

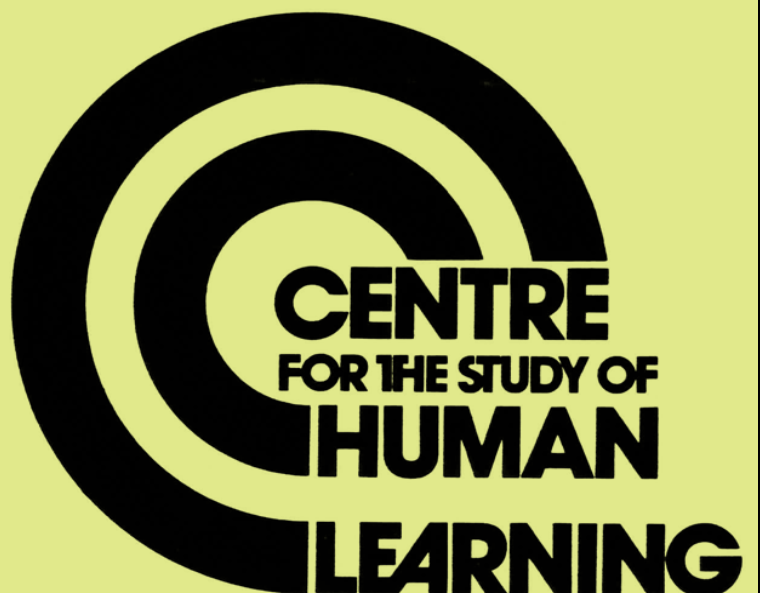
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Management Decisions: Mapping Construing on Behaviour

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The project described in this paper spans the eight years 1973-1980. During this time the author developed the techniques described while working with several hundred industrial and commercial managers. The case study outlined occupied two or three days in a longer ten day programme. Various component parts of the programme were run in the U.K., Africa, India and the Far East.

The work falls naturally into three distinct phases each of which deals with a specific aspect of the recording and mapping techniques.

Phase 1 - 1973-1976

During this phase two objectives were set. Firstly how could the process of probing the problem space be recorded and fed back to the individual manager as a description of his own problem solving activities which he could then reflect on. Secondly, how could the problem solving process be linked, in a rational way, to the relationship the manager has with his working group. Both of these objectives were met in a manner which the managers found acceptable and useful.

Phase 2 - 1976-1979

In establishing that different managers employ widely varying processes while solving an identical problem phase one obviously posed the question, "why is this so?". Phase 2 set out to answer this question by using George Kelly's hypothesis that each man is his own scientist in the sense that he uses a process designed to enable him to relate to his world in a reasonably effective way. A technique was invented which enabled the options taken by managers in problem solving to be used as elements in a repertory grid. The elicited constructs then provided an insight into the way in which construing shapes behaviour.

Phase 3 - 1979-1980

Recording the path taken through the problem space and mapping construing onto behaviour revealed frequent aberrations from a purely logical path. It was found that emotional outbursts labelled as frustration or anger for example often disrupted the rational problem solving process. During Phase 3 a complementary recording/mapping technique was evolved which enabled the manager to record his thought processes and feeling during the problem solving process. This was followed by an analysis of the beliefs which gave rise to the feelings.

Learning Conversations

During Phase 1 time was allocated for individuals to reflect on their chosen paths through the problem space. This was followed by an open session during which comparisons were drawn. In Phase 2 this method was replaced by the introduction of learning conversations between

pairs of managers chosen because of their different paths through the problem space. Pairs were encouraged to explain to their partner the reasoning and feelings experienced while engaged in the exercises and the reasons why they chose the path they did. Each tried to understand and learn from the other. Finally each dyad made a joint presentation to the group in which they concentrated on what they had learned about themselves during the days exercise.

PHASE 1

Plotting Progress Through the Problem Space

The theme "mapping construing on behaviour" was set within the context of managerial problem solving. In order to reduce such a vast subject to more manageable proportions problem solving was diluted to solving one specific and typical problem. This was further constrained by presenting the problem in the form of an action maze. Because of the need to constantly refer to the problem solver this term has been reduced to PS.

An action maze states a problem and then gives the PS a choice of, usually, four or five, alternative actions. When the PS has chosen the action which he considers to be the most likely to lead to his preferred solution, in terms of his present knowledge state, he is presented with the consequences of his act. The statement typically begins, "you have decided to as a result happens. What approach would you follow now?" The PS is then offered another group of alternative acts from which he must once again choose one.

There obviously has to be a certain logic which provides the values making some choices more or less advantageous than the others. It is this logic which supplies the essentials of the lessons to be learned. The action maze used in this exercise permits more than one strategy to play itself out. Nevertheless it does unquestionably favour one strategy above all others.

The built in logic of the exercise enables the direction of any choice to be determined by the tutor and so evaluated in terms of the concomitant options.

It is thus possible to construct a two dimensional problem space in which knowledge states or modes are incrementally developed. The direction taken by the PS from any given node is then determined by the extent to which he follows the inherent logic of the case. Following the logic results in left to right progress out of the maze towards a solution, i.e. while transgressing the logic results in right to left movement which propels the PS back into the maze. Additionally, in this particular action maze, actions which neither follow nor transgress the logic in any significant way will result in a movement in the second dimension which sustains the current level of progress.

Recording

As the PS makes his way through the maze he makes a sequential record of his choices, this prevents him from benefited from knowledge concerning his direction of progress. Only when he is out of the maze does he transfer his choices from the sequential record to the schematic problem space. It is on the completion of the transfer that the individual path through the problem space becomes apparent.

Joe Bailey Case Study

The first decision which the PS makes, either consciously or unconsciously, is in respect to the nature of the manager's job as he perceives it. Having become aware of an unsatisfactory situation what does he do about it. The construction of the maze is not neutral. Should he seek more information or should he take immediate action? What should be his major concern? The underlying assumption in the maze design is that there is not sufficient information to warrant action. Managers taking action are therefore penalised while those who seek information regarding why the problem exists are rewarded by a positive move through the maze. The purpose of the maze is consequently to provide a setting in which a manager experiences the benefits from seeking the causes of problems and the penalties of precipitous action.

The great benefit of having a schematic diagram of the PS's path through the problem space, for both learner and tutor, has been that comparisons between diagrams serve as a tangible focus for discussions in which each PS can learn how his strategies for dealing with this type of problem contrasts with the strategies adopted by others.

Problem Solving and Management Style

There is an obvious and influential relationship between the strategies used by managers when solving problems and the ways in which they interact with other members of the same organisation. This relationship is usually expressed as management style and has been a key issue in management theory and practice. Management/employee relationships are also a political issue. Worker participation means worker participation in decision making. It is not surprising then that managerial problem solving strategies have attracted a great deal of attention.

Plotting a path through the problem space emphasises the influence exerted by the intrinsic nature of the problem on the PS. A consideration of the interface between problem solving and the quality of human relationships within organisations points up the extrinsic influence imposed on the PS by the need to be 'democratic'. The problem is an entity capable of being considered in isolation. However the problem is also set in a milieu which puts a high value on co-operation. The path through the problem space can be viewed as the trace left by the thought processes by which the PS dealt with this issue.

Previous Research

In the late 1960s and early 1970s Vroom and Yetton developed the idea of using standardised problems to explore both the normative and descriptive nature of the interdependence between decision making, leadership and organisation behaviour. The outcome of this work was published in 1973¹. In this work a decision tree based on situational variables provides a decision process flow chart for both individual and group problems. It was this research which provided the starting point for a model developed by Professor Ian Wallace and myself during the period 1973-1975.

¹ Leadership and Decision Making, University of Pittsburgh Press

The Vroom and Yetton model is based on the proposition that there are a number of discreet social processes via which problems are translated into solutions and that these processes vary in terms of the extent to which subordinates participate in the problem solving process. Four basic processes are described. These are: autocratic, consultative, group and delegation. In practice these four processes were found to be inadequate in the sense that managers made use of more options. The problem was to elaborate the model so that it offered the full range of options actually used by managers. Eventually eleven behavioural options were included as "built in" outcomes of the decision tree.

Although all available options were logical outcomes provided by the mix of situational attributes, present or absent in the particular circumstances, the model was never used in a normative manner. The manager using the decision tree was always encouraged to use it as a heuristic tool which enabled him to discover the nature of non-logical decision processes in his working environment.

PHASE 2

Mapping Construing on Behaviour

Plotting the path taken by individual managers through the problem space had illustrated a number of interesting features of problem solving, firstly that the different pathways represented different personal strategies which were the consequence of either conscious or unconsciously held previously experienced.

Secondly that frequently the PS was not solving the specific problem with which he had been presented. Rather he was solving a general category of problem. This was made evident by the fact that the PS was rarely able, at any point in the problem solving process, to summarise his knowledge state. What he could do was to rehearse the typical features of such a problem and the nature of the action required from him.

Thirdly it became very apparent that the route through the problem space was often the consequence of both rational and intuitive, impulsive or emotionally inspired non-rational acts.

Employing Repertory Grid

Kelly's "The Psychology of Personal Constructs" offered a structured way of thinking about the likely processes employed by managers when solving problems. The individual and commonality corollaries seemed particularly relevant to an examination of why different managers took different routes through the problem space. This line of thought eventually led to the decision to use 'Rep Grid' as a practical approach to mapping and feeding back to managers the different constructions which they jointly placed on the same events, and from this, the different behaviours.

Method

A review of all the options available in the Joe Bailey case showed that there were about fifty different responses, that is courses of action, available to the PS throughout the whole case. Ideally the PS would be asked to categorise these options in ways which made sense to them. However time constraints were such that this was not considered to be possible. Instead the

PS's were provided with nine categories which were both sufficiently general and "common sense" to preclude complaint. On all occasions the PS's were asked whether they saw anything in the predetermined categories which created conceptual difficulties for them. No difficulties were ever recorded. The nine categories were:

1. Take official action, e.g. give warning, transfer, suspend etc.
2. Seek information about Joe's problem from sources outside the Company.
3. Take no action. Do nothing ~ say nothing.
4. Seek information about Joe's problem from people in the department.
5. Take 'unofficial' punitive action, e.g. exclude from overtime working, or telling him to "shape up or ship out".
6. Give Joe friendly encouragement.
7. Seek information about Joe's problem from sources outside the department but within the Company, e.g. Welfare department.
8. Express concern about Joe's problem to Joe on a 'man to man' basis.
9. Seek information directly from Joe.

These nine behavioural categories were then made the elements in a '9 x 12' Repertory Grid. One major benefit of presenting the PS's with predetermined elements was that it was possible to make comparisons between grids in a way that would have been impossible if every PS had used a different set of elements.

One major difficulty which had to be dealt with at this stage arose because the Joe Bailey action maze had not been designed to provide the depth of information demanded by the detailed analysis to which it was now being subjected. One symptom of this was that the distribution of options among the nine categories was extremely uneven. To remedy these inadequacies a significant amount of re-writing of the maze design had to be undertaken.

New Procedure

The procedure followed by the PS's was now as follows:

Firstly the PS would read page one of the action maze. This provided a general statement of the situation and five possible responses from which the PS had to choose the one he judged best in terms of his strategy. Secondly the PS would record the option he had taken and then move as instructed to obtain the consequences of his action.

Next having added the knowledge of the consequences of his action and the awareness of the second set of options provided in his new situation to his original knowledge state he would make a choice from the second set of options. The process would continue until the PS was out of the maze. The time taken to do this varied between about 20 minutes and one hour.

Having completed the exercise the PS transfers his sequence of choices onto the schematic diagram of the problem space. His progression, and or regression, through the problem space would then become apparent.

A Repertory Grid, in set form, together with instructions, "How to Produce a Grid" were then given to the PS's. Tutors were available to clarify difficulties and to provide whatever help the PS's found necessary on an individual basis. A short introduction to Personal Construct Theory was provided in a half hour lecture on some occasions before the PS's tackled the grid and on other occasions after they had completed it.

The most favourable results were obtained by giving the lecture on Personal Construct Theory after the Joe Bailey action maze had been concluded. Not only did it make more sense to the PS's at that time but it also prevented the PS's attention being diverted from the action maze by the technicalities of Personal Construct Theory.

The Repertory Grid

The Grid presented triads of elements taken from the nine response categories in twelve different combinations which were so arranged that each element appeared in four different triads. The process of dealing with each triad was aided by writing each element, with its identifying number, on a small card. The PS would take the three cards in the order set out on the grid and physically rearrange them as pairs and singletons until he found a pair having some feature in common. The description of this feature was written on the left side of the grid under the heading 'Likeness Pole' and the description of the way in which the singleton differed was written on the right side of the grid under the heading 'Contrast Pole'. The pair were identified by ticks in the appropriate 'box' and the singleton by a cross. Each of the six remaining elements were then considered by asking the question "Is this element most like the pair or the singleton?". Those elements judged to be most like the pair were identified by a tick and those most like the singleton by a cross. This procedure was repeated twelve times. The exception to this occurred when the PS found it impossible to contrive twelve different descriptions. The outcome of this exercise would normally be a 9 x 12 matrix, i.e. 9 elements x 12 Bi-Polar constructs in which each of the 108 boxes was filled by either a tick or a cross or an 'O' which signified 'unable to decide'.

Reviewing the Influence of Constructs on Behaviour

When reviewing the choice of options at each stage of the action maze the obvious question for each problem solver was, "why did I take that particular option?". It is not the kind of question that is usually asked in the turbulence of industrial life and most managers found it a difficult question to answer.

The personal theory which a manager brings to bear on a problem determines the kind of actions which he considers most relevant to the situation. Three theories were recurrently used by managers when dealing with the Joe Bailey case.

Firstly: A production manager's first priority must be to maintain production.

Secondly: A manager must be seen to maintain discipline if the organisation is to be efficient.

Thirdly: A manager's prime concern must be the welfare of his subordinates.

The implicit values in these three theories direct the manager's behaviour in quite different directions. For example:-

Firstly: I must transfer this man and find a more reliable worker

Secondly: I must formally punish this man.

Thirdly: I must find the reason for this man's behaviour and then deal with the underlying cause.

A manager's personal theory seemed to be super-ordinate to the specific details of the case. As mentioned earlier, managers were rarely found to be finding a solution to the Joe Bailey case as evidenced by the fact that they could rarely summarise data specific to the Joe Bailey problem. Typically they were dealing with a particular kind of problem of which the Joe Bailey case was an example. Additional information which had to be processed, as the manager moved through the problem space, which might be accepted or rejected, was treated by the managers as detail which enabled them to fine tune their construction of the problem type. Many managers claimed that the case was identical, or very similar, to an incident in their own experience. Some even claimed to know Joe Bailey's real name.

The interaction of these frequently used personal theories and the values built into the action maze was responsible for the nature of the problem individual managers found themselves dealing with.

The Joe Bailey action maze creates a situation in which managers holding the third personal theory, that is, 'my prime concern is the welfare of my subordinates', are presented with a short route through the maze. Their exit does not provide a solution. Rather do they have the satisfaction of knowing/that, "You understand Joe's problem".

Managers employing either of the other two theories, "I must maintain production", or, "I must maintain discipline" and who take action without reference to Joe Bailey's personal problem are faced with a longer route. Not unnaturally managers knowing these theories discounted the need to understand Joe Bailey's personal problem. It was thought to be irrelevant to their objectives. However having taken a long route, and a long time, while finding an exit from the maze, in contrast to others who had found a short, quick path, was usually taken as meaning that they had done less well.

The exit points were also quite different. These could be, 'Joe quits'; 'You fire Joe'; 'The case goes to arbitration', or, 'You call in outside help'. For those who set out to maintain discipline Joe's departure was seen as no more than he deserved. While for managers who tried to maintain production the loss of Joe, an experienced worker, was a mixed blessing. Having the case go to arbitration or calling in outside help was usually seen as having lost control of the situation and therefore unsatisfactory.

The basic standpoint quoted by the PS's after the exercise centred on:

"I believe that my prime responsibility is to my subordinates. I set out to understand Joe's problem and I succeeded in doing that. I moved through the problem space quickly and that seems to vindicate my strategy. "

"I believe that my most important duty was to maintain production. Transferring Joe was a reasonable action for me to take in the circumstances. However the action maze does not accept that view. The maze favours soft management and I don't think that is necessarily useful. "

"I believe that in a large organisation the individual is less important than the group. Why should Joe get away with doing less than his fair share? Everybody suffers because of his behaviour. You can't allow people to let the side down with impunity. Joe's gone and that must be the right result. Now everybody knows that I won't stand for any nonsense. The exercise suggests that because of my views its unlikely that I will learn new ways of dealing with people. It's all very academic. "

"The case has made me realise that the same situation is seen to be quite different by different people. I feel that my view was very limited. I would like to discuss all the options and where they led to. "

The real benefits to be gained from the Joe Bailey action maze develop in the ensuing conversations.

During these conversations the central issue to be examined is not the path through the problem space or the nature of an individual managers constructs. It is the much more basic issue of how the manager perceives his Self in the industrial world. The three different views outlined above epitomise the fundamental dichotomy faced by all managers provided by a concern for things as opposed to a concern for people. The message of the individuality corollary, "people differ from each other in their construction of events", seems to hide a vital schism which penetrates the human condition in many forms. Thinking; feeling: sensation; intuition: convergent; divergent: vertical; lateral: serialist; holist: analytic; synthetic: Yin; Yang and so on. The essential reason for including the Joe Bailey action maze in the programme was to help managers find themselves. To understand their preferences and predilections. To heighten self awareness as a prerequisite to accepting their strengths and weaknesses.

Conversations between managers who have undertaken the task of individually dealing with the Joe Bailey problem is arranged by placing the managers in dyads whom the tutor knows to have taken different paths through the maze. Their brief is for each member of the dyad to explain to his colleague which path he took through the maze and why he chose that particular route. By using the diagrammatic map of the route through the problem space to demonstrate the overall consequence of taking his particular choices and the repertory grid to show the constructs which influenced the choices the dyads have a well structured base on which to focus their conversation. By virtue of the fact that each action was contained in an action category and that each category was an element in the grid, not only the construct but also the relevant pole of the construct, could be easily identified by reading down the vertical column beneath the approach element. The constructs having the greatest influence on the choice of action could also be seen by inspection.

Eventually each dyad reaches a conclusion about the nature of their particular differences. At this point the dyads are paired off so that quadripartite conversations can elaborate the views developed by the dyads. The process of doubling up the size of the groups continues until the whole group is involved in a final winding up conversation which they have to formally report on.

Despite being told prior to undertaking the Joe Bailey problem, that there is no correct route, nor is the exercise to be considered a race, those who are the first to complete the exercise and who find a short route through the maze are invariably considered by the group to be the best performers. Those who have fared less well are frequently defensive at first. The great value of structuring the conversations is that the variety of routes taken through the maze, and the numerous bi-polar constructs which create the foundation upon which the routes are based, progressively become apparent. The participants find it much easier to initially explain their strategy to just one person. It also means that when they join another dyad they each have at least one ally in the foursome who appreciates their case. It was also found to be useful to count the number of different constructs elicited from the whole group.

The conversations also highlight the extent to which tight pre-emptive and loose propositional constructs are disposed throughout the group. Equally the degree of an individual managers cognitive complexity became apparent from the extent to which he was able to recognise and respond to the strategies of others.

Shortcomings

Taken as an item in isolation from the total exercise there are undoubtedly a number of inadequacies in the ways in which the grids were used. Some of the more obvious of these are that the elements were provided not elicited. Also the relationships between constructs were not defined and there was a tendency to see the discrimination demonstrated by the construct in terms of its label. However when integrated with the route mapping through the problem space it provided an extremely valuable technique which enabled managers to gain an insight into their predisposition to act.

PHASE 3

Emotional Responses

Modern research into functions of the brain has associated emotions with the limbic system, sometimes referred to as the old mammalian brain. The electrochemical processes which produce emotional responses are both real and powerful. Kelly's treatment of emotion was to re-state human experiences, usually explained as emotional, as having to do with transition. Hostility, a common emotion engendered by the Joe Bailey case, is regarded as "the continued effort to extort validation evidence in favour of a type of social prediction which has already been recognised as a failure". It is the behaviour of a man bent on maintaining the status even though he is wrong. The usual reason given for this translation is that it permits construct theory to deal with emotions in its own terms and so maintain a unifying theory.

It is important to bear in mind that all mapping techniques used in this exercise were either developed or selected because they offered a simple way of enabling managers to understand their individual problem solving processes. They are means not ends. For this reason theories other than PCT were employed to deal with emotional responses. The theories used however are entirely compatible with Kelly's ideas.

An important characteristic of human problem solving made apparent but not dealt with, by the previously described techniques were actions taken as a result of emotional responses rather than logical thinking. One of the major differences between PS's was the extent of their

ability to sustain a logical course of action in the face of apparent failure to reach the desired objective. This ability can be construed as indicating a tolerance for ambiguity. Some managers were able to persist with a course of action over a number of decision stages despite the fact that Joe Bailey's reaction to their initiatives were other than those which their personal theory had led them to expect. Other managers were unable to sustain their course of action after only one or two rebuffs.

Frustrated in their efforts to meet their objectives, by the unexpected behaviour of their subordinate, the managers lash out like a dumb child who fails to find a medium which sufficiently expresses his needs and intentions. Such actions, like all precipitous actions in the Joe Bailey exercise, result in the PS being pushed back into the maze, a development which, in itself, serves to heighten frustration. Added difficulties of this nature particularly attend the process of the manager whose world view places productivity or discipline as the major priority while dealing with the Joe Bailey case. It became clear that difficulties arising from emotional responses during the problem solving process had to be dealt with.

Theories of Emotion

The technique developed to help managers understand and improve their ability to cope with non-rational actions was based on three major sources. First of these was the influential paper, "Cognitive, Social and Physiological Determinants of Emotional State" by Schachter and Singer. Second were the papers, "Rational Therapy" by Albert Ellis and the "Rational-Emotive Approach" by Kranzler, and thirdly there was a range of papers devoted to the hemisphere specialisation of the brain.

Schachter and Singer built on previous research which showed that the same visceral changes occur in very different emotional states. The general thrust of their work was that a person labels, interprets and identifies emotional states in terms of the characteristics of the precipitating situation. The emotional state, epitomised by palpitations, tremor, face flushing, perspiring and so on, is considered as a function of a state of physiological arousal and an appropriate cognition. The cognition, which exerts a steering function, arises from the immediate situation as interpreted by past experience which has provided a framework within which the person understands and labels his feelings. The last sentence provides a clear link between personal construct theory and emotional states.

Ellis's view of emotional states is based on the assumption that thoughts and emotions are not two entirely different processes but that they significantly overlap in many respects. It follows that unhelpful emotions can often (though not always) be ameliorated by changing one's thinking. In other words, a large part of what we call emotion is nothing more than a certain kind of biased, prejudiced or strongly evaluative thought process. Presumably based on similar constructs, behaviour is seen to be neurotic or emotional by definition and these labels only have meaning when we assume that the individual is theoretically capable of behaving in a more mature, controlled and flexible manner than he actually does. Neurotic and emotional behaviour is seen to originate in and be perpetuated by, fundamentally unsound and irrational ideas. The person comes to believe in unrealistic, impossible, often perfectionistic goals. Goals which should be approved by everyone and which he must carry out perfectly, always, and which he usually refuses to give up despite considerable contradictory evidence.

Kranzler operationalised Ellis's theory in just the simple, straight forward way which was needed for managers. The usual methods of dealing with emotions has been either to suppress them, a process almost universally condemned or to express them. This latter method while promoting psychological health is not guaranteed to win friends and influence people. The real alternative is simply not to have the emotion in the first place.

Dr. Albert Ellis developed an approach to psychotherapy called Rational-Emotive Therapy (RET). A basic tenet of which is that we are not emotionally aroused by events but by the beliefs we hold about events. This is, the way we construe events. Most of the beliefs we hold may be quite reasonable but some may be equally irrational, that is, unreasonable because in practical terms they are unobtainable. Ellis listed eleven irrational ideas prevalent in our society. The second of these, "one should be thoroughly competent, adequate and achieving in all possible aspects if one is to consider oneself worthwhile", is particularly apposite to the managers attempting to solve the Joe Bailey maze. A person holding such a belief finds even the occasional minor failure difficult to deal with rationally.

The Rational-Emotional Procedure

The system employed to enable managers to explore their emotional behaviour is based on the above principles and is extremely simple to follow. The method seems to owe much to the Skinnerian process of Behaviour modification.

- A Activating Event. Describe the construction you placed on events which triggered your emotional upset.
- B Beliefs and self-talk about A. Record what you said to yourself, or what you must have said, about the event.
- C Consequences of your Beliefs and Self Talk. Describe feelings.
- D Dispute Your Beliefs and Self Talk. For each sentence in section B decide if it is rational or irrational; explain why it is rational or irrational; write alternative rational self talk.

Hemispheric Specialisation of the Brain and Cultural Differences

Two additional considerations were introduced to provide a more complete understanding of the processes utilised by managers when solving the Joe Bailey action maze. The first of these arises because managers from different cultural backgrounds have worked through the Joe Bailey case study. The question of whether differences in cognitive style between cultures would result in different paths through the problem space was obviously relevant. The second consideration was concerned with the nature of the qualitative difference of cognitive styles attributable to hemispheric specialisation of the brain. As it turns out these two considerations are closely linked.

The culture-cognitive paradox exists because on the one hand there is evidence that these are distinct intersocietal ways of thinking while on the other there are indications that all human brains function in the same way. Spring and Deutsch suggest that the way out of the dilemma is supplied by the view that every brain is capable of more than one kind of logical process but that cultures differ with respect to the processes used to deal with various situations.

Research seems to indicate that some cultural groups rely more heavily on one hemisphere than do other groups.

An extremely coarse, though nonetheless interesting, evaluation was provided by the Joe Bailey maze. Although the elements in the repertory grid, linked with options taken during the problem solving process, are provided the problem solvers were often asked during discussions to provide alternative relevant elements. It was found that many African managers had difficulty in doing this. Chinese managers on the other hand could usually add to the list without difficulty. The same distinction was also found in the total number of different constructs elicited by the whole group. The construing of African managers has usually been less differentiated than that of the Chinese managers.

That there are differences in construing seems evident. The reasons why the differences exist are less evident. Speculation based on common sense is appealing but not too useful. Recent research indicates interesting reasons why the two hemispheres have evolved different ways of processing information. Kimura and others propose that left hemisphere specialisation is a consequence of the evolution of certain motor skills. Right hemisphere specialisation however seems to have been promoted by the need to manipulate spatial patterns and relationships. How these findings relate to the evolution of African and Chinese construing is, thankfully, outside the present brief.

Summary

Upon the conclusion of the Joe Bailey case study managers have accumulated a mass of data regarding their mental processes as they moved through the maze.

Firstly they had a schematic diagram of the knowledge states experienced and the actions which linked them.

Secondly they had a repertory grid which enabled them to understand which poles of the identified constructs had influenced their choice of actions.

Thirdly they had a record of their feeling at each decision point together with what they had been thinking at the time. Unhelpful feelings processed by the Rational-Emotive procedure would have been analysed and more useful beliefs, or constructs, identified.

Finally, as a result of the learning conversations held with other PS's, they would appreciate how their processes differed from those of their colleagues. They would know how many different constructs had been used by the whole group and how their construing fitted into the total pattern. Also they could acknowledge how their personal theories determined their pathways of actions through the medium of their strategies, and specifically whether they were predisposed to centre their concern on things or people.

It is generally true that managers found the experience of working through this version of the Joe Bailey action maze instrumental in helping them understand themselves in an enjoyable and non-threatening situation.