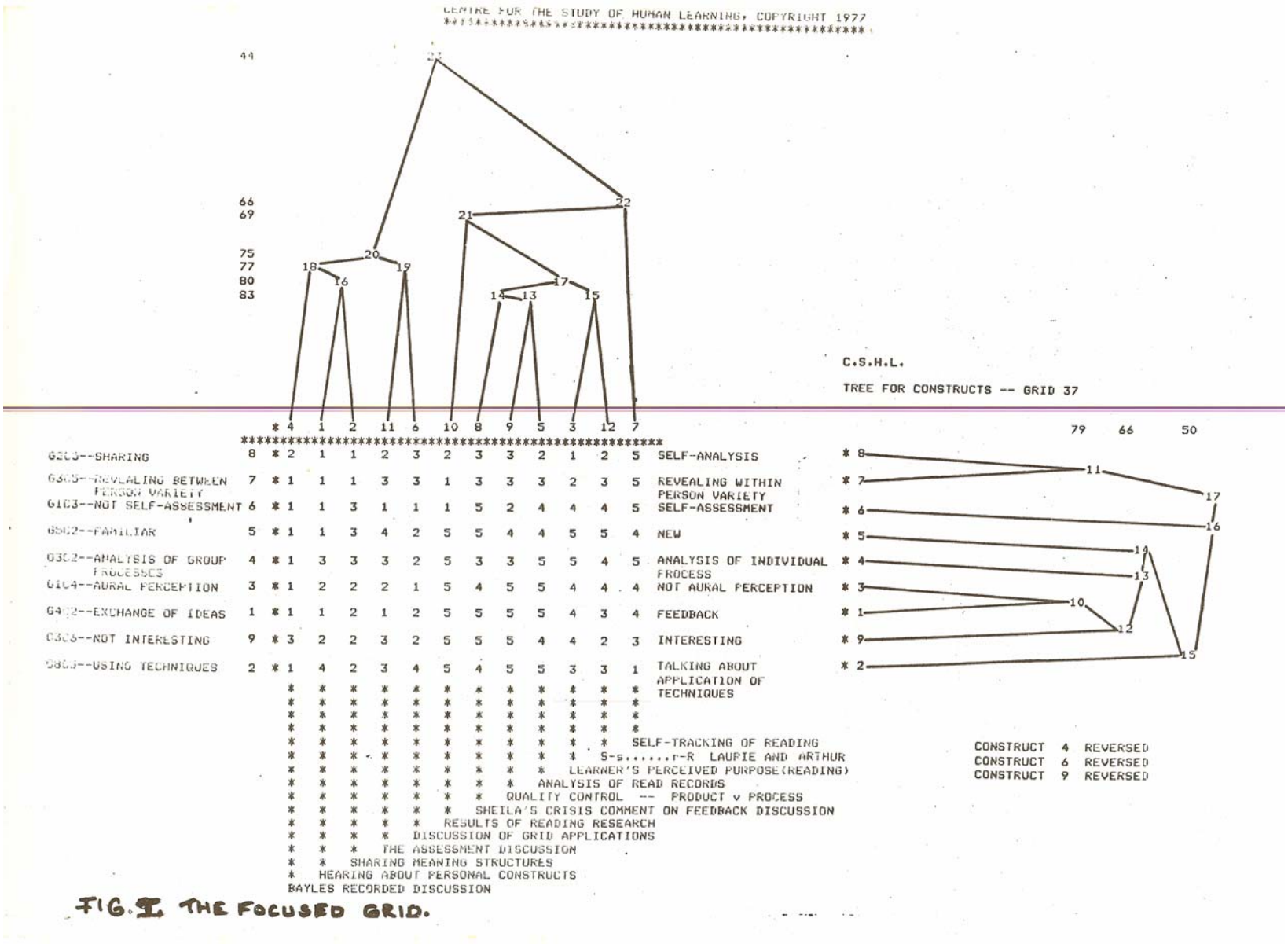

FIG. I. THE FOCUSED GRID.

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tool for psychic mirroring, so that the software aspects of its use are steered into hardware. This provides greater rigour and precision and ensures validity within the conversational paradigm. The period of apprenticeship in its effective use as a mirroring device becomes therefore minimised.

The advantages of the grid can be briefly summarised:

i) the elicitation process is explicit and systematic;
ii) meaning is embodied and displayed within a relatively simple format;
iii) a structure emerges, particularly when the grid is focused (elements and constructs clustered so that they are displayed in a new relationship), which shows that a person's model may be much simpler than one might initially believe;
iv) the structure of meaning so displayed enables the individual often for the first time to become aware of the tacitly known experiences which influence construing;
v) the structure is so systematic that the individual can easily begin to explore, review and develop control of the construing process.

However, by its very nature the grid is limited in terms of its sensitivity in tapping meaning, its failure to exhibit the relationships between items of meaning and by its low predictive powers. The disadvantages can be summarised as follows:

i) It does not display the natural hierarchy of meaning within a given range of discourse; (Even in a focused grid as shown in Fig. l, the hierarchical tree diagrams only serve to indicate the closeness of relationship between elicited items.)
ii) the grid matrix restricts the pattern of meaning to a 2-dimensional format;
iii) the process by which the description of meaning is arrived at tends to be reductionist, with the analysis of parts gradually built up into a holistic pattern;
iv) the compare and contrast bipolar differentiation of elements into similarities and dissimilarities in the ways a person perceives and conceives the inner and outer world may push meaning into convergence very early on in the conversational elicitation, so that much of the potential richness is lost;
v) the grid fails to display the kinds of relationships between items of meaning; rather it expresses the characteristics of these items. A construct expresses one dimension of meaning only. This limitation can be partially overcome by means of a 'relationship grid' in which constructs represent dimensions of relationships, but this would be a special case. Even so, it is only when a construct refers to specific elements that the relationship, such as 'cause and effect' or 'a contains b' represents any real meaning. When applied across all the elements this becomes an abstraction;
vi) intentionality is expressed in the grid, although it is implicit in the range of elements selected and in the repertoire of personal constructs. Every aspect of meaning has a purposive component to it which influences the directionality of construing within an n-dimensional non-Euclidean space. Exhibiting purpose is an important aspect of mirroring, which is lacking in the grid;
vii) as an expression of meaning at one given time it fails to take the sequential process of construing into account. The anticipatory and predictive aspects of 'man the personal scientist' constantly inventing models of his own reality and

using these as a basis for anticipated action, and revising these models in the light of ongoing experience, are not made explicit in the grid.

Although the grid can be a very powerful device for confronting an individual with tacit ways for modelling the world, it has serious limitations as a mirror of a 'person in process'. Many 'grid tricks' have been developed at the Centre to overcome these; the weighting of constructs to exhibit intentionality by means of the Raiffa technique, a method for comparing grids in a temporal sequence, as well as computer-aided conversational feedback, represent some of these innovations. Clearly, there is scope for the further development of the grid to become a 'harder' and more universal tool for mirroring process.

However, the time is also ripe to stand back and consider the development of other descriptive devices. What needs to be developed is a whole library of descriptive systems, each with its own characteristics, to be recruited by the two conversationalists, (the participant subject and the participant elicitor), as they negotiate the directionality and intentionality of what is to be brought into awareness and control.

4.3. The Flow Diagram

One such device is the Flow Diagram Technique. This displays the multi-dimensional relationships between units of meaning, within a chronological or time sequence. This is therefore one advantage over the grid. The horizontal axis displays the descriptive categories and the vertical axis displays the sequence. The arrows specify the relationships between items. Levels of description of meaning can also be displayed in successive flow diagrams. The elicitation of the display is more 'holist' than the grid, since each unit of meaning has to be considered in relation to its sub-units and also in the context of the supra-ordinate units before it can be categorised within the descriptors of the flow diagram. Its major disadvantage is that the categories for classifying the items of meaning (the descriptors) are arrived at early on in the elicitation process, whereas in the grid the categories (the constructs) are open to exploration throughout. (Fig.2 - A Flow Diagram.)

Again, it is possible to adapt the grid format to give two systems for arriving at a non-Euclidean description of relationships. If one takes a very large grid with many non-applicables, a complex of mini-grids within one maxi-grid is displayed. One series of constructs apply across all elements, others split the main grid into sub-clusters. (Fig.3 - A non-applicables grid with clusters.)

Once one begins to consider the positive and negative attributes of each display device, it becomes possible to design and develop additional devices, the specific characteristics of which serve some particular function within the learning conversation. Alan Radley uses conversational triads to raise awareness of how each of three learners respond to written or spoken utterances. At another level of awareness and control, the wide variety of bio-feedback devices can be effectively recruited into the learning conversation. Heart rate, blood pressure, and smooth muscle response can be brought under greater control, as this has been demonstrated by Neil Miller and others. The Tibetan wheel, yantras and mandalas are equally proven devices within Buddist cultures.

Within the context of this relativistic approach towards the development of mirroring devices, it is useful to briefly review their attributes:

FIGURE 2: A FLOW DIAGRAM

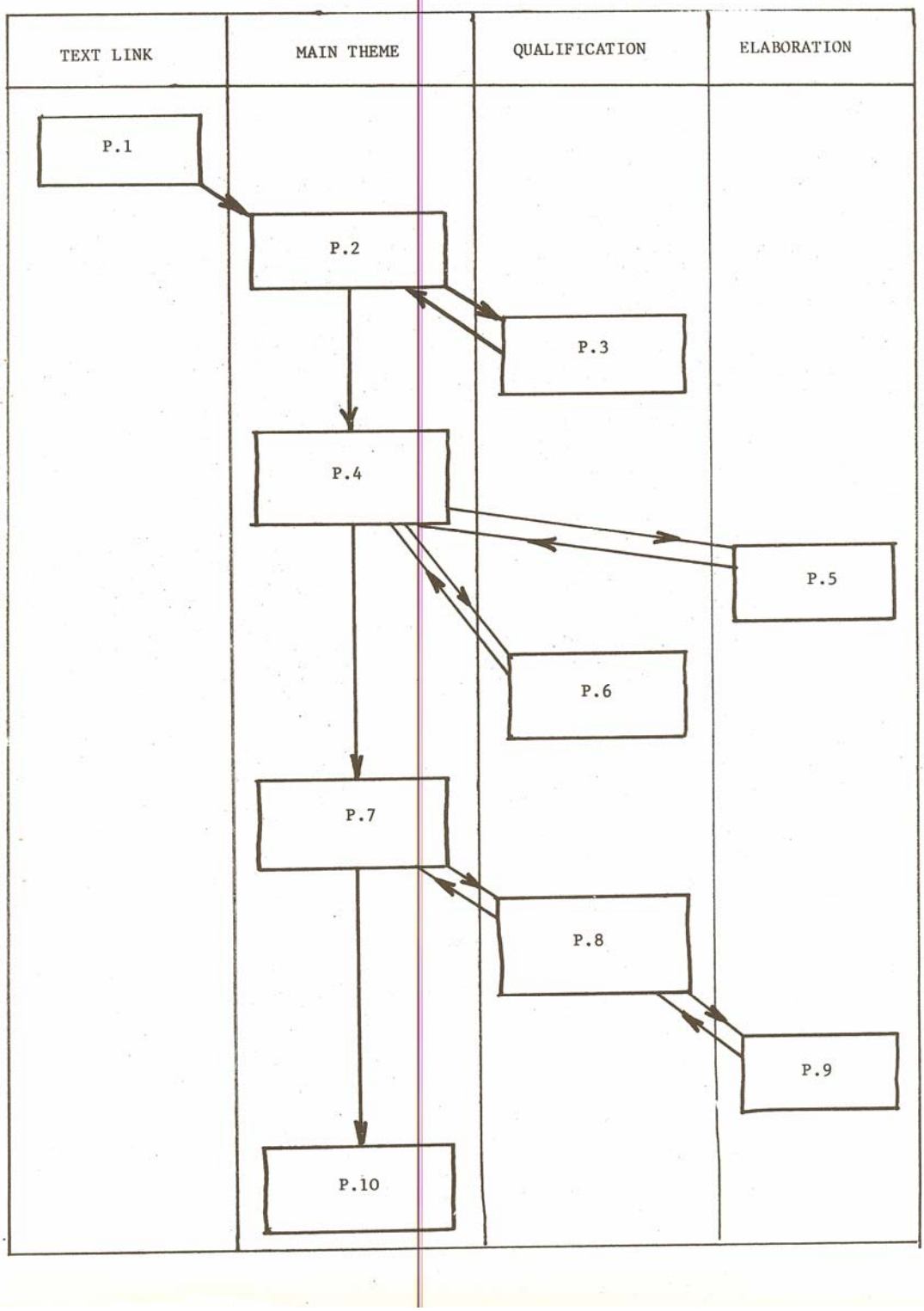

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FIGURE 3: A NOT-APPLICABLES GRID

	E.1	E.2	E.3	E.4	E.5	E.6	E.7	E.8	E.9	E.10
C.1			2	2						1
C.2			2	2						
C.3		2					2	1	1	
C.4		2					2	1	1	
C.5	1	2					2	2	1	
C.6	1				1	2				
C.7	1				2	1				1
C.8			1	1	1	2				2
C.9			2	2	1	2				2
C.10		1						2		

(i) The items of meaning should be 'naturally occurring' and exhibited within a hierarchical system of meaning, capable of tapping the multi-faceted forms of representing and experiencing personal meaning.
(ii) The relationships between items should be explicitly displayed and these should also be 'naturally occurring' and not constrained by logical thought.
(iii) The device must be capable of expressing thought and feeling as a pattern in time. Causal models, from repetitive cycles, probabilistic, as well as those from the physical science paradigm and general systems theory need to be explored and displayed.
(iv) The intentionality influencing thought and action must be made explicit.

Simulation by computer systems tied to a graphic display may be the best yet for displaying the construing process in its totality. This has the advantage of displaying process faster than real time. But other cultures have arrived at effective systems in other ways. The realisation of a Tantric model of all thought and time represents one such way.

5. TOWARDS A LIBRARY OF DEVICES FOR DISPLAYING STRUCTURES OF MEANING

We have developed a kit of mirroring devices aimed at meeting the four preceding criteria. (Fig. 4 - An overall description of the Kit.) This kit serves two different learning-to-learn purposes.

(i) It is devised to make explicit the mechanism of externalising personal meaning for self-reflection and the mechanism for the exchange of meaning in communication with others.
(ii) Because of the unusual nature of the techniques and procedures it raises awareness of personal process at a meta-level of description.

The underlying principle is flexibility and relativity for elicitation and display of meaning within a conversational paradigm. PART A of the Kit facilitates the self-reflection of personal processes. It introduces a battery of procedures for:

(a) the elicitation of items of meaning,
(b) sorting these items into a structure of meaning,
(c) displaying the structure, with items of meaning in a specified relationship,
(d) reviewing the whole process.

These procedures are summarised in the algorithm on Fig.5, and a diagrammatic representation of one structure of meaning is shown in Fig.6.

Seeking specific relationships between items and particular modes of display leads inevitably to selectivity. The criteria underlying the selection of structures will relate to the person's intentionality. It is of crucial importance to bear in mind the relationship between purpose and the structure of the display. A highly purposive display device can be very selective and refined. Architectural plans, and Electronic flow diagrams are examples of such devices. Whereas in less purposive more open-ended devices as in structures of meaning displayed in Art, intentionality is more freely expressed. Each device may have a role to play within the conversational encounter.

PART B of the Kit is concerned with exchange of meaning. Fig.7 illustrates a procedure for two-person exchange, and Fig.8 illustrates in diagrammatic form a structure of meaning

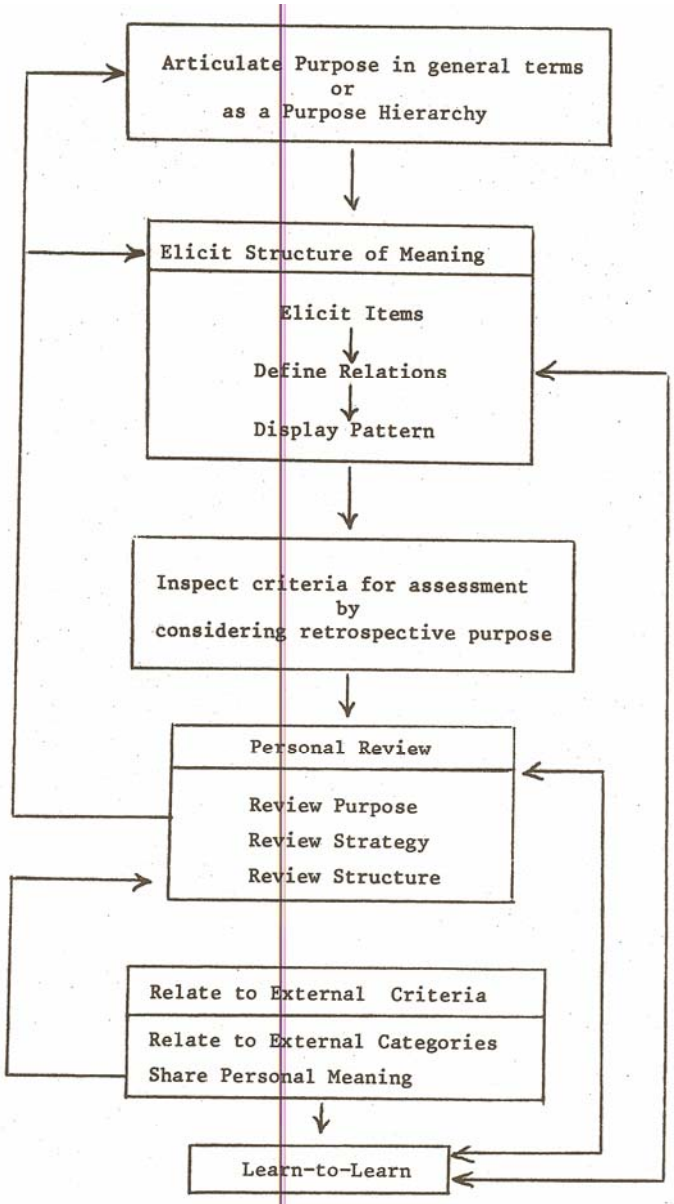

Fig.5 AN ALGORITHM FOR DISPLAYING AND ASSESSING STRUCTURES OF MEANING

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STRUCTURES OF MEANING

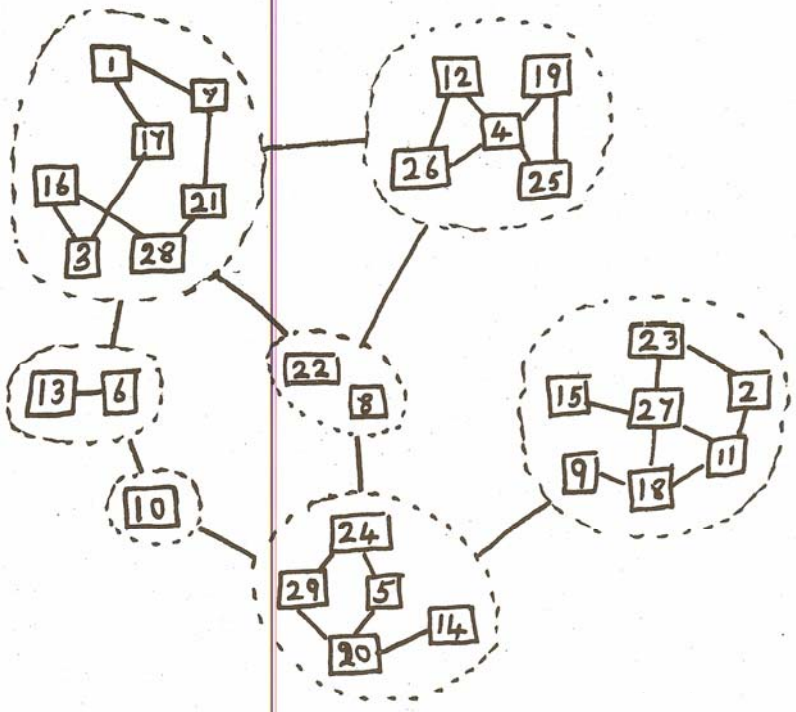
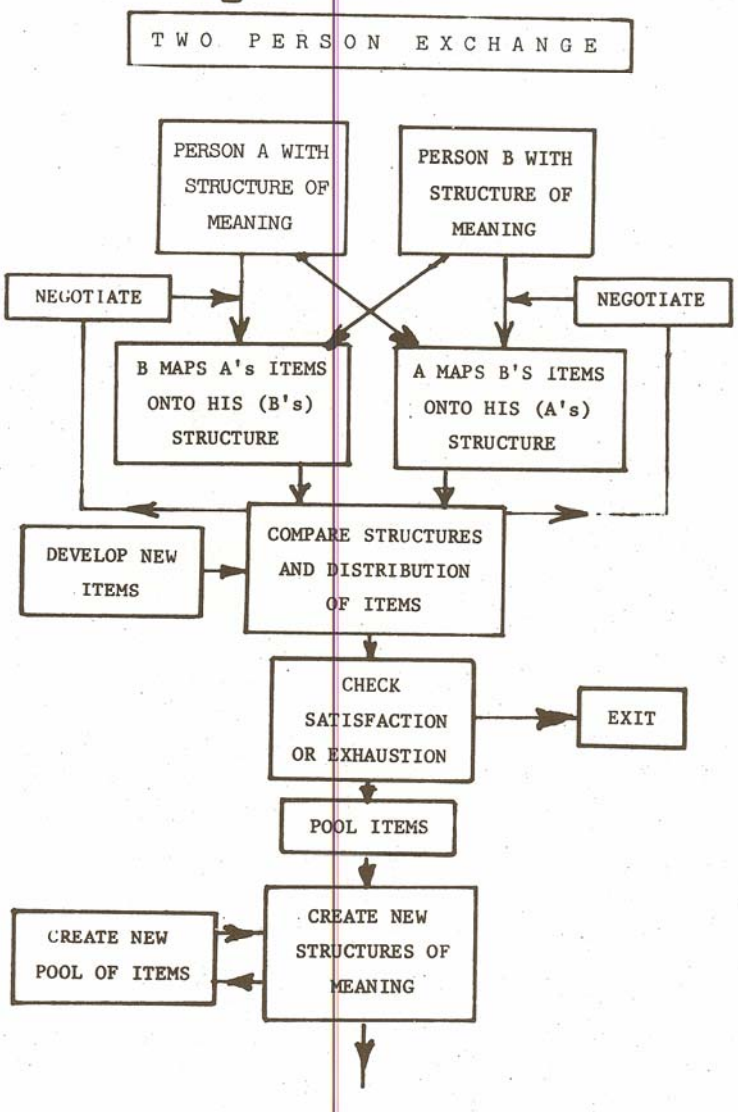


Fig. 6. A NET

Fig 7.


TWO PERSON EXCHANGE
PERSON A WITH STRUCTURE OF MEANING
PERSON B WITH STRUCTURE OF MEANING
NEGOTIATE
NEGOTIATE
B MAPS A's ITEMS ONTO HIS (B's) STRUCTURE
A MAPS B'S ITEMS ONTO HIS (A's) STRUCTURE
DEVELOP NEW ITEMS
COMPARE STRUCTURES AND DISTRIBUTION OF ITEMS
CHECK SATISFACTION OR EXHAUSTION
EXIT
POOL ITEMS
CREATE NEW POOL OF ITEMS
CREATE NEW STRUCTURES OF MEANING

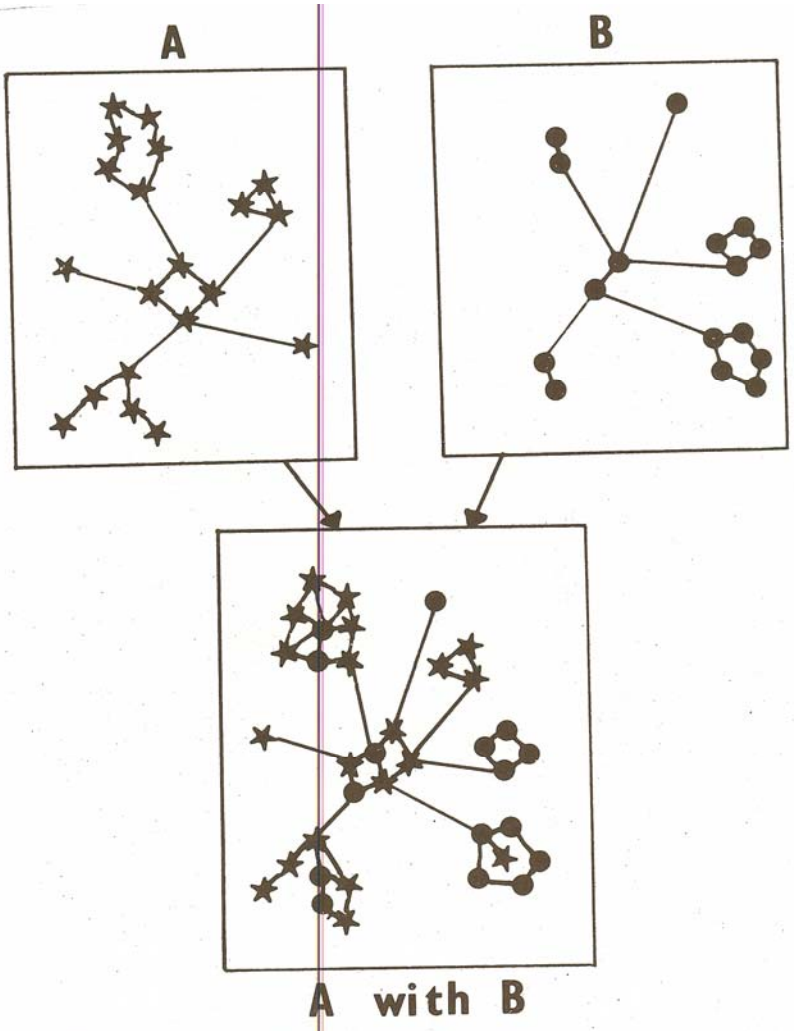


Fig. 8. A shaded structure.

resulting from such an exchange. One learns to learn not only in the context of one's own personal process but also with reference to the processes of others. Techniques and tools for negotiating shared meaning may involve entering completely into another's world, compromising or truly creative encounters. Individuals are encouraged to choose appropriate referents (people and multi media resources) for developing their personal understanding by remaining firmly within their own meaning attributing processes individuals can begin to relate these within the wider perspective of public experience, the mind pool of the culture.

6. PURPOSE AND STRUCTURE

Whilst the maverick of the fully developed learner can take-off within the artefacts offered by a culture, so that these become a tool for arriving at a meta-description of process, most of us fail to achieve this. Education is partly to blame. The Kit aims to systematise the meta-description of processes within a social context. The conversational paradigm it offers becomes a mode of articulation of experience which can be applied to all other forms of expression of meaning. The individual is freer to question all existing artefacts and the content these embody. Such artefacts can then become tools for the expression of meaning, and for the exploration of personal processes. Everyone can be encouraged to achieve this level of freedom. It depends on the recruitment of the appropriate tools and the internalisation of the conversational procedures.

7. LEARNING-TO-LEARN

Education and Therapy often fail to elevate people to a level of awareness of process, whereby they can free themselves from the shackles of dogma, self perpetuating cycles of activity and absolutist construing. Learning is best defined as the quest for personal construction and exchange of viable models of meaning to act on and within the world. Learning-to-Learn depends on developing a capacity to reflect on such personal processes of construction. The search for appropriate structures for embodying meaning, will itself facilitate the modification and extension of these structures within the ongoing experience. Such structures become viable as they enable the individual to transact effectively with the people, objects and events in the personal world. Structures of meaning need to be brought under review during certain phases in a person's life; otherwise habitual mechanisms of construing may once more take over.

Not only does the conversational paradigm need to be internalised, but it must also be extended outwards in a person's life space from learning-to-learn to overall learning contracts and to conversations in life.