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# NO. 3

## CRITICAL THINKING/QUESTIONING SKILLS
## A META-MODEL FOR COGNITIVE DEVELOPMENT IN
## MANAGEMENT EDUCATION

BY

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AND

Mario Levantard and Paul Anderson

1995 MBA Students

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ACCREDITED

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# CRITICAL THINKING/QUESTIONING SKILLS
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## *Abstract*

*The paper presents a model for the critical questioning of organisational practices and theories. P.A.T.P. represents PHILOSOPHY, ASSUMPTIONS, THEORY AND PRACTICES. The aim is to develop skills of questioning through three levels. The first level is Interesting. The second level is Important. The third level is Critical. The paper presents the model using two contrasting philosophies of organisation, as expounded by F W Taylor and Stephen Covey. The paper presents the educational setting of MBA seminar, a series of presentations by international and professional experts. Following each presented seminar is the Critical Questioning Session. The student co-author presents the student learning process through two case examples. He applies the approach outside of the MBA seminar setting, showing an extension of his learning. As a meta-model, the application should span cultures and disciplines with the aim of making sense of rather than adding on.*

This paper introduces a critical thinking model for looking at Human Resource Management and workplace practices, the P.A.T.P. model. The model involves a hierarchical schema which allows managers and workers to comprehend daily practices in terms of their espoused theories. The model directs them to ask critical questions not only about the theories, but also about the assumptions upon which they lie. The idea is to provide a way to further trace the practices, theory and assumptions to the epistemological "knowledge" about the human at work. It should be possible to throw some light on the paradigm-in-action to which the assumptions, theories and work practices confer allegiance. The P.A.T.P. model is a working model in the sense that it was produced for, and in, a management education setting. The model is generative and is part of a broader agenda to include the facilitation of workers" intellectual development as part of the manager's "normal" responsibility. Most of all, the P.A.T.P. model is about challenging mindsets.

## The PATP Model

| Philosophy | Why should our designers look for challenges overseas? |
|---|---|
| **Assumption** | Elements of the Australian workforce have the technical skills and knowledge to complete in the world market in services, specifically product innovation and development. Various world segments market present opportunities for Australians with the appropriate expertise to satisfy the demand for innovation. People generally learn and advance through problems and challenges confronted in workplace scenarios. |
| **Theory** | Various products, market segments, and nations are either in or entering the innovation stage of their life cycle and or development stage. As well product and market differentiation opportunities require new technological methods. Such opportunities are not restricted to regional or national borders and with improvements in world communications and computing systems, location often has no bearing where the service orientated work is performed. |
| **Practices** | Despite Australia having principally a factor based economy, certain segments of the market have or will enter the innovative stage of their development. As well our well educated workforce have the skills to develop a strong export focus in providing services to world markets. The goal is to create the awareness and understanding that Australians have the technical skills required to undertake this often highly skilled work. |
| **Comment** | Services (in this case innovative product design and development) represent as major growth potential for the Australian economy. Our geographical distance from Europe, the AmericaÕs and Northern Asia has been bridged by the quantum leap in the advances in telecommunications and computing which have essentially eliminated the time response in doing business. The goal is to raise the awareness of overseas buyers of the skills of Australian workers through advertising our focus on R&D spending. |

## Critical Thinking Defined

Splitter (1991:90) offers Schlecht's (1989:133) definition of critical thinking 'critical thinking abilities are...whatever skills are required to recognise analyse and evaluate

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arguments' with an observation which shows that there is by no means a consensus about what critical thinking should be:

> Schlecht's "traditional" definition reinforces what some critics of critical thinking and philosophy already believe, viz. that a critical thinker is a kind of intellectual nit-picker who spends his time carping at other people's arguments.

Splitter celebrates Ennis, below, and Lipman (1988a:39) 'critical thinking is skilful, responsible thinking that facilitates good judgement because it:

(a)     relies on criteria,
(b)     is self-correcting; and
(c)     is sensitive to context

Ennis (1989:1) shows the nature of "general critical thinking" education via the test of critical thinking ability which he developed at Cornell University:

> A general critical thinking test might cover induction, deduction, evaluation, observation, credibility (of statements made by others) assumption identification and meaning. Ideally, it would also cover attitudes of a critical thinker such as open-mindedness, caution and valuing being well-informed.

General or "hard logic" critical thinking in this didactic sense is characterised by the teaching of logic, formal and informal. Traditional philosophy supported the search for a universal 'theory of reason'. This was a belief in the absolute power of logic to explain the world, logic which was not dependent upon particular contextual rules and semantics. The validity of the general critical thinking model approach is not a discussion point for this paper; except to point out that work practices in the nineteenth and twentieth centuries indicates that logic was used to order the world of work, including the human aspects. The logical/rational rather than affective/emotional needs and motivations of workers were the only ones considered to be reasonable. (The language and complexity of the rules of logic meant that the ordinary worker may not have been adept at critical thinking other than in untutored, intuitive way. "He" would probably, therefore be ill-equipped to see this flow in management thinking. The language of logic itself rose above the day-to-day language of the workplace and used formalisation as a form of control over thinking (Toulmin, 1972).

Paul (1990:109) informs the future use of the P.A.T.P. model by warning against weak sense critical thinking, such as 'considering multilogical issues with a monological bias, leading to egocentric thinking which is reluctant to critique its own fundamental categories of thought' Haynes (1991:140).

This is further reiterated in Paul's strong sense critical thinking in a way that makes a good working definition:

> (a) an ability to question deeply one's own framework of thought, (b) an ability to reconstruct sympathetically and imaginatively the strongest versions of points of view and frameworks of thought opposed to one's own, and (c) an ability to reason dialectically (multilogically) to determine when one's own point of view is weakest and when an opposing point of view is strongest.
>
> (Paul, 1990:109)

Siegel (1988) finds agreement between critical thinking theorists that critical thinking has (at least) two central components: a reason assessment component; which involves abilities and skills relevant to the proper understanding and assessment of reasons, claims and arguments; and a critical spirit component, which is understood as a complex of dispositions habits of mind and character traits.

McPeck (1988:8-13) defines thinking through the concept of "reflective scepticism", and this means that one must:

> engage in an activity with reflective scepticism... the disposition to do X in such a way that E (the available evidence from a field) is suspended (or temporarily rejected) as sufficient to establish the truth or viability of P (some proposition or action within X).

**Critical Thinking as Context Specific**

This paper adopts a critical thinking view closer to natural language and specific context (McPeck, 1988). This does not undervalue general critical thinking or systematic analysis and logic, far from it, but it recognises Siegel's (1988) point that 'content knowledge' is frequently necessary for thinking critically within a subject.

Few would deny that the workplace has a language of its own. "them and us" has a special meaning. It also has a recognisable set of shared conventions, value-systems and belief structures that inform and direct patterns of thinking. It seems sensible here to consider critical thinking as context specific.

This does not imply that Ennis's (1962; 1989) dedication to "clear and critical thinking where-ever it appears" is not accepted. Rather that the P.A.T.P. model presented in this paper is not proposed as a general model. Generalisability seems to be already happening to some extent as users transfer the model to other activities (see cases one and two). As the model becomes robust through repeated use and refinement, should reports be that the use is general in nature then the issue of generality would become part of a future research agenda.

Two major paradigms are presented in the critical thinking literature.

(i)     philosophical science - which favours the more general (taught) critical thinking skills and;

(ii)    cognitive psychology - which favours a contextual, process oriented approach is useful so that one can be selected for the work in hand which engage with the human world of affective and cognitive understanding.

Sternberg's metacomponents, those which 'selectively encode and combine new information and selectively compare new information and old information so as to allow learning of new information to take place" fits the P.A.T.P. model; even though it may not fit the logical rigour of formal (Ennis, 1962) and informal, but "hard logic" writers (Dauer, 1989; Scriven, 1980:148).

**Why Critical Thinking in the Field of Human Resource Management?**

In a sense, Human Resource managers are the "interpreters" of the organisation. visions, missions and strategies are abstract concepts to be interpreted and shared between workers and management.

As figure one shows, it is the intersecting identities of the organisation, individual and work group that need to be fused into one holistic and internalised image. Learning about meaning will be the management challenge of the future, with the emphasis on learning. Learning about thinking will be the key to learning about meaning. De Geus (1988) talks about institutional learning as the process whereby management teams change their shared mental models of their company, their markets, their competitors and their competitors. The

P.A.T.P. model emphasises the manager's role as learner, yes, but in order to become teacher of workers, a facilitator.

The effective manager of the future will be a constructor of a learning environment which is fertile and provocative. A key objective will be to surface then harmonise various "mental models" (Senge, 1992a) and ways of relating them within and between internal and external groups. Learning better ways of bringing the worker into the manager's mental model or world of meaning is not encouraging shared meaning. More it says, "let me help you understand where we (management) are coming from so that you can better validate our internal image" or "let us help you share our meaning". The vision is that eventually the application of the P.A.T.P. model will be where the manager, together with employees investigate through daily practices, the hidden premises or underlying assumptions/paradigms of both parties with a view to creating a third, shared, view (Whiteley, 1992).

A reasonable question would be to ask - Why has it taken so long to legitimate the idea of helping workers, through their managers, develop conceptual and critical thinking/questioning skills together, when clearly this will give the organisations of the future a competitive edge? The answer lies in examining the prevailing values of our inherited industrial context, the "modern" era. The values and paradigms embedded in the formative stages of management theory produced deep generative structures and systems of management so strong that they provided the key organising principle of work-culture. Clegg (1992:156) in talking about modern and postmodern organisations, explains that:

> Modernist organisations may be thought of in terms of Weber's typification of bureaucratized, mechanistic structures of control, as these were subsequently erected upon a fully rationalised base of divided and deskilled labour... these foundations are usually referred to as "Fordism"...It added to these [Taylorist methods to the study, design and "deskilling/reskilling of work].what Aglietta (1979:118) refers to as "two complementary principles"...characterised by the semi-automatic assembly line, organising work into a straightforward linear flow of transformations applied to raw materials...[and] the fixing of workers to jobs whose positions were rigorously determined by the configuration of the machine system.

Senge (1993) describes the deep pervasiveness of our heritage as:

...the main dysfunctions in our institutions - fragmentation, competition, and reactiveness - are usually by products of our success over thousands of years in conquering the physical world and in developing our scientific, industrial culture.

'Modern Industrial' organisations would actually cause a radical change in the scope of workers to have opportunities to develop critical abilities and activities other than in the traditional two mindset "them and us" contexts. In particular, the skills of discriminating between an arguer's assumptions and a situation's deep presuppositions and being allowed to question those presuppositions in order to find hidden premises could not be a feature of *'I think; You do!'* management.

It may well be that the premodern agrarian era, even though poorer in individual wealth, was richer in opportunities to think and question than in the modern industrial era. We can imagine families living closely together organised by a notion of family, group or community boundaries where problems attracted arguments from all kinds and ages. (Sennett, 1976) depicts a "candid" approach to public identity and personal boundaries. Not so in the modern era where 'Modern man retreated into his private life and created a public mask to protect him from other people in his public life. Thus personal boundaries became particularly important in public life.' (Berquist, 1993:85).

In the modern era, protective personal boundaries were further reinforced and family/communal group boundaries further eroded as "institutions" (organisations) grew to take care of productivity as well as to take care of social and welfare needs of workers. With them came institutionalised "experts" in the thinking occupations. The loss of conjecture, experimentation and decision making skills as work became scientifically categorised and compartmentalised is only beginning to be realised now when the future requires managers to manage intellect as well as output in order to gain a competitive edge in the global marketplace.

Measurement of processes and output are of course only artefacts or tools of the management culture. Their main contributions are in creating (1) an increased understanding about managing intellectual processes (2) a mindset that improving the intellectual assets... is highly valued.

(Quinn, 1992:253)

The idea of managing the human as a collection of intellectual (and emotional) assets needs to replace the managerial prerogative mindset embedded in the modern management paradigm.

**Management Paradigm**

Understanding the notion of paradigm as a mental model to which loyalties and allegiances are deeply made is essential to understanding the latent mental barriers which both managers and workers may erect working in gentle collusion to protect the "true" order of the world. A paradigm can be described as the patterns of assumptions, methods and theories to which scientists make a prior commitment... Paradigms give answers to the following kinds of questions:

- What are the fundamental entities of which the universe is composed?
- How do these interact with each other and with the senses?
- What questions may be legitimately asked about such entities and what techniques in seeking solutions?

In its formative stages, management as a discipline grew up in a scientifically-ordered environment. Because the scientific environment was so strong, the scientific metaphor became a paradigm, a mental model of those methods of organising, measuring and managing work activities deemed to be "correct". Organisations developed on a philosophical and practical base of mechanisation and mass production. Management, in keeping with the prevailing ambience was based on scientific "proofs" of human capacity. Acceptable techniques were those which measured human movement and output.

Technical considerations predominated and pervaded the human aspects of work 'Scientific Management purports to organize human work but it assumes - without any attempt to test or verify the assumptions - that the human being is a machine tool (though a poorly designed one)' (Drucker, 1968: 340). The legitimate "reality" of organisations and workers was that they were mechanistic, logical and rational. Pascale (1990) talks about Weber (1947), who transferred the military metaphor of coordination and control to management and Fayol (1925), Gulick and Urwick (1937) who expanded and legitimated this tradition of management.

The idea was to reduce diversity and ambiguity; emphasise clear lines of authority, and formal and systematic procedures for control and integration. Weber's contribution that organisational behaviour was characterised by a network of reciprocal relationships could

have been empowering and liberating of human intellect and emotion had it not been for the scientific' Newtonian world view in which every action has an equal and opposite reaction' (Pascale, 1990:102) and is part of a measurable objective reality.

**Scientific Management Paradigm**

It was inevitable that these paradigms should find their way down to the modus operandi of the shop floor. Pascale (1990:102) describes Frederick Taylor's (1929) influence at the worker level:

> Taylor pioneered the science of industrial engineering, carving up each job into a finite set of tasks. His four precepts were:
>
> (1)     find the one best way using industrial engineering and scientific methods);
> (2)     match people to the task ( again scientifically);
> (3)     supervise, reward and punish; and
> (4)     use staff to plan and control.
>
> In effect, like Weber, he sought to reduce ambiguity. His focus was the workplace and the worker. He sought to tighten up the linkage between worker behaviour and managerial intentions through procedures, control systems and clear assignment of responsibility and chains of command.... the most far-reaching influences of Taylor's work stemmed from his assumptions concerning how people behave on the job...'hardly a competent workman can be found who does not devote a considerable amount of time to studying just how slowly he can work and still convince his employer that he is going at a good pace.

Given such a view of workers" willingness at work, it is not surprising that work was designed so that ideas, tasks, designs, and procedures were for management to think through and translate into the actions which workers would do, preferably without any deviation. "Managers think and Workers do" was a value which was reflected in workplace activities, language and at the philosophical level, in the mindsets of managers.

Drucker criticised the scientific management view that 'the industrial world should be divided into two classes of people: a few who decide what is to be done, design the job, set the pace, rhythm and motions and order others about and the many who do what and as they are being told' (Drucker, 1968:342).

That is not to say that the work of many "human" management writers and researchers did not seek to counteract the less human effects of scientific management. Clearly they did.

However, there is little evidence that they succeeded or indeed intended to succeed in attacking its basic philosophical tenets Barnard (1968), for example, recognised the role of values and social networks in organising. Still, he was unable to break away from the traditional functional mindset. He sought coherence and "good fit" of values and formal systems in a way which did not encourage the discontinuity of change.

From the 1930's and Mayo's work came, in the 1950's and 1960's a time of individuality and vitality. Recognition of human worth became more pronounced and a set of motivation theories celebrated the impact of workers" and groups" internal decision making on productivity (Herzberg, 1959; Maslow, 1954; Mayo, 1933). It would be seductive to think that this human focus altered the traditional paradigm and released workers from their role as "do-ers", tapping in to their creative energies.

However, it seemed as though the die had been cast for workers to take a limited and situation/task-specific approach to problem solving. Drucker (1968) noted how managers tended to use limited problem-solving, looking for causes close to effects, new solutions near the problem location, and clung to rituals and cues long after they ceased to be of relevance. They called this 'limited rationality'. Drucker (1968) explains why, given the great improvements and changes in management activities which came about, workers were reluctant to change 'because he [the worker] is always being taught individual motions rather than given a job, his ability to unlearn is stifled rather than developed. He acquires experience and habit rather than knowledge and understanding'. Because the worker's task was to do rather than to know, then changes which required knowing were incomprehensible and psychologically threatening.

A big question is - Are we still bound by the traditional mindset in terms of releasing workers" learning potential with management help? Have the incremental contributions of theorists such as McGregor (1960), succeeded in supplanting the mechanistic, intellectually differentiated paradigm? His premise was that a manager's internal image of the human at work (such as "man is benign" or "man is evil") directly affected practical things such as management structures, systems and personal style. Until workers are liberated to recapture their atrophied critical thinking skills and are given cause to have faith in dialectic, we may be witnessing in the new motivation theories, a more human kind of control, whilst recognising, like McGregor, that control itself is dehumanising whichever way it is packaged.

The very first step, then, in developing critical thinking/questioning skills in management education is to revisit the prevailing mindset and particularly that held by top management.

This heavily influences the organisational climate within which the thinking will occur. A climate which is devoted to harnessing the intellectual power and emotional support of the workforce will treat the organisation as a learning environment. It will support reflective scepticism, banning forever the idea of "manager as thinker" and "worker as doer".

**The PostModern Organisation**

Even if the organisational climate is right, why is it so urgent to enlist the intellect of workers now? After all, one could say, apart from the human aspects of management, organisations with the traditional mindset of scientific management and "limited rationality" have managed very well so far to become giants in business around the world.

One reason to harness workers" intellects is because the world is changing and with it opportunities are emerging to change the old mindsets. As Berquist says:

> The Postmodern world is in the midst of being born. It does not yet have clear definition, other than its origins in and difference from the modern [traditional] era.... In the postmodern camp, there is neither interest in the systematic building of theory (through what Thomas Khun (1970) calls 'normal science') nor in a warfare between competing paradigms (what Khun calls 'scientific revolution'). Rather, everything is 'preparadigmatic'.
>
> (Berquist 1993:15)

If this is the case, out go the templates for ready made thinking and out go the taught solutions which have taken the limited and the rational to extremes. In comes constructivism as well as objectivism. Constructivism acknowledges that we, as workers and managers, construct our own reality based in large part on the values conventions and customs of the social context of which we are thinking. Organisations as "personalities" can negotiate what constitutes reality between individuals and groups. They form their own unique ways of knowing and at that level are declaring an epistemological "truth" about themselves in their own particular context. A typical concern of a constructivist would be to arrive at an agreed interpretation of an work event or dispute. The constructivist manager would be vitally concerned with interpreting various viewpoints to do with strategic design/implementation, policies, ways of doing things and ways of communicating about them.

To the Objectivist, this would not be possible because knowing is seeing, with the help of universal or general laws and principles. "Knowing" activities mean counting, measuring or otherwise accounting for reality through some sort of scientifically valid testing. It is quite

safe to impose a "proved" reality on managers and workers alike, but particularly on workers who are not traditionally hired for their thinking skills. A typical concern of an objectivist manager would be to find out who is right and who is wrong and what is the "real" story. Strategies would typically be designed by planners and "authority" figures and supported by evidence such as forecast and trend data. A concern would be for clarification of facts rather than interpretation of perspectives. The importance of this to the human resource manager is that objectivism and constructivism are paradigms or frames of reference. The manager will "frame" and explain a situation according to the set of rules dictated by the paradigm. Using Bolman and Deal's (1991) typologies, an objectivist manager might predicably use the structural frame whilst the constructivist manager may prefer the symbolic frame.

How does the idea of constructivism help the manager who is learning critical thinking skills in order to share the knowledge with workers? Because where there is an agreement to let the "workers as actors" communicate in their own constructed language they are released from the burden of operating formal rules of language, especially financial and technical language in written mode. More importantly, they can investigate their own thought processes, find out how they know as well as how they do. They can be encouraged to build up their natural abilities at schema-building using social language of stories, narrative and metaphor. They can be helped to form concepts and discriminate between kinds of experience. They can be helped to make sense of their reality at work through reflective activities.

Does this mean that managers as well as academics need to be aware of the meaning of terms such as paradigm and epistemology? The answer is not only do managers need to do so but also workers, albeit in a language they can understand. Encouragingly, it is likely that employees are more adept than we realise at inferring the assumptions and philosophy of managers from their day-to-day behaviour, style and work designs. They may not have the jargon or the elegant way of expressing it but its a well known fact that workers live in a "relative" world (Whiteley, 1989). They 'see" how they are approached, spoken to, or involved in decisions relative to other people. This constant quest causes a continuous diagnosis and appraisal by employees of others" practices, working theories, assumptions and eventually, philosophy.

**From Thinking to Critical Thinking in Human Resource Management**

Even taking a definition of thinking itself , it can be seen that historically, workers and even maybe managers have not been developed in finding out how they think, how they know and visualising scenarios beyond actual tasks and jobs. McKenzie (1992:3) says that in the

broader sense thinking includes 'reflecting, inferring, remembering, retrospecting, doubting, willing, feeling, apprehending, perceiving, meditating, imagining, pondering...'.

Many aspects of thinking have not been legitimated into the working day. A simple example is that rarely do we find meditating, pondering, retrospecting, exploring and feeling as items for training and development. Intuitive, or "gut" feeling is usually discouraged or treated with some suspicion unless supported by rational argument/evidence. Often when creativity is "taught" it is done so as logical problem solving, where the creative part is the generation of multiple alternatives instead of the one correct solution. The following extract from an "enlightened" article entitled 'A Worker's Mind Is a Terrible Thing to Waste' emphasises the point about continuous quality improvement requiring a set of critical thinking tools and a management technique which:

- joins statistical process control (SPC) techniques with critical thinking skills (e.g. Systematic problem solving and potential problem analysis) so that the data collected through SPC can be analysed logically to identify root causes and corrective action;
- offers a disciplined process of deductive reasoning that is easily taught to workers, regardless of background or education level;
- is organised to remove causes, not just adapt to effects;
- relies on a system for testing root cause hypotheses prior to corrective action;
- is driven by the active involvement of hourly personnel and management.'

(Robert, 1990:59)

When thinking becomes critical, such that it examines its own assumptions and foundational beliefs and values as they are derived from life and cultural experiences, it is easy to see that workers and maybe even managers have been deprived of opportunities to really operate at the critical level. The above set of activities described by Robert et. al. could be achieved without deeply investigating the "true" nature of work and the "true" nature of the human at work. Note the exhortation to bring both the worker (the hourly paid personnel, already designated as "us") and management ("them") to the problem-solving activity. This reflects techniques for thinking-for-joint-problem-solving rather than the sort of critical thinking which included McKenzie's (1992) fundamental issues;

Criticality [is] a kind of iconoclasm, a strenuous criticism of oppressive established values and institutions. In a more moderate form critical theory maintains the necessity of examining the hidden assumptions that undergird thinking.

The Robert, et. al. (1990) model is representative of Quality Management methods of problem solving and there is little doubt that they do or can encourage reflection. However they do not encourage or even acknowledge McPeck's (1988:8) reflective scepticism where 'the core meaning of critical thinking is the propensity and skill to engage in an activity with reflective scepticism'. The idea is not to be disagreeable, but to intend to take the issue/problem further. The reflective aspect is to deliberate with the intention of offering plausible alternatives.

Does the Robert, et. al. (1990) model and others like it allow for genuine scepticism at the values and assumptions level, and, indeed, is the need clearly recognised and articulated? Have such models succeeded in escaping from the preconception trap suggested by Erdmann and Stover (1993:60):

> We with our more-complex brains, face more difficulties. We construct belief systems based on an incomplete view of the world then surround those cherished systems with high walls to guard against the intrusion of new evidence. in a complex world, forming theories to guide and orient oneself is essential to narrow down the overwhelming task of decisionmaking. But we face a problem in the fortification we erect around those systems. Dogmas are created, elevated to truths and defended, sometimes to the death as superior to new insights into reality'.

Is this what has happened in "modern" Human Resource Management? Have the battles been on the front of reflection rather than scepticism? Have they been on thinking rather than on critical thinking? If the answer is no, then we have not escaped the "embedded preconceptions of modernism" cage.

The P.A.T.P. model should be a practical help in answering the question of what would be needed to transform the approach below into a critical thinking model. 'When analyzing a problem, one would want to go from problem to action. As in travelling; there are a number of steps that might have to be pursued along the path.

This is called the logic path of problem analysis:

| | |
|---|---|
| **Description** | Describe what the problem is and what it is not |
| **Analysis** | Analyse the information |
| **Hypothesis** | Formulate some hypotheses as to the possible causes of the problem |
| **Testing** | Test these hypotheses to identify the real cause |
| **Action** | Action |

**Criteria for an effective approach**

1. The training must be burden-free. Workers do not welcome added burdens to their work. The investment of extra time and commitment is a very sensitive issue. It is important to invest the time and effort to demonstrate clearly the payback for each participant, such as the elimination of hassles and improvement in the daily work routine.

2. Management participation must be visible and constant. This means more than management support. It means that managers must be actively involved in weekly team meetings and have ongoing communication with each team's liaison.

3. There must be an adequate reward or recognition system. Often this can be included within an existing reward or recognition system. For example, one company takes pictures of each class as it completes training and distributes them...

(Robert, 1990:61)

The idea of critical consciousness is central to the issue. According to Brookfield (1987), critical thinking evaluates underlying assumptions and checks their accuracy. Of course in the organisational sense this means having the tools to do so. Here we are talking about diagnostic instruments aimed at clarifying organisational values (Whiteley, 1992). This is supported by Brookfield (1987) who says that very often critical skills are hidden and need to be brought to critical consciousness. He goes on to say that hidden assumptions can be brought to awareness by examining behaviour. By examining patterns of behaviour in specific contexts it is possible to look for a more fundamental, paradigmatic and in turn epistemological "truth". In organisational behaviour, "truth" is demonstrated in two ways. By what managers say and what they do. The doing includes the models they present, such as problem-solving models. The saying and doing is mediated by the structures they erect, the systems they design and the symbols and rituals they use to convey their espoused values.

This train of thought has tremendous ramifications for both senior management who are guiding the directions and value systems of the organisation, managers who need to make some hard decisions about whether their value system matches that of the organisation,

supervisors who are operating on the interface between management, management systems and symbols, and workers who have their own symbols and systems for "being managed". What is said to be done needs to be separated from what is seen to be done through organisational designs, operating systems (hard), and process systems (soft). Brookfield (1987) supports the "manifest" idea by saying that 'behaviour in the workaday world frequently manifests suppositions that are [and are seen to be] the basis of action'. So as well as thinking about what is espoused and what is actually done workers need to know about the underlying assumptions about why things should be done. Unless workers are educated in critical thinking, their criticality will remain as an untapped resource, little more than a roughly tuned intuitive feeling.

**Dangers of Hidden Premises**

The idea of hidden premises and how to help them surface is central to the P.A.T.P. model. In the media, arguments which can seem trivial to the point of being bizarre are often full of hidden premises. An example in the Australian management scene was the dispute about "the flavour of ice-cream" case reported in the press. By way of example, let us say management provided strawberry when it should have been chocolate. The players in the game would all have a shared but implicit knowledge about the "real issues". The issues could be vaguely construed as "them and us", or perhaps too big a shift in the balance of power felt by one party, or even "don't forget we workers are out in the field with no conveniences and don't want to be the forgotten heroes". Ice-cream becomes a symbol for something deeper, a basic premise concerning differing views of the world held by workplace stakeholders.

A recent case of the "designer sunglasses" falls into the same category. This problem did appear to be about sunglasses, but in the TV interviews of workers it seemed as though the main concern was about an organisation's willingness to symbolise the 'special value" of its field workers. Informed by Davson-Galle's (1993) 'Rational disputation and unshared hidden premises: no cause for alarm', we see that there is cause for great alarm in terms of the possibilities for self-delusion which occur as managers embrace "new" techniques and especially new solutions. An argument's premise regarding what are innocuous disagreements and what are Khun-ian paradigm clashes is a matter of depth.

Managers need to be able to separate the innocuous from the paradigmatic. So do workers; which basically means that workers need to be brought into the epistemological game. They will certainly be key players in making strategic implementation work. To make it work requires a high level of shared understanding as well as shared ownership and commitment.

If disagreements are at the deeper level and this is not recognised then it will be futile to attempt shared meaning/rational discussion says Weinstein (1990).

It is this history of hidden premises in management resulting from a mixture of factors that has so stunted the growth and stimulation of critical thinking activities in the workforce. The modernist design of "one best way, managers think and workers do" was based upon an epistemological "truth" that humans will give up their need for involvement in decisions, their need for variety, autonomy and creativity, and would sell their freedom of thought for money. These would (and do) exist as hidden premises in a deterministic way. Hidden premises or presuppositions of argument concerning work would always overcome the arguer's more situation-specific assumptions whether from a worker or manager perspective. Criticality as McKenzie (1992:2) sees it as:

> ...a kind of hostile iconoclasm, a strenuous criticism of oppressive established values and institutions. In a more moderate form critical theory maintains the necessity of examining the hidden assumptions that undergird thinking

The need to look for hidden premises within management theory is of particular relevance. At the end of every taken-for granted theory which informs equally taken-for-granted practice dangles a human being. Theories of management abound. Hapless employees may equally well be a recipient of Scientific Management (Taylor, 1929), or McGregor's Theory Y (1960).

They may be treated as Steven Covey (1991) would wish by managers who are principled and caring. They may be treated by managers who operate on the basis that people should be empowered (Wellins, 1991) and allowed to participate in decisions which affect their working lives (Brewer, 1993). If Senge (1991:8; 1992a:138) was a manager, the worker would join in creating a community of learning and a respect for personhood through shared vision.

There is a probability that workers could experience one approach after the other (which would be a particular danger with fad-oriented managers (Kanter, 1992), without becoming aware of the mental model intended by any. Senge's (1992b:5) article captures the endeavour of the P.A.T.P. model which is to encourage a spirit of enquiry and advocacy for the investigation of current, deep "mental models" or internal images 'that limit us to familiar ways of thinking and acting'.

If one were to ask the question - Are managers always aware of their lack of critical discrimination concerning the theoretical frameworks they use? The answer would probably be "No!". As Beck and Whiteley (1992) say about international management teaching, there tends to be an "add-on" rather than "make sense of" approach to existing theories. Senge talks about surfacing, testing and improving our internal picture of how the world works and the P.A.T.P. model is basically concerned with:

(a)     convincing managers that there is a mental model behind espoused theories and practice; and

(b)     producing an environment where the surfacing of internal images is practiced and debated.

This is basically what the P.A.T.P. model sets out to do.

**P.A.T.P. in the Management Education Context**

P.A.T.P. begins with a preparatory session at which consideration of issues such as the ones in this paper would be discussed:

- A description of the P.A.T.P. schema (as outlined below);
  **P**     philosophical statement
  **A**     assumptions this spawns
  **T**     theories of management which are appropriate
  **P**     practices, structures and systems which relate to the above

- A discussion about critical thinking as context-specific;
- A discussion about why critical thinking should be relevant in HRM (probably using such papers as Senge's 1992 'systems thinking and organisational learning" to show an alternative model as well as an excellent justification for managers to be concerned with the cognitive development of workers).
- A discussion on the idea of managing meaning (using the core values model Whiteley 1992);
- A discussion on the development of management meaning through to the Postmodern era;
- A revision of Scientific Management in this particular context;
- A discussion of the manager as constructivist in the Postmodern organisation;
- An example of critical thinking which is not aimed at the deeper, values and assumptions level (such as the problemsolving model of Roberts *et. al.*);

- A discussion on the hidden nature of premises, and the need to develop critical consciousness amongst managers and workers.

Next would come practice in looking beneath actions and behaviours using two contrasting philosophies about "managing" humans at work" from the HRM literature. For contrast and familiarity, Taylor (1929) and Covey (1991)have been used as illustrations.

**The Taylorist Mental Model**

*Philosophy*

Taylor's view of the nature of work and the worker is predicated on the "reality" of the mechanistic paradigm. A hint of 'Machiavelli's (1515) hard view of persons 'because of Man's rebelliousness and uncooperative behaviour, he must be strictly and ruthlessly controlled...' (Lippitt, 1982:24) is evident by Taylor's philosophical "laws" captured by Lippitt (1982) when he says that:

> The employee is (1) a constant in the production equation, (2) an inert adjust of the machine prone to inefficiency and waste unless properly programmed, (3) by nature lazy, and (4) his main concern is self-interest. Secondly, the truth as Taylor saw it was that humans at work are basically rational/economic beings.

*Assumptions*

The assumptions which might follow from these philosophical views might be that workers would rationally give up all decisionmaking and essentially human characteristics for money. These might include the basic decisions to sit stand move around in a particular way, pause, stop or even break monotony by passing the time of day with a workmate.

This philosophical stance might reject assumptions that intrinsically humans are the authors of their own destiny. It might assume that humans will give up their desire to help each other and seek interdependent relationships, even be "comrades in adversity" (Revans, 1980). The mechanistic paradigm to which organisational allegiance must be paid would assume that workers would embrace efficiency logical human structures and systems. Strictly differentiated functional relationships would be arranged around the needs of machinery and control mechanisms between humans.

*Theories*

The theories of management and work design which would follow both the philosophy and assumptions would include some of the structural designs and systems for which Taylor was famous. Authoritarian management required tall structures of management. Many hierarchies separated managers from workers and workers from decisionmaking. Communication would be top-down. Men (women were not taken into account as being significant) would be directed. Reward systems were monetary and were in direct proportion to outputs. The "psychological contract" (Lippitt, 1982:217) would not be recognised as an important or even necessary activity to need attention. The worker must be tightly controlled, externally motivated (economically) and divested of all social and psychological interactions unless specified as part of a scientifically designed set on movements.

*Practices*

Daily practices are not too difficult to imagine. They included close supervision. Decisionmaking was exclusively a managerial prerogative. Time and motion study was practiced to seek ever increasing accuracy and standardisation in the way workers completed their tasks. The emphasis was on specialisation so that as little discretion as possible was left to workers. Recruitment was to strictly assessed standards. Selection was based on knowledge and skills. Jobs were designed around machinery. Motivation was synonymous with wage payment systems. What we have seen at the practical level is the manifestation of management theory, assumptions and philosophy.

The first use of the model is to alert the manager to the need to critically question daily practices so that the most crucial part of all is the philosophical statement which is being made with every new day (and every new slice of reality) which is constructed as day goes on.

From this it is possible to fro the critical thinking manager to ask some searching questions. Do I really believe that employees have intellects waiting to be liberated? Do I really believe that my role is a facilitator rather than a director? Do I really believe in educated autonomy or is it a fad which I would do well to acknowledge and treat lightly? The answer lies in the evidence of actions and the inferences which lie beneath them. The second example begins where the worker begins, at the everyday, practical level.

*Practices*

In this work situation results are specified but the means of achieving them are left to the discretion of the work team. Guidelines are given and reinforced but the procedures for following them are flexible. Resources are brought to the attention of the workers and this includes outside resources and networks. Communication can be top-down bottom-up sideways or circular.

The worker feels encircled by information and not at the receiving end of the hourglass with supervisor in the middle. Involvement in design and standard-setting is very common here.

Mutual agreement is sought to determine the difference between abysmal, acceptable and excellent performance. Results are assessed on a variety of things including judgement, experimentation and output. By this time readers may have deduced that they are following the philosophy of Steven Covey (1991). His philosophy is that 'our effectiveness is predicated on certain inviolate principles-natural laws in the human dimension which are just as real, just as unchanging, as laws of gravity are in the physical dimension...they are the laws of the universe that pertain to human relationships and human organisations... [they include] fairness, equity, justice, integrity, honesty and trust...' (Covey, 1991:18). Covey's (1991) philosophical statements necessarily (though not sufficiently) prescribe the leader's role- "to value oneself and, at the same time subordinate oneself to higher purposes". What sort of theory of organisation and management do the practices outlined above suggest?
Theory

These practices reflect a theory of self-supervision as opposed to close supervision. The theoretical paradigm is the agricultural versus the mechanistic paradigm. That is to say that organisations are living growing things made up of living growing people. The theory of organising would include a rejection of "fixing" by replacing non-working parts. Instead, structures and systems would be in place to help nurture employees by producing conditions for growing and enabling. Such conditions might include win-win agreements between workers and management in a climate of mutual accountability. They would prescribe self-supervision. They would provide helpful structures and systems to enable empowerment. And would the preceding set of assumptions about workers "fit the theory"?

*Assumptions*

The assumptions underlying such theory and practices are that human beings at work have the knowledge, skill and desire to succeed provided they are given the opportunity. The

assumption is that they can be trusted, given that their experiences show that the trust has been well placed and is deserved. The assumption is that workers will make a psychological contract with the organisation (as it is represented by management). The contract will be a way of thinking and interacting such that the stakeholders are in each others minds and are out to win the goals agreed for the organisation.

Mutuality will be a basic assumption in the sense that the sometimes conflicting needs of various groups become conditions of empowerment. Clearly, the Taylorist assumptions would not fit the self-supervision and empowerment theory whilst the humans will succeed given the opportunity would. What sort of philosophical statements would the empowering assumptions fit?

*Philosophy*

Principles are the paradoxical essence of highest humanity and the foundations of effective leadership. The true reality of organisational life can be likened to the Agricultural Model and its set of key organising principles. These principles, 'unlike values' are objective and external. They operate in obedience to natural laws, regardless of conditions. 'The only thing that endures over time is the law of the farm: I must prepare the ground, put in the seed, cultivate it, weed it, water it, then gradually nurture growth and development to full maturity. In this sense, Covey's (1991) philosophical framework is also a meta-model to which his assumptions must pay allegiance.

**Applying P.A.T.P. to the Seminar Context**

Once the managers have worked through some contrasting theoretical examples (and they need to be different enough for them to look for suggested premises), they are ready to begin taking outside stimulation in the form of "expert speakers". (In our case these included a CEO from Fuji-Xerox, a prominent Trade Union President, a leading strategist/academic). Then they are set the task of developing critical questions. To help them, each group's 'best question' is rated by the peer group of managers as either interesting, important or critical. The levels are deemed by the proximity to the philosophical level or epistemological "truths" which the questions incorporate or ask about.

*Results*

This is best answered by one or more participants. It will be done by giving an account of a "typical" critical thinking seminar, and an extension of the model to a different context.

**Case One  ISO 9002**

Sandwell College, in the United Kingdom took the initiative to implement a comprehensive quality assurance system for education and training (QASET), based on the industry standard of quality assurance ISO 9002. In so doing, the QASET was customer oriented and thus targeted the local industry. The academic staff, on the other hand, was given some flexibility in the actual procedures to be used, upon feedback from students within a set of guidelines. The QASET was found to be a valuable approach to incorporate standard practices across the various schools of Sandwell college. In particular, the role of the local authority (inspecting and reporting) was to be easier in dealing with the complexity of the college : 25,000 students, 520 teaching staff and 6 campuses. The system was deemed to provide a more controlled but effective operation with approved standards of quality for all courses conducted across the various schools.

The success could be measured not only on the perceived acceptance of the quality assurance standards of the academic staff but also by the fact that over 100 colleges have become committed to the use of the QASET. Furthermore, there are prospects for other institutions in the UK and abroad to take up the idea of incorporating the concept of quality assurance in their education system.

Having been convinced that such a system ensures a unifying quality of education with good practices, the obvious question was 'when will the quality assurance system be introduced to Curtin University?' Before a suggested answer could be given, the P.A.T.P. model was applied in context with the presentation. In that respect, the route from practices to philosophy was elaborated as shown in figure two below.

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Insert figure two about here
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At the philosophical level, some of the pertinent questions were :

a) True definition:
        * What is the essence of education?
        * What is the meaning of quality in the education context?
        * What is the objective of education?

b) Relationship between quality and education:

        * What are the dimensions of a quality education system?

        * What is the root of the cognitive reality being focussed on?


c) Crucial questions :

        * Why educate?

        * How viable is the ISO 9002 to education?


At a more practical level, some of the important questions are :

     i)       Who are the stakeholders, the customers ...?

     ii)      In what respect is the context of the UK similar to Australia?

     iii)     How is quality defined ?

     iv)     What is the purpose of measuring and ensuring quality in education, will the quality of learning be improved?


*Application of the model*


In practical terms, one could argue that the quality assurance standards ISO 9002 has been proven in industry and therefore will be applicable to the education arena. The theory of quality, examined in terms of the apparent philosophy and assumptions of ISO 9002 supports the view that quality can be achieved through a mechanistic approach of control, feedback and finally measured against some forms of quantitative criteria. Such 'scientific management' practices (Taylor, 1929) entail a rigorous procedural platform whereby conformity is enforced after the various stakeholders have presumably adopted the basic quality ethic as presented. Although the goal is met, in offering a product of high quality to the prospective customers, it would not be immediately obvious that the quality values could be construed as mechanistic. From a philosophical viewpoint, one could argue that education is not as rigid as it may appear to be. In fact, it encapsulates a less tangible mindset and has a broader perspective than an industry framework. The P.A.T.P. model in distinguishing critical, important and interesting questions, provides a useful tool to focus on the true values of quality and education.


It should be pointed out that the above discussion, in no way, undermines the effort of Sandwell College in establishing a framework for a quality education system. Our objective is to search deeper than what is apparent and most often taken for granted. In a way, the P.A.T.P. model helps in this situation of 'making sense' of the true nature of education and quality : understanding the 'why is' and 'what is' before going on to the 'how to' of implementing a new concept at Curtin University.

**Case Two     International Business Competitiveness Learning Log**    (Paul Anderson)

The Economics component of the International Business Competitiveness course required that the student keep a learning log based on the Financial Review so as to 'make sense of' current economic, financial and management data. The P.A.T.P. model was used to critically analyse thirty articles in the learning log, see example one. A brief extract will give a flavour one of the articles:

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**'Our Designers Look for Challenges Overseas'**

Among the legacies of Australia's protectionist era, now disappearing along with high tariffs, is a disregard for the benefits of good industrial design. Our manufacturers have tended to look overseas for design ideas, at best copying them or at worst simply hanging on to old products long past their use-by date. While their is no doubt the level of industrial design is improving, few are aware of the prominent role our designers are playing in the international scene, especially in Asia. They have been working with multinationals and emerging Asian manufacturers for decades, partly because of a paucity of Australian clients and partly because some of the most exciting design challenges lie offshore.

(Australian Financial Review 7 February, 1994)

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The article goes on to describe the various small and large companies who are making a success of designing in Australia.

| Philosophy | Why should our designers look for challenges overseas? |
| --- | --- |
| Assumption | Elements of the Australian workforce have the technical skills and knowledge to complete in the world market in services, specifically product innovation and development . Various world segments market present opportunities for Australians with the appropriate expertise to satisfy the demand for innovation. People generally learn and advance through problems and challenges confronted in workplace scenarios. |

| Theory | Various products, market segments, and nations are either in or entering the innovation stage of their life cycle and or development stage. As well product and market differentiation opportunities require new technological methods. Such opportunities are not restricted to regional or national borders and with improvements in world communications and computing systems, location often has no bearing where the service orientated work is performed. |
|---|---|
| Practices | Despite Australia having principally a factor based economy, certain segments of the market have or will enter the innovative stage of their development. As well our well educated workforce have the skills to develop a strong export focus in providing services to world markets. The goal is to create the awareness and understanding that Australians have the technical skills required to undertake this often highly skilled work. |
| Comment | Services (in this case innovative product design and development) represent as major growth potential for the Australian economy. Our geographical distance from Europe, the America's and Northern Asia has been bridged by the quantum leap in the advances in telecommunications and computing which have essentially eliminated the time response in doing business. The goal is to raise the awareness of overseas buyers of the skills of Australian workers through advertising our focus on R&D spending. |

By the time the P.A.T.P. model had been used for the thirtieth time in the learning log there was a discernible difference in the active seeking for the assumptions (as much as they could be inferred) behind the 'stories'. Instead of an intuitive scepticism, levelled at media out of habit or repute, it was possible to apply a framework where deeper reporting could also be celebrated and criticism could be directed at a particular level.

**Conclusion**

The model has begun to stimulate students to think more deeply and ask 'why' questions more readily than was previously the case. Designed to combat the 'rational problem solving and 'how to' habits which are built into our scientific and industrial heritage the model is proving to have wider applications than was originally thought. Students seem to be using the framework for "making sense of" activities across a wide range of subjects, two of which were used to contrast the usage. The next stage will be to encourage students to critically appraise the model itself with a view to future improvement.

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