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Developing Learner Capability Through Action Research: From Pedagogy to Heutagogy in the Workplace

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Abstract

There is a considerable body of evidence demonstrating that action research is an effective approach to creating change in organisations. What is less well described in a systematic way is the effect of the action research journey on the researcher. This paper is based on the experience of a number of doctoral students who were undertaking action research projects in their organisation which involved major change initiatives. We found that action researchers moved from being pedagogical learners through a stage of andragogical learning to finally become self-determined learners (heutagogical). In effect using action research helped these quite senior managers and consultants become more capable learners. We hypothesise from these findings and the available evidence from these experiences that this may have very positive effects on their overall management capability. This three stage model of development also provides a structure that educators can use to develop the capability of the action researcher.

Learning for Complex Adaptive Systems

Vocational education and training in Australia has been dominated by the competency movement since 1983. The Hawke Labor Government decided to follow the trend in the UK and enter into a range of industrial and training reforms designed to create a more competitive workforce. While history will judge the effectiveness of these reforms there has been a considerable focus of attention on the development of knowledge and skills across a wide range of industries since that time. Most notably the emphasis on competency identification and assessment has dominated and continues to dominate the vocational and training agenda. However, there is a significant body of evidence suggesting that competency is a necessary but not sufficient condition on the journey to developing human capacity at work and there is a need for a more holistic approach. (e.g., Hase & Saenger 2005; Hase & Tay 2004; Mulcahy 2002; Capper 2001; Gonczi, 2001; James 2001; Hase 1999; Mulcahy & James 1999; Hall, 1996; Toohey, Ryan, McLean, & Hughes 1995).

This paper draws together a number of important ideas that not only support a need to go beyond competence but suggest some potentially exciting ways to enhance learning at work. As well as referring to some of the relevant theory we also draw on our experiences from a series of case studies demonstrating the development of human capability.

Workplaces are complex adaptive systems. Complexity Theory (Waldrop 1992) suggests that organisations are: essentially chaotic: that cause and effect are not necessarily temporally related; that massive interventions or change may have small effects and small change may have catastrophic effects; and that the same effect cannot be expected from the same intervention in different contexts (Brodnick & Krafft, 1997). Phelps and Hase (2002) summarise several key postulates that can be derived from Complexity Theory that have implications for how we view learning and development. These are:

- that systems are open and non-linear. Faced with constant environmental influence there is a need to maintain order which creates disequilibrium. Non-linearity means that even if we were able to understand all the parts of a system we could never really understand the sum of these parts (Lissack, 1999).
- the emergent nature of change. In complexity theory change occurs as a natural process of self-organisation (Doll 1997). Thus change is adaptive as higher levels of complexity are attained (Lee 1997) as individual behaviour is aggregated into global complex system behaviour (Phelps & Hase 2003).
- the nature of change as self-organising adaptation. According to Doolittle (2000) we adapt to our environment as a result of experience. As a result of this experience we construct schemas or mental models that are highly individualised and dependent on context.
- the role of agent interaction. One of the big problems with linear thinking about cause and effect relationships (and incidentally a problem with traditional modernist science) is that as soon as you control variables you change the context and, therefore, natural outcomes. Complexity Theory recognises the need to understand all the variables operating within the specific context. In trying to understand parts by limiting what one is looking at then the whole cannot be understood. According to Davis & Sumara (1997) it is the relationship between the parts that matters and gives understanding to the whole.
- the inherent unpredictability and sensitivity to initial conditions. This recognises the incredible complexity of social systems such as organisations and a reluctance to attempt to predict what might happen. Critically, initial conditions are essentially unknowable or unable to be replicated (Eve, Horsfall & Lee 1997).
- feedforward and feedback. Adaptation within complex systems is facilitated by the interaction between its component parts (Lee 1997), which involves complex feedback loops and mechanisms. As initially suggested by Systems Thinking (Emery & Trist 1965) these relationships are constantly changing in response to feedback and this is particularly true in a turbulent environment.
- autopoiesis, which refers ‘...to the patterns of self-generating, self-amplifying and self-maintaining systems’ (Phelps & Hase 2002 p. 510). One of the differences between Complexity Theory and Chaos Theory, from which it was derived, is that Complexity Theory posits that complex systems will eventually stabilise after a period of chaos and instability. This may mean higher orders of complexity through new systems being developed as a means to coping with the chaos. This is known as a process of bifurcation (Price 1997).

Systems Theory, which predates complexity theory by about thirty years, also looks at organisations as complex adaptive systems. One of the important contributions of Systems Theory was the need to carefully consider the effects of the environment (where other systems are interacting) in which systems (organisations) operate. Emery and Trist (1965) called this environment 'causal texture'. The current environment is best described as being turbulent. This is characterised by systems in the environment constantly changing their relationships, form and structure, and even disappearing. This means that in order to function effectively organisations must be open systems, constantly scanning the environment in order to be able to adapt quickly and even anticipate change. As in complexity theory, it is the relationships among systems that potentially create dramatic effects. It is almost a truism now to say that we live in a fast changing, globalised world. A world of work that is changing dramatically day-by-day in terms of communication technology, communication, location, and tenure, not to mention rapid advancement of knowledge and knowledge access.

The implications for vocational education and training for viewing the world through the lens of complexity and systems thinking are both large and challenging. Firstly, we need to be thinking about what are the attributes that a person needs in order to work effectively in complex adaptive systems and in the world of work in which we live. Secondly, this begs the question of how it is we can develop these attributes. In this paper I am arguing that linear, modernist approaches to training and development are insufficient.

Complexity theory creates a whole new set of assumptions about learning which are exemplified in the ensuing discussion. These are described in detail in Phelps, Hase and Ellis (2005). However, in summary these assumptions are that:

- learning is emergent and, hence, highly context specific (Doolittle, 2000) and unpredictable.
- learners are active participants in constructing their own learning through interaction with others and their environment (Jorg 2000).
- learning cannot be caused by teaching (Sumara & Davis 1997), rather the teacher can only provide a rich environment.
- the curriculum becomes a developmental process rather than something closely defined to begin with (Doll 1989).
- the teacher enables a level of acceptable disequilibrium that the learner then needs to fill (Doll 1989).
- education needs to be seen as a metacognitive process in which the participant learns to learn.

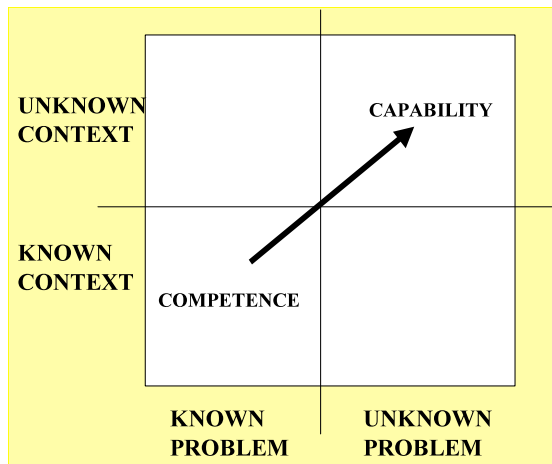
Developing Capability: Beyond Competence

Competence needs to be seen as a necessary but sufficient condition for the development of people to manage complexity. It has been suggested that we need also to think about the characteristics of people who are most capable of dealing with the type of world which has been described above (Cairns 1996; Hase & Kenyon 2000; Hase & Davis 1999; Phelps, Hase & Ellis 2005; Stephenson 1996) and the term Capability has been coined. Capability is a holistic attribute that consists of several dimensions: the capacity to use one's competencies in novel situations as well as the

familiar; knowing how to learn; being able to work well in teams; high self-efficacy; and the ability to be creative. Cairns (2000) has suggested that capable people also have appropriate values.

Capability recognises the importance of competence but as shown in Figure 1 below there is also an important distinction. Competence is concerned with the knowable and in that sense is a reflection of past knowledge and familiar contexts. In a complex world we need to be able to deal with an unfamiliar and unpredictable world. In a study of the effectiveness of competency assessment Hase and Saenger (2003) found that 'one shot' assessments were ineffective in preparing people for the myriad situations in which they might have to apply their competencies. Rather there is a need for the learner to be constantly aware of the potential for new learning situations, know how to harness the learning, be self-efficacious in the process, call on others to manage the learning, and to recognise the importance of maintaining competency. These are elements of capability that go beyond competence in significant ways. Competence also reflect a modernist view of a world that it can be broken down into simple, measurable parts that can be actioned independently. As argued above, in order to be effective we need to be thinking about wholes and relationships between parts, not the parts themselves. Learning is non-linear and unpredictable. It involves cognitive processes in the individual that are self-determined and highly context driven. Learning is an emergent process with its own time and place, and is always incomplete. Doolittle (2000) refers to learning as self-organised adaptation. Humans are not observers in the learning process but are very active through what Bandura (1977) referred to as human agency. There is little doubt that teachers can impart knowledge and skills but the rest is entirely in the hands of the learner no matter what the teacher might do. In short, we construct our own learning and construct meanings that are distinctly our own, engineered by our experience and biological, sociological and psychological attributes.

Figure 1



Phelps, Hase and Ellis (2005) in a study involving the development of capable computer users (undertaken by the senior author, Phelps) expanded the dimensions of Capability, particularly those related to learning. Furthermore, these attributes provided 'bifurcation points' or opportunities for new learning and development. These dimensions are: accepting responsibility for one's own lifelong learning in recognition of constant change; awareness of current abilities; appropriate attribution regarding problems; an awareness of the effect of emotions on learning; and being aware that it is not essential to know everything to be capable but that knowledge is attainable. In effect, capable people are effective knowledge managers.

It is important, therefore, to distinguish between knowledge and skills, and learning. Knowledge and skills can be acquired and form the basis of what we know as competencies. Learning, however, is something else entirely and it is in the hands of the learner and is far more complex than simple acquisition. Hase and Kenyon (2000) have coined the term heutagogy or self-determined learning to capture this idea and to compare it with pedagogy and andragogy. Pedagogy and andragogy are teacher-directed whereas heutagogy is learner directed and self-organised. Heutagogy is concerned with understanding under what conditions self-determined learning takes place and, consistent with constructivist approaches to education, seeks to find ways to facilitate conditions where it might reasonably occur.

One heutagogical approach with strong connections to Complexity Theory and which appears to provide conditions for the development of capability is action research/learning.

Action Research and Complex Adaptive Systems

For the purposes of this paper action research and action learning are considered as synonymous. The only difference in my mind is that action research usually involves formal reporting (usually in a written form as a research report or thesis). It is my belief that action learning should involve the same rigorous research practices as action research. However, this is a debate I'll leave for another time. The reason for considering action research and action learning together in this paper is that the changes we have seen in peoples' learning has involved those formally involved in action research as well as those involved in less formal action learning.

Action research processes are well-known for their capacity to manage complex situations and, particularly, change. However, only a relatively small number of researchers have made an explicit connection between action research and complexity theory (Davis & Sumatra 1997; Hase 2000; Phelps & Hase 2002). Phelps and Hase (2003) provide perhaps the most comprehensive argument about the theoretical and methodological relationships between them. Action research: is an emergent process and develops emergent theory; is non-linear and recognises the role of systems and systems interaction (Davies 2001; Davis & Sumara 1994); deals with adaptation to change and enables the identification of bifurcation points; recognises the effect of context on understanding phenomenon and developing action; and acknowledges the importance of human agency in change and action. Action research is essentially pragmatic and hence is multi-methodological (Greenwood & Levin 2000; Hase 2000) because any method can be used to suit the situation, and the emerging data and theory. As Phelps and Hase (2002) suggest, this is consistent with the tenets of Complexity Theory and 'methodological pluralism' (Hoshmand & Martin, 1995) that enables a greater understanding of complex phenomena.

I have been involved for a number of years with an action research PhD program involving senior managers undertaking major change programs in their organisations. A major part of the program has been the use of action learning sets or meetings in which the candidates reflect on their research and develop new action plans as a result of their reflections. This is action learning within action research-cycles within cycles. The next section reports an interesting finding that came out of the reflections of the candidates about what happened to them throughout their candidature and their experience in using action research.

From pedagogy to heutagogy using action research and action learning

The participants in this program were middle or senior managers working in companies in Singapore. Each of them had identified a significant and very real organisational problem on which to focus their research. All of the participants were new to action research and were largely grounded in quantitative methods as many came from engineering, technical or business backgrounds. Support was provided by university supervisors who visited Singapore a couple of times a year. An important feature of the program, however, was that the candidates would meet every six weeks or so as an action 'learning set'. This learning set consisted of candidates at various stages of completion as well as local co-supervisors who had already completed an action research doctorate. Using action learning as a framework, candidates would make a brief progress report of their research at the meeting, discuss problems and field questions about their study. The learning sets were modelled on an action learning approach. In many ways this was a community of practice around action research.

Two of the supervisors involved in the program went to Singapore once a year for a week. All the candidates and the two supervisors met for a whole day. Candidates presented a work in progress report, raised issues for discussion and received feedback about their research. Again, an action learning approach was used to guide proceedings. Then the supervisors met with candidates individually during the course of the week. Sometimes candidates would come to the meetings in pairs and one would take the role of an observer, and listen and learn. We quickly realised that a

'buddy' system was extremely useful for learning and also as a means of support for candidates.

The relatively intense nature of the program through the learning sets, direct supervision, workshops and meetings with the candidates enabled us to observe first hand the effects of the whole process on the candidates. One of the key observations was the change that occurred in the way in which candidates learnt during the course of the program.

As mentioned above, the candidates were mostly engineers, business people or other professionals who had virtually no grounding in qualitative research methods or action research. So for the first part of their candidature the candidates were very much in a pedagogical mode. This was characterised by a great deal of dependence on the supervisors and on other candidates who were further down the research track. Learning was very 'teacher centric' and involved providing resources, information, guidance, and explanation about action research and how it might be applied to the candidates' research problems. In many respects this was a period of some anxiety as candidate grappled with the unknown. It was also a time of attempting to become competent by acquiring the appropriate knowledge and skills.

As confidence and competency rose it was noticed that candidates began to move out of this teacher-centric mode. Given these were mature people with considerable life experience they started to draw on that experience and apply it to their new learning. This was a shift towards an andragogical phase. The supervisors and others were still used as an important resource and there was some degree of dependence but the questions and needs were different. According to Knowles (1970), who developed the concept, andragogy concerns adult learning, rather than the teaching of children, and is more self-directed. However, in many respects the teacher is still in control of the curriculum and what needs to be learnt. Our observation was that this was still a period of competency development.

Later in their projects we saw the candidates become increasingly independent of others in terms of their learning. Here learning came under complete control of the learner. It was a time of innovation and novel approaches to the application of action research (and action learning) emerged during this time. Emerged as they were in their work-based, and very live, project there were less questions and more Socratic discussions about what was happening. The curriculum, as it were, was in the hands of the learners. There were major bifurcations into sociology, anthropology, and psychology, for example, as these (mostly) engineers grappled with new concepts. There was less homogeneity in the learning in group sessions as time moved on. Fortunately an action learning approach is a very suitable to a situation where there is greater heterogeneity in learning needs. In fact we believe it actually accelerates development rather than being an impediment. This period can best be described as heutagogical. The learning was self-determined and almost entirely based on the specific experience of the individual.

We also saw a shift towards greater capability. The candidates became accomplished learners, they adapted their competencies to cope with novel circumstances occurring in their work-based problem, they worked well in teams, self-efficacy increased and

there was considerable innovation. In all cases the completion of the workplace project provided major benefits for the organisation as well as for the learner.

Conclusion

Furthermore, Complexity Theory provides a theoretical framework that underpins the design of learning programs and challenges the extant modernist, linear thinking that pervades education and training. It is commonsense and well-accepted practice to move from the simple to the complex when providing a learning experience. However, many training and education programs are linear and have their emphasis on pedagogical and andragogical methods and rarely get to the complex which involves real learning. Much of the focus is therefore on skill learning and knowledge acquisition. Our experience suggests that a greater emphasis can be placed on heutagogical learning experiences to help develop capability rather than simply competence in the modern workplace.

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