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Abstract

This report aims to provide the basis for a re-appraisal of Action Learning. The origin of Action Learning in the problems faced by the UK National Coal Board in the late 1940s is recognised and Revans' contribution set in the context of two other parallel developments: sociotechnical systems theory at the Tavistock Institute and Sir Geoffrey Vickers' notion of 'appreciative systems'. The way in which all three approaches have continued to develop is reviewed. A number of subsequent approaches with no direct connection with Action Learning are also reviewed to further inform future development: Argyris and Schön's 'theory of action'; Lave & Wenger's 'situated learning'; the 'capability' approach; and Weick's theory of sense making in organisations. The report then concludes with an 'agenda' to inform the future development of Action Learning.

Introduction

In August 2002, in my first year in the role of Dean of Action Learning and Continuing Professional Development, I was awarded the David Sutton Fellowship. My original intention was to use this opportunity to investigate the relationship between action learning and the conventional world of education and training. This has proved to be significantly more complex than I imagined at the beginning of the year which has made the amount of progress more modest than I was hoping. Furthermore, the year has been marked by the death of Reg Revans, the founder of action learning. As a consequence, this report has been written in a different way than I originally intended.

I have devoted a major amount of my time during the last year to looking at two aspects of action learning: firstly the context of the origins of the approach. Although Revans, without question, made a monumental and highly innovative advance, he was not alone in looking at the world in new ways. The first part of this report, therefore, will look at the problems which were being faced by the National Coal Board, where action learning was originally developed when Revans was Director of Education. It will also look at two other responses to these problems, Emery & Trist's 'sociotechnical systems' approach and Sir Geoffrey Vickers' model of 'appreciative systems'. The intention here will not be to provide a historical account of Revans' or others' approaches, but to look for common patterns which do not previously appear to have been identified. Still less is the intention to provide an appreciation of Revans' life and work and for this the reader is referred to the fine obituaries which have already been written (see, for example, Caulkin, 2003; Margerison, 2003).

The remainder of the paper will then aim to be forward looking. There are two distinct sources for this. Firstly the developments which have been made of Emery & Trist's and Vickers' work. Secondly, the increasing number of quite independent studies which, to a greater or lesser extent, have 're-discovered' Revans' ideas. Overall, the approach will be to work towards the original aim, to investigate the relationship between action learning and the conventional world of education and training.

The National Coal Board in the Late 1940s

Towards the end of the 1940s, the British Coal Industry was facing problems which, it is now recognised, it did not publicly recognise (Trist, 1981). Essentially a nineteenth century creation, it was the major source of energy for the industrial revolution and had survived through the early part of the twentieth century with comparatively little new investment. The depression years of the 1920s and 1930s saw no significant development and the industry emerged from the Second World War in a parlous state.

Public ownership and the formation of the National Coal Board enabled long-overdue capital investment to be put in but the results were disappointing. By 1950, the progress that had been made was not as great as had been hoped and, worse, the productivity from the newly mechanised mines was much less than had been expected.

Measures of this were discussed at the meeting of the Board on 13th January 1950. At that time, the highest annual production recorded was in 1913 at 287 million tons (292.2 million tonnes). In 1939, the equivalent figure was 231.5 million tons (235.7 million tonnes) and immediately before nationalisation in 1945, it stood at 174 million tons (177.2 million tonnes). Although mechanisation saw a rise in production, by 1949 only 202.7 million tons (206.4 million tonnes) were produced, despite the urgent need for power to support post-war development.

Productivity measures were even more disappointing. The highest figure here was in 1936 at 22.8 cwt (1.16 tonnes) per man shift while by 1949 this had risen to only 23.2 cwt (1.18 tonnes) per man shift.

A rather different measure was that in 1950, despite the investment in mechanisation, there were still approximately 20,000 ponies at work in British mines and the oldest shunting locomotive was a steam engine built in 1848.

It was recorded in the minutes that:

‘The position certainly afforded no ground for complacency in view of the change from hand-getting to so-called traditional mechanisation.’ (National Coal Board, 1950).

Why so much investment was resulting in such little improvement was a major question. This was the situation which prompted Reg Revans to develop the idea that the managers who were facing the problems on a day-to-day basis were best placed to provide the answers.

The Tavistock Institute and ‘Sociotechnical Systems’

At the same time as Revans was developing action learning, researchers at the Tavistock Institute in London were also looking at the productivity problem in the coal industry but from a different perspective. The researchers at the Tavistock were working in a new area developed during the Second World War, looking at the relationships within work teams and team effectiveness. The work was developed over many years by Fred Emery and Eric Trist. (see Emery & Trist, 1960).

Taking on the initial coal mining studies, Eric Trist worked with Ken Bamforth, who had himself been a miner, and they looked at a variety of pits which had been mechanised. The most common form of mechanisation was that of introducing the ‘longwall method’. Previously, miners had worked in small teams who hewed the coal out in a small area of the coal face. Each member of the team had a clear, specific role. They worked in pairs in teams up to a total size of eight.

The new method involved working up to 200 metres of the coal face at a time. A track would be set up in front of the coal face and a cutter would cut about two metres into the coal as low in the seam as possible along the full length. Holes would be bored into the face above this and explosives inserted which, when fired, would allow the coal to drop into the small space made by the cut. This would loosen the coal sufficiently for it to be removed. The track would then be moved forward into the space created by the removal of the coal and the whole process repeated. In addition to this basic task, the area in which the miners were working had to be propped up before they could move into it.

Trist and Bamforth looked at a number of mines organised in this way and then discovered a pit at Haighmoor in Durham where the productivity was very much higher than most. For reasons which it was difficult to discover (Trist (1981) refers to ‘geological reasons’) when the mechanised system had been introduced in this mine, teams were organised in the traditional, pre-mechanisation style. This enabled a comparison to be made between the traditional team and the new form of work organisation. Apparently without realising it, the engineers had not only changed the coal-cutting technology, they had also made significant changes to the work organisation. Generally, the mechanised pits operated on a shift basis with groups of up to forty miners. Each shift had an overall task: make the cut and set the charges; fire the charges and remove the coal; move the track forward and prop up the working area.

Frequently, a shift didn't complete its work. For example, careless cutting and poor placement of the charges would result in not all the coal being freed. This would require extra work on the following shift in order to clear the coal and this couldn't always be completed. Miners who were expecting to move the track forward would find that they had to complete the work before they could start their own. The divisions between the shifts led to a lack of sense of ownership of the process as a whole – which then compounded the problems. The engineers had unwittingly introduced the work organisation of a mass-production factory.

With the combination of new technology and small work groups at Haighmoor realising higher productivity, Trist and Bamforth realised that there was an interaction effect here. The problem was not to be found in the technology nor in the work organisation but in how the technology and work organisation interacted with one another. This led directly to the development of 'sociotechnical systems theory' – the study of the interactions between social and technical systems.

One of the most important concepts to come out of this work was that of 'suboptimisation'. According to this principle, dividing a system into subsystems and separately optimising each subsystem does not necessarily result in the optimisation of the system as a whole. The converse of this is perhaps even more important: a total system may be optimised as a whole when one or more subsystems is not optimised as a subsystem. In the particular case of sociotechnical systems, the whole system may be optimised when the technical subsystem is not optimised. It is very difficult to convince technical people of this point.

This development also involved one of the first significant uses of action research. Action research has clear similarities with action learning. Both involve systematic change within an organisation. In the case of action learning, the change is made (typically) by managers and planned and reviewed in action learning sets comprised of managers facing similar, but different, problems. The intended outcomes are (1) improved performance and (2) learning within the set. In the case of action research, the change is made (typically) jointly by managers and external researchers. The intended outcomes are (1) improved performance and (2) theoretical development of an understanding of situations which the present situation typifies. Apart from the involvement of external researchers, the other significant difference is the 'public' face of the research. Trist & Bamforth's (1951) findings were published, apparently much to the annoyance of the National Coal Board, in the journal *Human Relations*.

Sir Geoffrey Vickers and 'Appreciative Systems'

At the time both Revans was developing action learning and Emery & Trist were using action research to develop sociotechnical systems theory, a broader line of development was being started by

Sir Geoffrey Vickers. Vickers was the NCB Board member responsible for manpower, training, education, health and welfare. He was Reg Revans' boss.

Born in 1894, Vickers' university education was interrupted by the First World War. On his twenty-first birthday, he showed exceptional gallantry and was awarded the Victoria Cross. After the war he returned to university, qualified in law and practiced in the City of London very successfully as a solicitor. At the outbreak of the Second World War in 1939 he attempted to enlist with his regiment but was diverted into military intelligence – and then quite rapidly became the Government's Head of Economic Intelligence until the end of the war when he was knighted for his service. He then decided to remain in the public service and he worked in the NCB and Health Service until he retired in 1955. He spent the rest of his life developing the understanding of organisations he had acquired through his working life. He worked in the UK at the University of Lancaster, and in the United States, and published a series of books. He was still writing when he died in 1982 at the age of 87.

Vickers' approach to understanding management is not, in itself, complex or difficult but being based on rather different assumptions to conventional approaches, can at first be somewhat disconcerting. Perhaps the best place to start is with his approach to complexity.

Even today, there is a common assumption about management, which is rarely discussed, that good management decisions are, or at least should be, rational. Only a moment's reflection on the complexity of the world in which we live and the speed with which management decisions are required reveals that in reality this ideal must often be compromised.

An early challenge to this point of view came from Herbert Simon in his book *Administrative Behavior* which was published in 1941. Simon's view, which will only be briefly reviewed here, is that management decisions are characterised by what he called 'bounded rationality'. On this view, if we are able to make decisions rationally, we do so. Simon called this 'optimising' behaviour. Rational, in this sense, means optimising or maximising the intended outcome against a predetermined criterion or criteria. If, on the other hand, the complexity of the situation makes an optimised decision impossible (and a common reason for this is less the complexity which faces us but our inability to make a rational decision in the time available to us) then we find an outcome which is satisfactory and sufficient. For this, Simon coined the word 'satisficing'. As he put it, using the metaphor of finding a needle in a haystack, it is the difference between finding the sharpest needle and finding a needle which is sharp enough to sew with (Simon, 1960).

This approach appealed to Vickers but he clearly disliked the notion that we 'switch' our behaviour according to circumstances. To accommodate this, he took a rather different approach. On his view,

when we first encounter a complex situation, we face two problems. Firstly, the amount of information we face is frequently overwhelming. Second, our value system is unclear. By ‘values’ here he meant less the deeply held values that guide us through life and which are relatively immune to change, but the more malleable values which we feel free to change and adapt. For example, when making a purchase and are concerned with cost, we might variously choose the cheapest option, or choose the best value for money. Or, if the manufacturers of designer clothes and fragrances are to be believed, we might even choose the most expensive option on the grounds that it is an easy-to-identify ‘proxy’ measure for prestige, which they argue is what we really want in such purchases. In this sense, our values are variable and we adapt them to circumstances as we choose. Their virtue is that they enable us to ‘filter’ the information which overwhelms us and focus on what is important on this particular occasion.

So, to start, we go around the loop of a learning cycle. At the beginning, the amount of information overwhelms us and our values are unclear. Initial acquaintance with the information enables us to clarify our values, and with clearer values we focus more clearly on the information we need. Each depends on the other and through this process we gradually gain a better understanding of the situation we face. At some point we enter a second ‘outer’ loop and take a different form of action, not this time to gain a better understanding of the situation but to change it in some way. This may or may not achieve what we intended but it certainly will change the situation and this requires that we return to the first loop to further clarify our values and gain a better understanding of the situation.

So, on Vickers’ view, we proceed by going through a double-loop learning cycle. In the first loop we make ‘reality judgments’ to decide on the state of the world and we make ‘value judgments’ to clarify what is important for us. These two are interdependent. When we have an adequate understanding of what we face (which might be far from a complete understanding) we enter the second loop and make ‘instrumental judgments’ to try and change the situation. The interplay between these three types of judgment and the relationships between them was referred to by Vickers as an ‘appreciative system’ and the current set of value judgments at any particular time as the ‘appreciative settings’ of the system.

The use of the word ‘system’ here is significant. These ideas were developed at a time when von Bertalanffy’s notion of ‘systems’, which had originated in biology in the 1930s, was being developed mathematically for engineering science by writers such as Norbert Weiner (1948). The cybernetic model of control appealed to Vickers but he found simple versions of this, for example as to be found in the model of a simple thermostat, inadequate. Worse, he felt that it was likely that technologists in particular might impose inappropriately simple models on to social situations such as management.

There were two reasons for this concern. The first was because he felt the simple nature of switching heat on and off in response to temperature measurements didn't adequately represent management tasks. Better, perhaps, would be the much more complex actions which need to be taken by the helmsman of a large ship to change course. Turning a ship's wheel will produce a change in heading which then has to be stopped when the correct, new heading has been achieved. Avoiding overshooting the new heading is a significant problem and to simply change heading for a new direction without overshooting involves an extremely complex set of movements of the wheel back and forth. Analysis of what skilled helmsmen actually do shows that they take into account at least the current heading, the speed at which the heading is changing and the acceleration of the change in heading. (And the skill of adjusting to this makes the term Weiner adopted to describe the study of such phenomena particularly appropriate – 'cybernetics' from the Greek κυβερνήτης – helmsman).

Even more to the point, however, is that a thermostat while capable of following a purpose, cannot set a purpose. Thermostats do not make decisions like: 'Yesterday I kept the temperature at 20 degrees, today, I am going to keep it at 22 degrees...' or, even less likely: 'To keep the room comfortable today I am going to control humidity rather than temperature...' yet human beings routinely make decisions of this type. Vickers had anticipated what systems theorists in later years characterised as the distinction between 'purposive' and 'purposeful' systems – purposive systems being systems which are capable of following a purpose, while purposeful systems can, in addition, set purposes.

'Purpose' here, is what Vickers referred to as 'appreciative settings' and it is a concept very different to goals, objectives or targets. It is ongoing in nature – at any particular time in principle it goes on for ever. Even a simple room thermostat has a purpose – that of keeping the room at, say, 20 degrees. Unlike a goal or objective, there is never a time when it is appropriate to say 'That has been achieved, what should we turn our attention to next?' Although he did not actually oppose objective setting, he found it generally unhelpful because, he argued, it confuses means and ends. The appreciative settings, which from this point of view can be regarded as standards of performance, were in his view much more helpful. But they have to be set by those who are responsible for enacting them – no-one else is capable of sufficiently understanding what is appropriate. You have to have been through the first learning cycle with its interplay between reality judgments and value judgments to have a sufficient appreciation of what is feasible and what is appropriate.

All of this has been described as if it is an individual who is gaining the appreciation of the situation in question. In one sense this is true – it is individuals who make decisions and get things done. But in another sense it is inadequate because the efficient and effective conduct of organisational life requires collaboration. Perhaps there will never be complete agreement between everyone involved but there must be sufficient agreement to allow collaboration. The whole process, therefore, can also

be viewed as one of collaborative sense-making. On this view, one of the most important functions of a manager is to facilitate sense-making amongst those who are managed to the extent that they can work together. This is an interpretative view, not dissimilar to the ‘social construction of reality’ approach later developed by Berger & Luckman (1971). Objective reality, whatever that might be, is less important than what is agreed amongst those involved. Collective reality judgments, however, must be sound. (Vickers, 1995).

What Can We Learn from the ‘Coal Board’ Experience?

The difficulties faced in the British coal industry at the end of the 1940s clearly resulted in a variety of new approaches to managing and organising. All had ‘learning’ at their centre. Action learning and the sociotechnical approach quickly showed substantial benefits. Vickers took longer to develop his ideas but none of the three approaches appears to have been well-received. Revans took his ideas abroad, especially to Belgium. The Tavistock researchers developed their ideas outside the UK, especially in India, and later in Scandinavia. Vickers found much more sympathy for his approach in the United States, which he visited frequently.

It says much for the resilience of all three approaches – and their advocates – that, despite substantial evidence in their support, while none of them have fulfilled their potential they still are practised. To some extent, the original lessons have been re-discovered and a brief review of this will be given later in this paper. First, the development of the original approaches will be outlined.

The Inheritors: Action Learning

This is not the occasion in which to provide a historical account of action learning. It is appropriate, however, to point to the main features of the way in which action learning has developed in the intervening years. I would subscribe to the brief definition of action learning provided by Pedler, Brook and Burgoyne:

- ‘Action learning is a method for individual and organisational development. Working in small groups, people tackle important organisational issues or problems and learn from their attempts to change things. Action learning has four elements:
1. Each person joins in and takes part voluntarily.
 2. Each participant must own a managerial or organisational problem on which they want to act.
 3. Sets or groups of action learners meet to help each other think through the issues and create options.
 4. They take action and learn from the effects of that action. One of the main premises of action learning is that, in Revans’ words: “ There is no learning without action and no (sober and deliberate) action without learning”’. (Pedler, Brook & Burgoyne, 2003, p.41).

Broadly in this form, action learning has been practised consistently over the years since Reg Revans first developed the idea. Those who practise it testify to its effectiveness yet it has never truly entered the mainstream of developmental methods. There is a paradox: its effectiveness has led to its (at least

partial) acceptance while its lack of orthodoxy has led to rejection. It is interesting to speculate on what comprises this lack of orthodoxy. Three points stand out:

- Compared with conventional education, the relationship between theory and practice is reversed: in action learning, theory is brought to bear to explain and clarify one's experience, rather than learnt (supposedly completely) before any experience is attempted.
- This results necessarily in the lack of any pre-determined specification of knowledge – or curriculum. In turn, this makes conventional assessment difficult because this is generally done through specifying in advance the explicit knowledge to be gained – as in a conventional examination.
- That action learning, in effect, changes the power relationships in the learning situation. Neither the set advisor nor the employing organisation are wholly in charge. Compared with conventional, formal learning methods accountability for what is learnt remains largely with the learner.

Perhaps because of these points, the idea of action learning has spawned approaches which, while superficially similar, are not action learning at all. In particular, it is common in 'action learning' projects for employing organisations to specify what the topic for study will be. This is clearly at odds with Revans' original idea. Goleman, Boyatzis & McKee (2002) unwittingly provide an example of how the original concept has been corrupted. In explaining the advantages of what they call 'action learning' they say:

'The method enables participants to practice what they're learning... Teams must work on the projects, not individuals... and, in particular, people need to be released, to some extent, from their normal duties to work on the projects'. (pp.236-237).

The separation of learning from everyday work and the team focus in which all members of the team work on the same 'project' reveal that what they consider to be action learning differs significantly from what Revans had in mind.

Pedler, Brook and Burgoyne (2003) are currently conducting a survey to discover the extent of the practice of action learning in the United Kingdom – and how closely it keeps to Revans' original idea.

The extent to which the integrity of the approach has been maintained is largely due to the activities of the Revans Institute for Action Learning and Research at the University of Salford and, in particular, the International Management Centres Association.

The Inheritors: Sociotechnical Systems

Following the original coal mining studies, the Tavistock Institute sought to establish whether the findings could be applied in other industries and other cultures and this led to extensive studies at the

calico mills in Ahmadabad in India. Interest was shown in the United States, particularly by Louis Davis at the University of California and the ideas became embedded in the development of 'job design' which in turn became the basis of the 'Quality of Working Life' movement. Possibly the greatest achievement was in the extensive changes in working practices in the Volvo company, particularly at their works at Kalmar. Here, the production line, with its simple repetitive tasks, was abandoned and production of cars given to teams of about twelve employees who assembled the cars as a team. New technology was developed to facilitate this style of working and, while considered in isolation, this appeared to be less efficient than the production line method, taken as a whole sociotechnical system there was considerable evidence that productivity had improved, especially when quality was taken into account (Agurén, Hansson & Karlsson, 1976).

Overall, the approach was characterised by an emphasis on participation. The focus was on work groups rather than managers, and aim was to make the work groups as self-managing as possible. There was also a focus on job content, increasing the variety of skills each individual had and, therefore, their versatility within the group and the interdependence of the group members. It was argued that the conventional approach to work design, which minimised the skills required (and, consequently, minimised the requirement for learning) was in effect 'redundancy of parts' (where the 'parts' are people) while the sociotechnical approach implied a 'redundancy of skills' – in other words each employee would need skills they would not necessarily require at any one particular time. The implications for learning are clear.

Emery & Trist later took the sociotechnical approach into a more theoretical direction, looking in particular at the way in which organisations interact with their business environments (which gave us the useful concept of 'turbulent' environments) (Emery & Trist, 1965) and also organisations as 'ideal-seeking' systems. This, like Vickers' approach, lowers the conventional emphasis on setting objectives.

The 1980s and 1990s produced a hostile environment for these ideas from a political point of view but the original sociotechnical idea has been maintained by Enid Mumford, particularly through her work on the design of IT systems. Her emphasis here is on participative design by users. She argues that IT technical staff lack the necessary insights into how the work they are designing for is done. Through her 'ETHICS' (Effective Technical and Human Implementation of Computer-based Systems) technique, she advocates system design by groups of users working with a facilitator. The emphasis on group problem solving and collaborative learning provides a clear link to action learning but, perhaps unsurprisingly, the development of IT systems ignores these factors to their disadvantage.

The Inheritors: Appreciative Systems

Sir Geoffrey Vickers spent his last years as Visiting Professor of Systems at the University of Lancaster. The influence he had there clearly contributed to ‘Soft Systems Methodology’, an action research approach developed by Peter Checkland and his associates.

Checkland started his career as an academic chemist but moved into chemical engineering. Here, he concluded, the major problems which he encountered were to be found in the human and organisational aspects of his projects. ‘Human activity systems’, he argued, were different in nature to the technological systems which engineers typically considered, and needed to be treated in different ways. From this, the distinction between ‘soft’ (human and organisational) and ‘hard’ (technological) systems was developed. While ‘hard’ systems are relatively tractable – and their behaviour can be reasonably predicted – ‘soft’ systems are essentially ‘messy’.

‘Soft Systems Methodology’ (SSM) can be described as a practical implementation of Vickers’ idea of ‘appreciative systems’. From a practical point of view, there are three distinctive characteristics:

- SSM accepts the complexity of the world. Generally speaking, human and organisational issues are difficult to understand. Indeed, frequently defining these issues as ‘problems’ is itself problematic because it will result in unhelpful over-simplification. This is close to Revans’ distinction between ‘puzzles’ (which may be difficult to solve but have an unambiguously ‘correct’ answer) and ‘problems’ (which may be impossible to understand in all their complexity). If it is unwise to define problems, it becomes impossible to find solutions. SSM resolves this by replacing ‘problem definition’ by making as complete a description of the ‘problem situation’ as possible. In place of ‘solution’, SSM advocates ‘seeking improvement’ to the problem situation.
- A difficulty in this approach is deciding what constitutes ‘improvement’. SSM accepts that different ‘actors’ in the problem situation will have different ‘world views’ ie different values, assumptions and beliefs. These must not be ignored, indeed they must be systematically explored. There are two implications of this: (1) that searching for an ‘objective’ view becomes inappropriate and that (2) some sort of accommodation of the different world views will be a necessary part of taking matters forward. Action, therefore, becomes a matter of organisational politics.
- Checkland retains Vickers’ ‘double loop’ learning cycle. The approach starts with action to gain an understanding of the situation and a clarification of the values of all those involved and then moves to the second loop in which action is taken to seek ‘feasible and desirable’ improvement to the situation.

Soft Systems Methodology was originally described in a number of papers culminating in Checkland (1982). The most recent account (Checkland & Holwell, 1998) provides a particularly clear account of problems which arise from inappropriate models of organisations which are used in the design of information systems. Despite this emphasis, the clarification of thinking about organisations is valuable in its own right.

An Interim Comment

By looking at the development of ideas that came from the same roots as Revans' action learning, we can see ideas that may enable us to extend and enrich a new conception of our practice. Already the following can be nominated:

- Vickers' double loop learning cycle, in other words, looking at 'action' in two ways: action to enable us to understand the situation in which we are operating and to clarify our values as opposed to action to bring about change to that situation. Reflecting on my own practice in action learning, I can see both of these happening and separating them makes the process very much clearer.
- Questioning the usefulness of setting objectives. This is not to reject objectives. There is a considerable body of research to support the usefulness of objectives, for example that of Locke & Latham (1990). Setting objectives, however, assumes that you are completely clear about what you want to achieve. This is equivalent to Revans' concept of a puzzle. If we think of this in terms of learning objectives, we face the danger of overlooking the fact that the most important learning may be found in discovering what it is that we want. Both what constitutes the 'feasible and desirable' change (to use Checkland's formulation) and how to achieve it may be impossible to define at the beginning of the process. This raises the question of what sort of model of the 'organisation' we use. Using the 'hard' vs 'soft' distinction, do we see organisations as 'social entities which set up and seek to achieve goals' or as 'social entities which seek to manage relationships'? (Checkland, 1998, p.48). The former, in the functionalist tradition of Durkheim, would seem to be more consistent with a conventional approach to learning while the latter, which derives directly from Vickers' approach and which is in the interpretive tradition of Weber, would seem to be more consistent with action learning.
- Taking greater care to systematically explore the differences in 'world view' amongst those involved and seeking to find ways forward which reconcile differences as far as possible.

Before I consider these matters further, I will briefly review a number of more recent approaches which, while developed independently of action research, potentially appear to contribute to its development.

Parallel Developments: Chris Argyris & Donald Schön

The 'theory of action' approach to organisational learning developed by Chris Argyris and Donald Schön offers insight from a rather different perspective. There are three aspects to this approach.

1. The first involves the difference between what Argyris and Schön refer to as 'espoused theory' and 'theory in use':
 - People, if asked, will say they act in a particular way. They may believe that they actually act this way. Argyris and Schön refer to this as their 'espoused theory'.
 - In reality, they often act in a way which is systematically different to this. Argyris and Schön refer to this as their 'theory in use'.
 - People develop emotional defence mechanisms to protect themselves against the incongruity involved in this.

A common example of this is to be found in attitudes towards collaboration and teamwork. People in organisations frequently say they value teamwork and that their organisations are collaborative in style. Often the reward systems in these organisations reveal that the reality is that they are very individualistic and competitive. Performance related pay based on team performance is comparatively rare.

2. The second recognises the difference between 'single-loop' and 'double-loop' learning. This is very similar to the distinction Vickers made but the emphasis is placed on performance. In single-loop learning, improvement is sought through increasing performance while adhering to externally set standards. In 'double-loop' learning, performance improvement is sought through changing the standards – in Argyris and Schön's terms, the 'governing variables' (which appear to be almost identical to Vickers' 'appreciative settings.) The difference is akin to the distinction between improvements in 'efficiency' and 'effectiveness'.
3. Lastly, double-loop learning is frequently an espoused theory while single-loop learning is often the theory-in-use. Increased effectiveness is difficult to achieve because of the emotional defence mechanisms brought to bear.

There is a common form for these defence mechanisms:

1. Send a message that is inconsistent.
2. Act as if it is not inconsistent.
3. Make 1 & 2 undiscussable.
4. Make the undiscussability undiscussable. (Argyris, 1999, p.58-59).

Argyris and Schön's escape from this trap is in the use of skilled facilitators to enable the undiscussability to be challenged. In action learning, this clarifies – and places great emphasis on – the skills of action learning set advisors.

Parallel Developments: Jean Lave & Etienne Wenger

Jean Lave and Etienne Wenger, working at the Institute for Research on Learning at Palo Alto, California, have recently developed a new view of what constitutes 'learning'. Although they appear to have no knowledge of Revans' work, their views have some strong similarities. They reject the idea that learning is the reception of factual information or knowledge. Rather, they argue that learning (1) is essentially social in nature – effective learning is acquired with and from others and (2) learning is acquired through doing. They describe this as 'situated' learning. (Lave & Wenger, 1991).

Further than this, however, learning is associated with a process of becoming a member of a group of knowledgeable and skilled people – a 'community of practice'. The word 'becoming' is crucial here. In a process reminiscent of apprenticeship, a person will proceed through a process in which at first they are not knowledgeable, through a phase when it is recognised that they are going through the process of learning to the point when they are recognised as being knowledgeable. A necessary part of this process is engagement with a community of practice. The key learning takes place when they are at the stage of being recognised as having started on the route to 'membership' but have not yet achieved it. Because their participation is recognised by others, it is termed 'legitimate'. Because their participation is not yet as a 'full' member of the group it is termed 'peripheral' and the learning process, therefore is termed 'legitimate peripheral participation'.

Wenger (1998) takes the ideas further. On this extended view, learning is associated with four interconnected components: becoming a member of the community ('learning as belonging'); being competent in practice ('learning as doing'); deriving meaning from experience (learning as experience); and developing a sense of personal identity ('learning as becoming'). He summarises it as follows:

1. *Meaning*: a way of talking about our (changing) ability – individually and collectively – to experience our life and the world as meaningful.
2. *Practice*: a way of talking about the shared historical and social resources, frameworks and perspectives that can sustain mutual engagement in action.
3. *Community*: a way of talking about the social configurations in which our enterprises are defined as worth pursuing and our participation is recognizable as competence.
4. *Identity*: a way of talking about how learning changes who we are and creates personal histories of becoming in the context of our communities.' (Wenger, 1998, p.5)

A central part of this way of looking at learning is the recognition that much of the knowledge we learn is 'tacit', in other words it is impossible to articulate it. It cannot, therefore, be set out in writing, for example in books, for us to learn. We have to learn by doing.

This is an approach to learning which has much in common with Revans' action learning but the way in which it is expressed clearly extends the possibilities for understanding the process.

In the earlier statements (eg Lave & Wenger, 1991) it was implied that communities of practice were themselves tacit and that participants would to a large extent be unaware of the process. The creation of communities of practice is, therefore, something which happens spontaneously.

An example quoted by Orr (1996) makes this clear. It concerns learning in a group of Xerox photocopier technicians. At the time of Orr's study, Xerox didn't train its technicians in how photocopiers work. Rather, they gave them checklists to enable them to diagnose and fix faults. (...if such-and-such error code is displayed, do this... if the results of this action are... replace that...) This enabled them to fix most, but not all faults. To improve their performance, they endlessly discussed the difficult cases they had experienced. This was done over coffee, at mealtimes, playing pool after work (...has anyone seen one like this...?) Through this process, it was discovered, they developed a much greater understanding of how photocopiers work in practice than the engineers who had designed them who, generally speaking, only understood photocopier performance in the design laboratory. Interestingly, behaviour such as this is often not seen as productive – typically managers of technicians seeing them in animated discussion in coffee breaks would conclude that the coffee breaks were too long and seek to shorten them. Part of this reaction is due to the fact that frequently managers do not understand the difficulties of the jobs in question. What appears to be simple and straightforward can often present significant problems which the employees learn to overcome.

More recent statements (eg Wenger, McDermott & Snyder, 2002) take a slightly different view and maintain that communities of practice can be created. Looking at the relevance of this for informing the development of action learning, the sense in which they can be created is obviously crucial. Creating the conditions in which communities of practice can flourish and supporting them when they do is one matter, removing the voluntary element and recruiting staff into 'communities of practice' would be quite another.

Parallel Developments: The 'Capability' Approach

A recent development which throws a different light on learning is to be found in the work which has become known as the 'capability' approach. (see Raven & Stephenson, 2001). The starting point here is in a critique of professional training and its focus on knowledge and competences. Writers such as Raven (2001) maintain that the main focus on learning in our formal educational institutions involves learning things which are comparatively unimportant for professional success while more important factors are ignored because they cannot easily be specified in advance.

‘With the exception of its use to denote learning to read, to write and to count, the word “learning” is generally used by educators to refer to learning *content*: to memorising a smattering of scientific truths and formulae; to learning the names of cities and the products for which they are famous, to memorising dates and famous battles, and to learning to decline irregular French verbs. The word is rarely used to refer to such things as learning to make one’s own observations; learning to lead; learning to work with others; learning to clarify one’s values; learning to invent; learning to initiate action, monitor its effects, and take corrective action; learning how discover how organisations work; or learning how to influence them. One can learn to persuade, to put others at ease, to influence those above one, to control others, to gain preferment, to win affection, and so on. The list is almost endless... One is forced to ponder whether people can learn and behave competently without knowing very much. And, of course... they both can and do. Indeed, very little competent behaviour depends on formal *knowledge*.’ (Raven, 2001, p.17)

On this view, the main determinants of competent behaviour are to be found in higher level competencies of the types listed in the quotation. But it would be wrong to assume that these are transferable between different situations. While they appear to be generic, they must be learnt and re-learnt in the situations in which they are to be applied.

This is an argument which has close similarities to Revans’ distinction between ‘programmed knowledge’ and ‘insightful questioning’. It places the argument into a somewhat different arena, though, that of the assessment of competence. The implication is that the essential elements of capability are not assessable by the conventional methods of the education system. This has interesting implications for such developments as awarding qualifications for action learning through the Action Learning Question approach.

Parallel Developments: Karl Weick and Sense Making in Organisations

One of the less conventional aspects of Vickers’ approach to organisations is that the view that learning in organisations is a process of collaborative sense making. This is a view that has been picked up on more recently by Karl Weick (1995). Weick illustrates what he means by sense making by a case study, that of ‘battered child syndrome’.

‘Battered child syndrome’ was first identified by radiographers. The syndrome had two related parts: firstly a child presenting at a hospital casualty department with serious injuries for which the parents cannot provide a satisfactory explanation. Secondly, x-ray evidence that there has been a history of similar injuries. To radiographers, the most likely explanation is obvious, yet it took twenty years for paediatricians to accept this possibility.

This example is characteristic of a wider set of cases. In all of these, evidence is available. A powerful group (paediatricians in the example) hold a set of assumptions that make it difficult to accept the implications of the evidence. (Parents do not deliberately injure their children). A less powerful group cannot understand why the obvious implications are being overlooked (radiographers in the example). Eventually, the evidence becomes so overwhelming that it can no longer be ignored.

From then on, those who previously rejected the evidence find it difficult, if they are honest, to see why they couldn't see the evidence for what it was. They have finally made sense of the situation. While this is a dramatic example, Weick argues that it illustrates processes that are central to how organisations function.

Building on an earlier idea that process is more important than structure, Weick argues that sense making is best viewed as a process of continual flow. (The original argument was that words like 'organisation' and 'communication' are unhelpful because they imply a static state when describing phenomena which are essentially dynamic in nature. He advocated replacing these words by 'organising' and 'communicating' in an attempt to avoid this). Given this flow, there is no 'beginning' and 'end' to sense making, but we can enter a collaborative sense making process and we can withdraw from it. While making sense requires a 'sense maker', we cannot make sense of things by ourselves, sense making is essentially a social process and interaction with others is an essential part of the process. Also, the process of sense making is dependent on our values and our world view. Radical change in the way we see things depends on changing the way in which our values enables us to focus on the complex world we are observing. This is close to Vickers' idea of 'appreciation'.

An underlying theme

There is one final point which needs to be made. Strictly speaking, it is not a matter which relates directly to learning but it is a recurrent idea in many of the approaches I have considered. This is the relationship between explicit and tacit knowledge. It is an important factor in the approaches of Vickers, Checkland, Argyris & Schön and Raven and, implicitly, Revans.

The distinction was first made by the philosopher Michael Polanyi. To Polanyi, explicit knowledge is knowledge which can be readily described and, in particular, written down. In contrast, tacit knowledge is knowledge that cannot be articulated. Polanyi used a number of examples to illustrate this, many from medical training (Polanyi originally trained as a medical practitioner) but in particular he uses a simple, everyday example, that of riding a bicycle. If I can ride a bicycle and you can't, there is no way I can give you a set of verbal instructions which will enable you to get on a bike and ride. (see Polanyi, 1958, 1969).

Tacit knowledge has a mysterious quality about it, because while there is usually no doubt when people have it, and they can, at least sometimes, communicate it to others (I could teach you to ride a bike) it remains essentially impossible to define. By necessity, it has to be acquired through doing. 'Explicit knowledge' is very similar to Revans' notion of 'programmed knowledge' but the equivalence does not hold for tacit knowledge and insightful questioning. Nevertheless, as Polanyi himself illustrated, management involves tacit knowledge. He cites the example of an electric light

bulb factory in Hungary which was built to replicate a German factory as closely as possible. While the German factory had an excellent production record, after a year the Hungarian factory had yet to produce a single working bulb. (Polanyi, 1966). In the words of the philosopher, Gilbert Ryle, it is the difference between ‘know that’ and ‘know-how’ (Ryle, 1949).

Explicit knowledge, in Polanyi’s view, is not really knowledge at all. This is because to be useful, one needs to know how to use it and this additional knowledge is itself tacit. On this view, all of the world’s ‘knowledge’ held in all the great libraries, is mere information unless you have the tacit knowledge to make it useful. This, perhaps, helps explain Raven’s observation that one can be competent with very little knowledge. What you really need to know is where to look it up.

Synthesis

This final section has been titled ‘synthesis’ rather than ‘conclusions’ because this point in the argument is far more a beginning than an end. I have been around the inner loop only a small number of times and the opportunity I have had to make sense of these ideas is at present strictly limited. So, what follows is intended as an ‘agenda’ – matters we might choose to discuss in taking action learning forward. They are intended to provoke discussion and are certainly not intended in any sense as a unilateral imposition of ideas.

Already we have four items, from our initial consideration of the development of the ‘coal board’ work.

- Double loop learning: action to understand the situation vs action to change the situation.
- The extent to which we are governed by objectives vs the extent to which we are governed by our own self-determined standards – and the consequent models of organisation we use: goal-setting or relationship-maintaining.
- The extent to which we explore diversity of world views.
- The use of action learning sets for purposes such as the design of our technology.

We can now add four more:

- Become more aware of emotional defences to radical change – and the challenge this presents to set advisors as facilitators.
- Become more aware of sets as ‘communities of practice’ and the relationship between set membership, learning and meaning.
- Become more aware of higher level competences.
- Regard the whole process as one of collaborative sense making.

So far, I have discussed my ideas with the UK Faculty Team set. We need a wider debate, using every opportunity – formal and informal meetings and using our web-based system. Perhaps we will begin to work together to collaboratively make sense, realising that this is a process of flow, without beginning or end. Perhaps we will develop a new sense of professional identity, derived from learning with and from others in our communities of practice. Perhaps we will persuade that powerful group, the providers of conventional education and training, to make sense at last of what surely must have been obvious to them for decades.

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