A Critical Evaluation of Competency Development During Organizational Change: A Case Study

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Abstract:

What constitute workers competency at work is a debated topic. Within a rationalist approach, human competency at work is seen as constituted by a specific set of attributes, such as the knowledge and skills utilised in performing specific work. These attributes are used by management and workers to coordinate and implement organizational change. Within this approach, change is viewed as mechanistic. Using an alternative approach, this paper contributes to the debate by presenting the findings of a major change program within a large multinational organization BHP (now known as BHP Billiton). Taking an interpretive approach, the paper looks at the workers conception of work to that of management. The data was collected over a 6 year period using qualitative methodology and analysed using the NUD*IST software program. A total of 86 in-depth interviews were conducted. The findings from the data suggest a 'gap' in understanding what constitute workers competency at work. Workers conception of competency was found to be significantly different to that of management. Moreover, the findings suggest that change is not a linear and sequential process when viewed from an interpretive approach.

Keywords: Competency; Knowledge management and Organizational change.

1. Introduction

The concept of competency has only recently been used more systematically in management. Competency is focused on the relationship of persons and work that researchers such as McClelland (1973), Boyatzis (1982), Kolb (1984), Morgan (1988), Nordhaug (1993) and Sandberg (1994, 1996, 2000) have found attractive when describing human knowledge and skills at work. As Morgan (1988) argued, the concept of competence encourages scholars to think not only about knowledge itself, but also about the knowledge that is required in competent work performance.

At the outset, this paper is part of a major study undertaken on middle managers commitment to effective change implementation. Competency development of workers' during organizational change is a major component of the study. One of the key arguments presented in this paper relates to paradigm issues and why the study of change management needs to be conducted within the interpretive paradigm as opposed to the dominant rationalist paradigm. This paper aims to shed light on what constitutes workers competency when viewed from an interpretist paradigm. How is competency developed and what meaning does it hold for the worker? What impact does worker competency have when implementing organizational change?

Background of the study

The study was conducted within the Steel Division of Broken Hill Propriety Limited (BHP) from 1995-2001. BHP was incorporated in Melbourne, Australia, in 1885 and began its operation as a miner of silver, lead and zinc at Broken Hill in New South Wales, Australia. It emerged from its origins as a remote mining company at the end of the 19th century to its status as a major multinational company at the time of the study. It went through rapid growth that resulted in it becoming a leading global resource company. However, the honeymoon period was over by the mid 1990s and the bubble ultimately burst in 2001 resulting in a merger with Billiton, a UK based resources company.

At the time of the study, BHP employed 65,000 people throughout five major product divisions: Copper, Minerals, Petroleum, Steel, and Service Operations. Each of these divisions was sufficiently large to be regarded as major companies in their own right. The scale and pace of change in each division varied considerably depending on both internal factors and environmental influences. The study was conducted within the Steel Division of BHP during the introduction of an occupational health and safety (OHS) change program known as the DuPont model.

The Steel Division of BHP represents an interesting case study because of its significance to BHP (at least in terms of size), virtual monopoly of the domestic steel industry, the autocratic style of management, and the extent to which the division grew through a reliance on non-English speaking immigrants.

Over the years, BHP introduced several organizational change programs. However, the company faced major obstacles while implementing change programs. One of the

biggest challenges faced by the CEO was to destabilise an 'old boys' network culture of which he was a member. In a desperate attempt to bring about cultural organizational change, the CEO introduced the DuPont's safety model.

Founded by Eluethere du Pont, the DuPont Company is the oldest large-scale manufacturing company in continuous existence in the USA. It began its operation in 1802, making high quality blasting powders and military powders to build military weapons (Mottel et al., 1995). Since its conception, the company took health and safety seriously by consistently developing and pursuing safe working conditions. The DuPont Company is regarded as the pioneer of modern OHS management and remains a benchmark for world best practice (Mottel et al., 1995). Through this reputation the firm has developed a consulting arm in OHS management offering services to industrial companies throughout the world. The DuPont model is founded on behavioural modification strategy. The objective of the model is to encourage safe behaviour through the use of incentives, feedback and sanctions (Bohle and Quinlan, 2000). The focus of the model is on management, the responsibility of management, records and procedures and the compliance of the individual worker (Frick and Wren, 2000). The model is based on an eleven-point safety philosophy that has a strong emphasis on behavioural change. In essence, DuPont's safety philosophy expresses that "each worker must be convinced…[to work] safely" and compliance with safety rules is a "condition of employment" (www.dupont.com/safety/en/aboutus/safety-philosophy.shtml). A particular emphasis of the model is on evaluating the lost time injury frequency rate (LTIFR- for the purpose of this thesis the term 'LTI' will be used to be consistent with respondents). LTI's are measured via audit forms. The audit forms contain a list of questions which supervisors tick beside the appropriate box as they make observations of individual workersperforming tasks.

However, the model has major limitations. Frick and Wren (2000) argue OHS management systems that are "evaluated using LTI and other measures of employee behaviour mostly explain injuries commonly caused by the behaviour of the victim, rather than by hazards in the environment. This usually results in an emphasis upon "safe people" rather than "safe places" (p. 26-27). Despite this assertion, 'control of workers' safe behaviour remains a significant aspect of many OHS management systems that are marketed, particularly those developed by US [DuPont]" (p. 27). Essentially DuPont's model is based on a rationalist top-down view that effectively attributes the majority of

OHS problems to “unsafe acts”, and behavioural bias. In short, the model takes the view that workers are to be blamed for their unsafe behaviour and as long as workers are at fault, the organization does not bear responsibility for the injured. Given the authoritarian history and culture of BHP, the model was well suited to the organization’s top-down bureaucratic structure and leadership.

The nature of the change program, with a focus on occupational health and safety (OHS), meant that the process of change was documented in great detail. From early in the study, with informal discussions involving senior management at the steel works, it became apparent that the OHS change program had broad objectives and to some extent could be regarded as a testing ground for wide-ranging change initiatives. Senior management contemplated that OHS change program would be welcomed by employees, especially after many years of neglect and poor safety performance. In this vein, the OHS change program was viewed as a widespread change aimed at changing the behaviour and attitudes of the workforce that for long had been subject to a command and control structure. The program was initiated by top management but designed and implemented by DuPont consultants. In other words, middle managers were not part of the decision-making process nor they were involved in planning and implementation of the program. The program was essentially thrust upon the workers. It was a large scale planned change that followed a step-by-step guide to implementation.

The popular academic literature (see Collins, 1998 on guru writers of change management) tend to consider organizational change as a step-by-step process leading to successful outcomes, although the scholarly work tends to be built on more sophisticated models of how this is achieved (Jick 2003, Pettigrew et al., 2001, Collins, 1998). However, many authors fail to concede the difficulties that lie ahead for the implementers of change. Jick, (2003, p.175) argues that “by making change seem like a bounded, defined, and discrete process with guidelines for success, many authors mislead managers, who find that reality is far more daunting than they expected.”

Oshry (1985) adds a further dimension by claiming that middle managers on the one hand have insufficient authority to make change happen while on the other their involvement in the process of implementing change is crucial in determining whether change implementation is successful.

Role of Middle Managers during Change Implementation

To examine issues related to implementation this paper will look at how the OHS change program was coordinated and implemented within BHP Steel before moving on to competency development of workers. Beer et al. (1990a p.17) argue that "coordination is especially important if an organization is to discover and act on cost, quality and product development opportunities". To exploit these opportunities requires close coordination between departments as well as between labour and management. Conversely, when organizations introduce change, the overall goal of what the organization is trying to achieve and its implementation strategy needs to be communicated clearly to the departments, units and divisions directly affected by it (Argenti, 1998). More importantly, department and unit managers need to be involved in developing strategies for change implementation "to better understand the plan and gain their [middle mangers] commitment to its execution" (Floyd and Wooldrige, 1996, p.40). In addition, the need for middle managers to market the idea of change to employees is a crucial step towards forming a powerful coalition of individuals who embrace the need for change and who can rally others to support the effort (Kotter, 1995). To this end, strategies for coordination and implementation need to be developed from middle managers who are closer to the daily tasks of the organization (Floyd and Wooldridge, 2000).

However, as Jick (2003) acknowledges, the process is not simple. He concludes that " there is no ironclad list or easy recipe for implementation success." (Jick (2003, p270). This view is supported by Floyd and Wooldridge (1996) who argue that, while implementation is commonly perceived as a mechanical process in which plans are carried out from a master strategy conceived by top management, reality is more complex. New conditions evolve constantly requiring reprioritising the plan. "Implementation, therefore, is best characterized as an ongoing series of interventions that are only partly anticipated in top management plans" (Floyd and Wooldridge,1996, p.45). Therefore, coordination and the implementation plan are subject to changes as the situation demands.

What is needed throughout the pursuit of change is for managers and leaders to visibly commit to the implementation process and clarify the company's intentions and ground rules so that employees will be able to "predict and influence what happens to them - even in the middle of a constantly shifting situation." (Duck, 1993, p.115). Therefore, "effective implementation requires that middle managers have a firm

understanding of the strategic rationale behind the plan, in addition to specific directives" (Floyd and Wooldrige, 1996, p.45), only then will they be able to communicate the intentions of the change to their employees. However, middle managers did not understand the broad strategic initiatives of the organization as they were not part of the planning process nor were the intentions of the change initiative clearly communicated to them. Given the lack of understanding, how is competency developed? According to Beer at al (1990a), competence of workers' is an important ingredient during change implementation. They argue that knowledge of the organization together with analytical and interpersonal skills is required for effective implementation of change (Beer at al, 1990a). Accordingly, a large-scale change program such as DuPont's model requires competency development of workers' (knowledge and skills) in order to effectively implement the model.

2. Methodology

The data was collected using a qualitative methodology. A cross-sectional sample of 5% was selected and 86 (1,734 x 0.05) managers were identified. In-depth semi-structured interviews took place over a period of 6 years. It was interesting and informative to be part of a multinational organization changing. Therefore the data was collected during the time when a major restructuring was taking place. While the author decided on the length of the study largely because the organization was going through an interesting time, the timing of the data collection was determined by BHP as several of the respondents were travelling between countries of BHP operations. The data was analysed using NUD*IST software program. The identity of each respondent is withheld due to confidentiality. In its place, each respondent is given a number for identification purposes. Thus, there are two sets of data stored into the NUD*IST software program. One containing the full identity of the respondents, while the other without (name, position and division).

3. The Case

A specific question relating to competency development was asked to all respondents:

In order to effectively implement Dupont safety change program, you need to develop the competency of your workers. How have these competencies been determined and developed?

The following responses illustrate a common interpretation of the question.

"We determine it by training. The only way is by training, and re-training etc. When we do these audits and find that the person does not understand, or has forgotten something, we put them through training. DuPont did not provide us with any mechanism or tools other than audits. However you cannot just train one person and expect that person to do the job for many years without any further training in between. It is very important to make sure that the person is kept up to date. So I think you pick that up when you do the audits. When you see the person not very confident, and you do not get the right answers from them, then straight away you say, look I think you can benefit from this training procedure. So it is a continuos thing - never stops". R047

"We have the Grade of Trades system. It is a training system for trades people, your pay goes up with each step, each step is made up of training either at Tech [Technical college]*, or training at the work centre down here, and through that you receive Work Cover tickets* [statutory safety certification]*, so you are assessed at each training course. That's how we determine competency."* ***R002***

"I think that this still has not developed as well as and as far as it should have yet, and there is already a formalised development training program., It is a well developed training management system but needs to incorporate specific training on safety. We have different varieties of technical safety training which is very standard.." ***R047***

"The competency needs to be with those people who are doing the DuPont's safety audits. People cannot just go out and audit, unless they have been trained. So we have done a lot of training for those people." ***R016***

Throughout the above five responses is a common theme, namely that competency is basically to do with training and the issue of raising competency is solved by increased training. The extent of the training and the potential for redundancy in the process is illustrated by the following respondent.

*"I don't know about competency and where we are going with this training. I was really struggling with all this because I thought, o.k. I know what DuPont's approach is but we also have got other health and safety committees**,** different training was being put on us. For example, we have got a five star safety system here and on and on, it went. So I was struggling and I figured some of the boys were too, and we tried to put the jigsaw puzzle together to get the big picture. We talked about Dupont and we specifically worked out that they would like to change the culture and behaviour of management and the employees,*

giving commitment and to think prior to doing a job. So we tried to explain where Dupont training fits in because a lot of blokes did not understand. So on and on, we went, until we really unravelled the picture. Now since we did that, twelve to eighteen months ago, there has been a heap more piled on us. We have got job safety management training and that is putting together all our systems, from the initiation and execution of a job to make sure that people do not get hurt. And we have got a number of other initiatives pushed on us and this means more training. We have just re-done this, now another one and the jigsaw puzzle gets more and more complicated, and we have added a couple more boxes in and we are about to (here) go over this again with our supervisors and then expect them to do the same to explain where it all fits." ***R026***

While Respondent R026 demonstrates appreciation of what is required from the DuPont program and the core competency issues, the sheer extent of training requirements appears to have swamped efforts to tackle them in any other way.

Explicitly, the data reveals that competency development of workers was associated with mandated training implemented as part of the program. There was no evidence of any systematic effort at competency needs assessment of workers or involvement in the process at middle and lower levels other than as participants in training. Middle managers were implementing DuPont's safety training program that they themselves were not committed to. Because the program was largely mandated from the top and aimed at lower level workers, it effectively bypassed middle managers and their involvement in planning and designing the program. In such situations "managers are less likely to be committed to their support." (Beer et al., 1990a, p.39).

As Beer et al. (1990a) note, training and education programs may increase short-term commitment, but in the long term such programs alone do not enable new patterns of behaviour in the organization or the participants' business unit. Consequently, training programs become obsolete and irrelevant, and run the risk of reducing commitment. While the OHS change program gained some short-term momentum in BHP Steel, largely because of the need to implement mandated procedures, in the long-term it failed to keep that momentum. Moreover, middle managers were unprepared at an operational level to deal with the complexities of the OHS change program, especially with a poorly educated workforce, coupled with pressures to improve productivity. The majority of the workforces were from a migrant background with poor English literacy skills and the ability of poorly educated workers to comprehend DuPont's OHS audits was questionable. Poor levels of literacy and numeracy in general were evident from the

interviews amongst shopfloor workers in the Steel Division. Two superintendents recognised the issue as follows:

> *"We have high illiteracy and numeracy levels in many of our plants, so we try other means such as show pictures/videos, and with safety particularly, we try by showing the right and the wrong way with signs and then at the end of that communication, we get them to demonstrate to us how they understand the right way to do the job."* ***R022***

> *"The people who have been injured are the people on the floor and they are the ones who have not had a lot of education"* ***R016***

Participation by middle manager in developing the training program would have enabled them to conduct a needs based assessment and then design the program accordingly to suit individual workplaces. As the observations of respondents R022 and R016 reveal, various forms of training and awareness is needed that is suitable for particular types or groups of people. DuPont's model failed to account for such variations. Consequently, the 'uniform' auditing did not apply to all departments, as such the training programs were inappropriate.

While middle managers were aware of the importance of developing employee competency before introducing change, they themselves did not know how to address competency. In fact, many middle managers responded by saying they have real problems in developing measurements of competency. This point is evident in the following two responses:

> *"Competency development is a real issue here [BHP]. I do not think we measure or know how to, we just go out and train them and say once they are trained and you should be able to do it. I do not think we have any way of measuring whether the training you have received or taken on board means you can do it. The simple answer is that we do not know. I do not think we measure it because I do not have an answer in my head, I am trying to think up an answer. To me, we do not do it. We have always had standard operating procedures that we want our people to follow and we measure on those standard procedures."* ***R016***

> *"If you look at our competency measures, we do not do it very well at all. It is an area that we lack in. We are good at training but not good at measuring because we don't know what to measure and the measures don't provide true pictures. We don't know what the competency levels of our people are. …… So in terms of: Can I write a safety action plan? Can I monitor a rehabilitation program? Can I do manual handling training? Can I do*

*all the stuff that we know that people should be doing? Am I aware of the cultural issues? Can I communicate effectively with my employees and the management groups? those competencies**,** we don't, as yet know. We look at it and say 'that's too hard' and that's why its left here in the green folder and we work towards it in very broad way. We haven't done formal analysis of training. We haven't approached mechanistically, based on the competency model , which we know exists and has been developed to do it. If you ask for the BHP Steel approach, there isn't one. If you asked a lot of superintendents who take it upon themselves to do it, the answer is they don't. So we are trying to work towards it. "**R018***

These responses indicate that, while there was recognition that competency needed to be addressed, the ability to measure and assess the levels of competency was lacking. It was also evident that the effectiveness of training as a means of raising competency was not being addressed. On the contrary training programs became the norm and were seen as the means of developing workers competency. However, the workers conception of competency was somewhat different from that of management. Workers, including middle managers, viewed competency as knowledge, skills and on-the-job experience, while senior management viewed it in terms of training programs. Several senior managers who admitted the gap between managements thinking and workers perception of work indirectly acknowledged this. A senior manager explained:

*"We tend to work in opposite directions with our workers, so instead of the DuPont people coming, we should give ownership to our own people. But we are now much more pro-active because our understanding is changing". **R025***

The acknowledgement of differences was a positive perspective, but there remained a lack of action to bridge the gap. There was an apparent lack of understanding during the interviews as both senior and middle managers struggled to explain competency development of workers. Because neither senior nor middle managers understood what constituted competency development at work, they had real problems in explaining how they determined the competency levels of workers other than talking about training. A member of the top management team acknowledged this by explaining:

*"We never understood competency in broader scheme of things but we are now much more pro-active with it [competency] because our level of understanding of an organization has matured. So now instead of having unconscious incompetence [imposed training], we have conscious incompetence so we know where we are weak. But we still have long way to go". **R051.***

A large part of this could be attributed to the history and culture of BHP. The organization had followed a command and control structure for decades and was accustomed to imposing rules and regulations including organizational change programs. The change programs were implemented through training programs, usually directed by the Human Resource Department from the head office in Melbourne.

Beer et al. (1990a) point out that training programs are preferred by top management because they are tangible and easy to measure. The measurable results enable human resource directors to "cite clear accomplishments in persuading top management of their effectiveness" (Beer et al., 1990a, p.40). Managers and workers at BHP became accustomed to the continued cycle of imposed organizational change accompanied by training programs, which had the effect of limiting the general understanding of worker competency. The findings so far on competency development, explicitly identify a 'gap' in understanding competency in BHP Steel.

The findings support Sandberg (1994, and 2000) who notes that understanding what constitutes competency is critical to effectively managing competency development. However, developing competency at work is a "fundamental managerial problem" (p.10). To explore this further the two approaches used by Sandberg (1991, 1994, and 2000), rationalistic and interpretive, will be discussed in the following section.

4. Discussion

Rationalist and Interpretive Approaches to Competency

The concept of competency at work is not new but it does create a dilemma for organizations in transition from old to new. Taylor (1911) first addressed the problem of worker competency when noticing a difference between the least and most competent workers in engineering work. Based on scientific principles, he argued for leadership from a rationalistic tradition where he proposed "managers should be able to identify what constitutes workers' competence by classifying, tabulating and reducing it to rules, laws and, formulas" (Sandberg, 2000, p.10).

While Taylor's approach was based on 'time and motion studies', the current approach is based on a much more sophisticated process of 'job analysis' (Cascio, 1995, Armstrong, 1991), although still within the scientific principles of the rationalistic research tradition. Within the job analysis approach, three main approaches can be distinguished: worker-oriented (Veres et al., 1990); work-oriented (Sandberg, 1994); and

multimethod-oriented (Sandberg, 1994, 2000). All three will be used as a means of exploring BHP's approach to competency development.

There are substantial differences between the three approaches. The worker-oriented approach sees competency as a set of attributes that workers possess, typically knowledge, skills, abilities (KSA) and personal traits to effectively perform work (Veres et al., 1990, Sandberg, 2000). This approach sees the worker as the point of departure and the attributes of the worker defined and measured through groups of job incumbents and supervisors. This approach has been criticised for producing descriptions of competencies that are too general and abstract.

In the work-oriented approach, the job is seen as a point of departure and workers attributes are strictly work-related (Boyatzis, 1982). In this approach, Boyatzis (1982) describes job competencies as capturing the "motive, trait, skill, aspect of one's self-image or social role, or a body of knowledge he or she uses" (p.21). He argues that they can be generic. Sandberg (2000, p.10) adds "the generic, context-independent nature of job competencies means that they can appear in many different work activities".

In a study of managers in Britain and the United States, using the approach of Boyatzis, Jacobs (1989) found that different managerial jobs required different competencies and concluded that the Boyatzis method is too generic and abstract and therefore of limited value as a basis for competency development. He argues that the failings of the approach relate to identifying activities that are central for accomplishing specific work and transforming those activities into personal attributes.

The multimethod-oriented approach also stipulates that competence is constituted by a specific set of attributes but is more comprehensive than the other approaches. This is effectively achieved by combining the two other views of competency.

In sum, all three approaches assume that competence is an attribute-based phenomenon. Specifically, they identify activities that are essential for accomplishing work and then transform those activities into personal attributes. The three approaches take a rationalist perspective by predefining what constitutes competence (Sandberg, 2000). Within this context a rationalistic approach identifies and defines human competence as consisting of "two independent entities - prerequisite worker attributes and work activities" (Sandberg, 2000, p. 12).

If we turn our attention to the interpretive research tradition, then we find an alternative to the rationalist approach of viewing competence. Following Weber (1964/1947), as the initiator of this tradition, sociologist Schutz (1945), Berger and Luckmann (1966) and Giddens (1993), used phenomenology as a base to further develop the interpretative research tradition. The central feature of this tradition is the stipulation that a person and the world are inextricably related through a person's lived experience of the world.

Sandberg (2000, p.12) observes that "competence is not seen as consisting of two separate entities; instead, worker and work form one entity through the lived experience of work. Competence is thus seen as constituted by the meaning the work takes on for the worker in his or her experience of it". Research on competence within the interpretative approach (Atkinson, 1988; Barley, 1996; Brown and Duguid, 1991) concludes that the attributes used are not primarily context-free, but are situational, or context-dependent. In other words, "the attributes used in particular work acquire their context-dependence through the workers' ways of experiencing that work" (Sandberg, 2000, p. 12). As such, workers' ways of experiencing work are more fundamental to their competence than the attributes themselves.

BHP clearly followed the rationalist approach because it did not view worker competence as context-dependent. More specifically, the organization viewed work and the worker as separate entities. Hence management identified what constitutes workers' competence by classifying, tabulating and reducing it to rules, laws and formulas closer to Taylorism (see Sandberg, 2000, p.10). This view closely aligns with their overall organizational culture.

In the case of BHP Steel, workers' competence was predefined by DuPont using a set of attributes, expressed in the form of KSAs that corresponded to various safety audits. The audits were later operationalised into quantitative measures that provided the results of worker competency with regard to OHS.

According to Attewell (1990), Yukl, (1994), and Sandberg, (1994), such measures often result in abstract and overly narrow descriptions that do not adequately represent the complexity of competence in work performance. The sets of KSAs do not illuminate what constitutes competence in accomplishing work (Sandberg, 2000). This explains why both senior and middle managers at BHP Steel struggled to respond to the

question, "*How do you determine the competency of your workers?"* because neither group adequately understood what constituted competency at work.

For instance, management's conception of competence was based on predefined training programs while workers' conceived competence as the lived experience of accomplishing tasks. Thus, workers' viewed DuPont's OHS change program as another 'flavour of the month' because it did not relate to their way of conceiving work. More specifically, DuPont's 'one size fits all' program was not specific to a particular division or unit. It was therefore context-independent. Middle managers found it difficult to implement a uniformly designed program that had little relevance attached to it. Hence, they reverted to their own way of implementing the OHS because the program, like many others, made little sense to the middle managers, as explained below:

> *"The number of new programs that comes along is treated like a bit of a joke. The feeling on the site is - here we go again, another one of these flavours of the month that is coming out. What is worse is that you put in all the resources into it and then it is not going to come to anything because there is no back up, they go so far and then something else comes along and then that first one falls by the wayside, the second thing comes up etc. We can never properly train or develop competence within our jobs, so we stick to our way".* ***RO32***

The comment of this middle manager provides an indication of the extent of the divide between middle managers and senior management. BHP management viewed competence from a rationalist approach, while workers viewed competence from an interpretive approach. A large part of the workforce had been with BHP Steel since the start of their career and those who had achieved supervisory/management roles typically gained their positions through experience of performing work.

Middle managers at BHP Steel had at the time of the interviews typically spent the majority of their lives as employees of the company. This phenomenon was found also the case for shopfloor workers. Over the years both workers and middle management developed a unique relationship through which they communicated and understood each other and the conception of the work they performed.

This adds to Sandberg (2000, p.14) findings that "a worker's particular conception of work defines what competence she or he develops and uses in performing work". Training and development activities should therefore follow from the workers' conception of work. This is not to say that training and development should be abandoned, but

rather they need to be designed and conducted in a way that promotes workers' conception of their work.

The findings reinforces Bohle and Qunilan (2000) who argue that workers' participation in design and implementation of OHS is particularly important, as they are closer to the tasks performed and are more knowledgeable about the OHS issues relating to their job and work environment. Consequently, workers need to understand change from the standpoint of their own work. However, the field of change management lacks in theoretical underpinnings and as such issues relating to how workers view change are overlooked.

Implications of standardised change models and KM development

The search for a theoretical underpinning for change is complicated by the overlap between knowledge and practice, which Hollway (1991) argues are inseparable. This can clearly be observed in the literature where many of the significant contributors are both academics and consultants (Collins, 1998). Thus, the market for popular texts on change management is saturated with contributions from diverse sources. Many of those regarded as change gurus and leading consultants who publish in this market, also hold professorial appointments at leading business schools and publish their research in quality academic journals. These writers tend to view change as a linear chain of events. They tend to provide sequential guides to planning and implementing change which gets adopted by practitioners. A range of consultants, for example Mckinseys, DuPont, and Anderson Consulting, all made their appearance in BHP in the period leading up to and during the period of this study. The sequential approach used by such firms typically follows the following pattern:

1. analyse the organization and its need for change;
2. communicate the vision;
3. develop the change strategy;
4. confirm top management support;
5. develop enabling structures;;
6. implement strategy;
7. monitor and act on problems of implementation; and,

n. close down project and communicate results.

Critics of this approach (Pettigew, 1987, 2001; Huczynski, 1993; Collins, 1998) argue that it reflects "limited, mechanistic and overly-rational view of organizations and of social interactions" (Collins, 1998, p.82). Moreover, many of the guides provided by the popular writers fail to acknowledge change as a social activity "involving people from diverse social groups" (Collins, 1998, p.82) who tend to interpret issues and situations differently. This was particularly apparent at BHP Steel.

The majority of the workforce, including senior and middle managers at BHP were of diverse backgrounds with specific technical skills. While these managers interpreted issues differently because of the different operational features of each unit or department, they worked as a coherent social group to accomplish the overall manufacturing tasks of the organization (for example, the Coal Plant liased with Manufacturing Services, who liased with Slab Making, the Rolling Mill, Casting Services and Engineering Services. All Plants liased with Maintenance Services, Transportation Services, the OHS Department, Human Resources, and Environmental Services).

However, the sequential implementation of DuPont's OHS change program failed to acknowledge these social activities and failed to involve the skilled interactions of people, particularly middle managers in planning and implementing OHS change program, leading to the consequent lack of commitment from middle managers observed in this study.

Huczynski (1993) points out that organizations do not operate on formal logic alone as has been noted at BHP Steel. Within it's diverse units, managers and workers interpreted OHS change differently, held competitive ideas and opinions and had divergent agendas. Thus, the logical and sequential model of change followed in BHP Steel lacked sophistication in that it denied any active role of managers' and workers in planning and implementing change. Collins argues that "we cannot, hope to solve the problems of planning and managing change in a logical or dispassionate way, because people will tend to interpret events and problems in quite divergent ways" (Collins, p.85).

Floyd and Wooldrige (2000) have argued that middle managers are linked to organizational performance through their knowledge and social influence and play a key role in determining the organizations' capacity to innovate and renew its capabilities. Developing a trusting relationship with middle management is therefore crucial to

organizational success. Middle management commitment to change can therefore be viewed as a prerequisite for coordination and competency development during change.

Nonaka (1988 and 1994) argues that such organizations [BHP] follow a deductive style of management where information creation mainly occurs at the top level and resources are allocated from the headquarters. Such management style he argues, does not allow organizational members at lower levels flexibility to generate and create information. According to him, knowledge about intensions, operations, and context is likely to come from the middle level to form a complete strategic picture. In this sense, strategy emerges from the ideas and information generated by the participants in the middle. Floyd and Wooldridge (2000, p.xxi) further provide support to this by observing that "knowledge and social influence processes at the middle play a key role in determining the organizations capacity to innovate and renew its capabilities". In this context, the importance of middle managers involvement in strategy development is crucial to their commitment.

The definition of organizational knowledge is diverse, complex, controversial and difficult to underpin. However, most scholars agree that knowledge is "created and organised by the flow of information" (Nonaka, 1994, p.15). As such, information transparency and open communication is critical in creating knowledge. For an individual's ideas to become part of organizational knowledge, they must be accepted and acted on by other members of the organization (Floyd and Wooldridge, 2000). This will only occur if all involved in the organization have the same information and understanding of the overall goal of the organization. Only then can an idea be benchmarked against its effectiveness.

4. Conclusion

This study provides insights into how worker competency is developed. Viewed from an interpretist paradigm, the findings from this study informs us that there is a gap in understanding what constitutes worker competency. Training programs that are imposed on workers not only hinders performance, but stifle the worker from further developing their knowledge and skills. Competency is not just to do with job or worker attributes, but embraces the whole lived social experience of the work environment. The social experience of work is enriched by an environment in which there is transparent

and open communication throughout the organization. Middle managers have a pivotal role to play in this regard as they provide the link between organizational knowledge at both the bottom and top of the organization.

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