

CHAPTER 6

HEALTH PROMOTION, EDUCATION AND COMMUNICATION

6.1 Overview

Introduction

This chapter aims to discover unique insights from research in health promotion, education and communication in South African mines and in other comparable contexts. The broad topic is generally referred to as ‘health promotion’ and constitutes an entire discipline. Many theoretical models have been developed both to analyse and to address behaviour change in relation to health. These refer to issues such as health literacy, social influence, dialogue, motivation and reasoning in behaviour change, stages in behaviour change, and self- and collective efficacy (Goldstein, 2007:2-4). Evidence of their application to mine H&S is not easy to find. The Soul City health communication project in Johannesburg has considered many models in the course of extensive work using popular media, and states that ‘individuals can be found at different stages of a particular model under discussion’ and that human change is really erratic. It is characterized by ‘stops and starts, backward and forward movement and that certain phases may be skipped altogether’ (Goldstein et al., 2004:116-117). The quest may not be for the perfect model, but rather for valid insights and information about what works in the context.

The selection of sources was therefore based on the judgment of those who offered definitely typical or telling insights that related to the focus of this study. Primary research into the application of models and approaches often relates to particular diseases, especially those that involve chronic medication and self-management; examples of these include the control of diabetes, recovery from heart attack, and conditions that involve giving up smoking. With reference to the context of developing countries, the bulk of the information accessed relates to HIV/AIDS, with malaria a distant second.

Focusing on South African mineworkers, I found that studies have emerged in recent decades on mineworker awareness of HIV/AIDS and TB (see later), fatigue (Schutte, 2010), and hearing device usage (Hansia & Dickinson, 2010). Apart from the studies of HIV, these do not amount to a critical mass of information. Lung health is dealt with in a separate section below.

Occupational health delineated

As stated before, occupational health has been neglected in South African mining, as compared to the attention given to safety and accidents. The coverage on training in the main textbook on Occupational Health Practice in the South African Mining Industry adds up to one page out of 440 (Guild et al., 2001:6,12,30). Apart from the reasons stated in Chapter 2, the delineation of the discipline may influence policy and approach. ‘Occupational health comprises two principal elements (i) occupational hygiene and (ii) occupational medicine, and these are enshrined in the Mine Health and Safety Act’ (Badenhorst, 2004:48).

Occupational hygiene is the term used to describe the technical preventive measures taken at a workplace to protect the health of the workforce, i.e. the recognition, evaluation and control of micro-environmental stressors such as dust, heat, hazardous chemical substances, etc. *Occupational medicine* deals with the health status of the employees potentially exposed to the micro-environmental stressors. Aspects such as pre-employment, pre-placement, periodic, special and exit medicals fall under the occupational medicine umbrella (Badenhorst, 2004:48).

Although training is advocated in the MHSA, no section within conventional mining structures appears to be suited to undertaking occupational health training. The limitations of current occupational health approaches are observed more in workplace contexts generally and are subject to interrogation and challenge:

In sum, the orthodox notion of occupational health has become outdated and is being redefined substantively with the advent of ‘employee wellness/health management’ programmes. However, evolution of these programmes does not mean simply adding on components. The inclusion of new components presumes that demands have changed, and so a programme as a whole may require recalibration. This is a point that private sector programmes in South Africa have yet to reach (George & Quinlan, 2009: 27-28).

Mining and worker health

The mining industry has a long history of providing health care facilities for sick and injured mineworkers. However, this care is generally only available to employed workers and is therefore temporary, while many occupational diseases are chronic, as explained below:

Most occupational health services are provided by private enterprises for their own, currently employed workers. Frequently, only the larger well-resourced enterprises offer these services. Once they leave formal sector employment, the majority of these workers are reliant on public health care. In the case of migrant workers, it is the public health system of their country of origin that assumes the responsibility for their health care (Rees, Murray & Grainger, 2011:14).

Mining health services have generally focussed on curative rather than preventative care. ‘The concept of preventive therapy was not only new to patients, but also to health staff,’ Charalambous et al., 2004:54). This has changed over the past 10 years, probably due to the effects of HIV/AIDS advocacy:

The lack of effective treatment for the rising numbers of employees with HIV infection left many primary health centre staff feeling helpless, and therefore many welcomed the introduction of preventive therapy. Some staff, however, did not accept it so readily, and many expressed concern that the new service would increase their workload (ibid:54-55).

Self-efficacy and health interventions

A few of the sources located refer to self-efficacy directly, as a central aspect of the health behaviour of mineworkers. However, engagement with the construct was generally not nuanced. Goldstein (2007:4) identifies self-efficacy as a key construct in a behaviour change *process*, but other studies use the self-efficacy concept as a descriptive or analytic tool, rather than a constructive one. Low self-efficacy of mineworkers is referred to as powerlessness and a lack of control, which contributes to risk taking (Campbell, 2003:30 and 156; Campbell & Williams, 1999:22; Meekers, 1997:3). ‘Self-efficacy (or the degree to which a person feels that s/he has control over important aspects of his or her life) is an important determinant of health related behavior’ (Campbell, 1997:277). The work and life context of mining is said to entrench low self-efficacy:

For example, among men employed on the mines, levels of self-efficacy associated with health promoting behaviour appeared to be low: high levels of disease and injury were regarded as the norm, and miners felt that there was little that they could do to protect their health in their unhealthy and dangerous working and living conditions (Williams et al; 2001:352).

Workplace relationships appear to reinforce these attitudes:

Mineworkers feel powerless in a range of contexts in their lives. Many feel that they have limited power to address what they regard as injustices at work (e.g. having to work longer hours than contracted, having to work in dangerous conditions). *Indunas* (worker team leader) frequently do not take up their complaints, and when they do, they often have little success (Campbell & Williams, 1999:22).

The researchers reason that a perceived lack of control in one’s life in general may extend to a sense of lack of control of one’s health, and an increased likelihood of unsafe sexual behaviour (ibid:23). However, this use of the self-efficacy concept departs from Bandura’s original conceptualization in that it is more general in its use.

Referring back to the previous chapter, self-efficacy is the judgment by an individual of his/her ability to perform a particular task/activity within a specific context (Pajares, 1997:20; Kear, 2000:3). It is thus amenable to change. More general feelings of powerlessness have many sources and are difficult to address, as is the self-concept source of self-efficacy, a wider and more expansive notion of one's personal essence, including thoughts, feelings and values (Kear, 2000:2). Generalized lack of control is also equated with low self-efficacy. Locus of control is one source of self-efficacy, and a relatively higher internal locus of control, compared with an external locus of control, tends to coincide with greater self-efficacy (Bandura, 2005:26). Engagement with workers, both on aspects of H&S where they have a choice and those where they do not, could activate awareness of control issues in relation to H&S. For example, mineworkers usually have a choice whether to use condoms, wear masks or use respirators (internal locus of control), but do not have choice regarding the depth or location of the particular part of a mine they are assigned to excavate. The body of research (see Chapter 4) would suggest that it is possible to move beyond simply identifying self-efficacy as a barrier in health education programmes and begin to modify efficacy in relation to specific functions or abilities in the context.

6.2 Lung health

Research

Lung health warrants a dedicated section because, as reviewed in Chapter 2, lung diseases kill many times more mineworkers than accidents each year, and the mining industry is experiencing its worst TB epidemic ever. As seen in Chapter 2, the gold mining industry has the highest rates of TB of any group in the world (Rees et al., 2001:14). Yet, as suggested in the previous chapter, lung disease received scant or no attention in the H&S training reports reviewed. South African mineworkers continue to face an epidemic of occupational lung diseases: 'Despite a plethora of research on the mining industry, and the gold mining industry in particular, research impact (including disease surveillance) on policy implementation and occupational health systems performance lags' (Murray, Davies & Rees, 2011:S65). Substantial research is available on failures of the compensation system for TB in the mining sector, but a review of occupational health research in the mining sector concludes that 'very few

studies seem to have fostered sustained remedial action' (Murray et al. (2011:S71). They suggest that there is a lesson for the continent:

Mining is growing in southern Africa and in many low- and middle-income countries. Other countries could avoid the high levels of occupational diseases experienced in South Africa through an enhanced understanding of the implications of the failure to use research evidence (ibid:2011:S71/S75).

Many TB studies were sourced but are not included in this chapter because they focus on issues such as screening, epidemiology, autopsy results, drug resistance and different drug therapies. Such research is extremely important in monitoring lung disease and developing better cures or disease management, but I could not find evidence of links between such studies and training and awareness programmes. These require research of a more ethnographic nature, involving the perspectives of mineworkers and practices within the local mining context. A study of advocacy to promote uptake in a drug trial for TB preventive therapy in selected gold mines in South Africa (Grant et al., 2010:S37) is integrated into other relevant sections of this chapter. The smoking behaviour of mineworkers is a research concern because of the addictive and adverse effects of smoking, combined with dust, on lung health and noise-induced hearing loss (Cheyip, Nelson, Ross & Murray, 2007:200; Rees, Murray & Grainger, 2011:15). One study estimated the effect of the national anti-smoking lobby on a large sample of mineworkers over five years and reported 'a significant decrease in smoking prevalence over a relatively short period' (Cheyip et al., 2007:197). After considering relevant variables, such as price increases in cigarettes and changes in smoking habits, both of different groups and of the entire population, the study concluded that: 'The decrease in smoking prevalence among the employees may be partly attributable to the South African antismoking legislation and an increased awareness of the health impacts of cigarette smoking' (ibid:200). An implicit finding was that mineworkers are subject to influence by the messages of health advocacy. The H&S milestone targets set for 2013, referred to previously, include those concerned with silicosis.

The MHSC sponsored research and materials development to raise awareness of mineworkers of silicosis (Goldstein, 2007; MHSC, 2009b; Rees, Murray & Ingham, 2009b).³⁸ According to Murray et al. (2011:S71), translation of research into practice has been patchy, and these materials have not been disseminated by the MHSC, mining houses or trade unions. This may indicate that, within the mining sector, preparation and training of workers is not viewed as a viable option for dealing with lung health, or it may confirm a lack of priority or of a sustained intention to deal with occupational lung diseases, as suggested in previous chapters.

Mineworker perspectives

Much of the literature sourced on addressing lung disease among South Africans is undertaken within a medical management paradigm or may focus on one disease, such as silicosis or TB, for very good reasons. Of course, literature with wider and alternative approaches is available: for example, studies that focus on smoking (Cheyip et al; 2007) or compensation (Calver, 2008), as well as more recent accounts of occupational lung diseases of mineworkers (Murray et al., 2011; Rees et al., 2011; Roberts, 2009). However, research which considers the perspectives of the mineworkers themselves reveals that there is much confusion about the different lung diseases and the related issues, both within the workplace and beyond the work context (Calver, 2008:26-27; Goldstein, 2007: 19-20).

³⁸ During the course of the project, Silicosis elimination awareness for persons affected by mining operations in South Africa (SIM 030603: Track C), of the Mine Health and Safety Council (MHSC), digital video discs (DVDs) and print materials were produced for mine personnel targeted at specific groups. Those specifically for underground workers and H&S representatives included DVDs, facilitators' guides and print materials.

- Ke pale ya Ntate Thabang le Sello (Story of Thabang and Sello) for workers and health and safety representatives, South Sotho language edutainment set in a mine.
- Uthuli (Dust) for workers and health and safety representatives, a powerful Zulu language drama set in a mine.
- Preventing Silicosis: A guide for health and safety reps (and Facilitators' notes)

(Source: MHSC, 2009b:7)

This was referred to briefly in Chapter 5, but is dealt with more fully here:

Many employees have little or no understanding of the processes that lead to occupational lung disease, their consequences, how to protect themselves from the conditions, the mechanisms of compensation, the Acts that apply, and what their rights and responsibilities are. This coupled with a high level of misinformation and complicated by low education levels amongst miners is a recipe for confusion and frustration (Calver, 2008:26-27).

Lung health logically constitutes a single but generic subject area to be addressed directly and coherently with vulnerable workers, a priority in the training and preparation of mineworkers for the workplace. The study of silicosis awareness among mineworkers in quarries, gold mines and coal mines by Goldstein (2007) provided a basis for materials development in relation to silicosis awareness (MHSC, 2009b; Rees et al., 2009b) and also contributed to an approach to training or advocacy of lung health more widely. For example, the research identified generalized and significant barriers to lung health efficacy (Goldstein, 2007:15-27). Examples of such barriers that could be addressed by training follow below:

- A feeling of powerlessness in the face of dust.
Workers felt that they measured the dust levels, but that there was no follow-through because collated reports on dust levels were not shared with workers (Goldstein, 2007:6-10).
- Lack of accurate information about different diseases (TB, silicosis, HIV/AIDS).
There is much confusion about the diseases and their overlap. Lung diseases are sometimes grouped together as *phthisis*, and workers believe that one can change into another (ibid:19-20, 28).
- Lack of knowledge about the actual utility of PPE in relation to particle size.³⁹

³⁹ Proper use of the correct type of mask (or PPE) can ensure that workers do not inhale the smallest, most noxious and invisible dust particles, which become trapped in the lungs. Workers are often instructed to wear PPE without adequate explanation regarding particle size. They may then substitute PPE with more comfortable bandanas or balaclavas which provide no barrier to smaller, less visible dust particles.

Some workers felt the only reason they received masks was to protect management. Other respondents said that they used bandanas to protect themselves (ibid:12).

Many health promotion or training approaches could be used to address such barriers to H&S efficacy. Using the self-efficacy concept and approach would involve efforts to address the barriers cited above, and enhancing lung health efficacy would draw on three sources of self-efficacy: mastery, locus of control, and social persuasion. Such a programme would naturally require intense research and development; what follows is simply an illustrative example. Mastery aspects could involve awareness of the hazard, dust, which weakens the lungs, and of the risk of lung diseases such as silicosis, TB, and bronchitis, as well as the role of HIV. It would include accurate information about the prevention and treatment of different lung diseases, an understanding of and skill in dust measurement, analysis and reporting, as well as an understanding of the relationship between specially designed masks and particle size, and the value and implementation of techniques such as wearing protective masks, watering down, extending ventilation columns, and changing out of dusty clothes immediately after a shift.

Enhanced efficacy and involvement in dust monitoring could begin to address overwhelming feelings of powerlessness and exclusion in the face of dust, which in turn would relate to an increased internal locus of control. Carefully selected role models who have worked for a long time and remained healthy could provide positive modelling and social persuasion. More generalized requirements are that the training programme have a valid and positive focus, such as lung health, rather than a discrete medical diagnosis, that it is suitable for a target group composed of elementary workers, is of acceptable educational and communicative quality, and is supported by follow-up interventions. Such processes can be facilitated for adults outside of ABET, in any language, even Fanakalo. Different operators could be trained together, depending on the language and training modalities suitable for each learning group.

6.3 HIV/AIDS

Predominance of studies

HIV/AIDS has been studied more than any other disease affecting mineworkers, and the aim of this section is to exploit this resource. Much of the more in-depth research found focuses not only on mineworkers but also engages with the interface between mineworkers and the wider community, such as local sex workers or the workers' more traditional places of origin. It seemed reasonable to review such studies, which focus on extended notions of mineworker communities and identified sending areas. A wider focus and the convergence between different disciplines, a feature of this study, have been necessary in HIV research:

One of the positive spin-offs of the HIV pandemic has been the drawing together, for the first time, of social scientists, research psychologists, biologists, epidemiologists, clinicians, community and industry representatives, public-health practitioners, and policy makers to assemble and address that dynamic mosaic called human sexual behaviour (Donovan & Ross, 2000: 1897).

The literature is diverse, and while the pandemic has been extensively researched, the research now appears to be on a downward trend. There seem to be fewer studies in the past few years than in the previous ten years. An explanation is offered:

Donor funding for HIV/AIDS interventions has peaked, as other interests have caught donors' attention. For example, Britain's Department for International Development has pulled funds for region-wide interventions – the new interest is climate change. Most European governments are reviewing their aid commitments, and some are expected to make substantive adjustments – downwards (Quinlan & Whiteside, 2009:12).

Mining and HIV

There are a number of explanations for the predominance of HIV studies in mining. Firstly, mineworkers operate and often live in managed environments, such as hostels and workplaces, which use the parade system referred to earlier, rendering them easier for study and statistical analysis than more diverse contexts (Fearnley, 2005:148; Horn, 2007:122-123). Secondly, the mining industry showed a concern for HIV long before many other institutions in South Africa (Campbell & Williams, 1999:6), though the reluctance of the South African state to engage with HIV has a bearing on this observation. The industry's early concern with HIV may have originated in the cost implications of health care for employed mineworkers. Although HIV is not, by definition, an occupational disease, HIV-positive workers develop serious AIDS-related illnesses that are expensive to treat while they are in employment, such as tuberculosis (TB) or forms of meningitis (Campbell & Williams, 1999:9). Other cost implications cited for mines are productivity, morale, worker turnover and absenteeism, due not only to sickness but also to the desire to attend funerals, which severely disrupt shift organization (Campbell & Williams, 1999:6-9; Fearnley, 2005:146). 'Securing the future impact of the HIV/AIDS epidemic through effective management allows shareholders to feel more confident that profits will be sustained and that the risks are fully minimised' (Fearnley, 2005:152).

In the context of post-apartheid South Africa, social pressure and the national visibility of HIV influence the actions of companies who gain positive exposure by being seen to address the issue (Dickinson & Stevens, 2005:289; Fearnley, 2005:148). A further external influence is the 'profit motive within the pharmaceutical industry' (Horn, 2007:121). From an H&S perspective, studies are emerging that demonstrate an increase in work-related injury rates associated with HIV infection (Murray et al., 2005:2023) and lowered tolerances of other occupational health hazards, such as heat exposure (van Wyk, 2008:59). The unnatural lifestyle of migrant workers living in single-sex hostels is frequently associated with HIV transmission (HEARD, 2002:2; Campbell, 1997:273; Hargrove, 2008:53; Rees et al., 2009:402). Consequently, the Mining Charter includes transformation priorities with regard to worker housing.

However, some mining companies have denied any link between HIV transmission and the housing of migrant workers in single sex hostels rather than family accommodation (Campbell, 2003:24; Campbell & Williams, 1999:5; Fearnley, 2005:150).

HIV and training

The amount of HIV research dedicated to training and behaviour change is a consequence of the lack of a single biomedical solution. For the foreseeable future, limiting HIV transmission depends on behaviour and, in particular, on modifying sexual behaviour where possible and appropriate (Donovan & Ross, 2000:1897). Mining industry approaches to HIV tended to rest on behavioural or biomedical responses (Campbell, 2004:23), but there has been a discernable shift from orthodox occupational health programmes to designing and implementing ‘employee wellness’ or ‘health management’ (George & Quinlan, 2009:19). To a limited extent, unions have been involved in prevention activities, but these have been initiated and funded by management or outside agencies such as NGOs (Campbell & Williams, 1999:10). HIV programmes commonly begin with ‘education and awareness’ campaigns and thereafter incorporate VCT (voluntary counselling and testing) services, possibly adding in ART (anti-retroviral therapy) and the provision of food supplements and ART for spouses (George & Quinlan, 2009:20). Clinical care is also provided for related diseases, such as tuberculosis (TB). However, workplace programmes are not achieving the desired result, that of disease prevention: ‘South African workplace health programmes have yet to achieve their core purpose: to prevent the spread of HIV and to ensure that HIV infected employees obtain treatment before they are too ill to work’ (George & Quinlan, 2009: 26). It is likely that many effective and innovative HIV programmes exist, but this study seeks convergence between different disciplines and approaches.

6.4 Possible approaches

Themes in the literature that recurred or related particularly well to the focus of this study are organized thematically below. In most cases, these also relate logically to an issue in the previous chapter, though different terms are used.

Social capital

Social Capital is a theory or concept (both terms are used in the literature) that features quite dominantly in the literature (Campbell, Williams & Gilgen, 2002; Campbell & Williams, 1999; Campbell & Mzaidume, 2001; Campbell, 2003; (Chiu et al., 2008). Social capital refers to a social and community context that ‘enables or supports the renegotiation of social identities and the development of empowerment and critical consciousness, which are important pre-conditions for health-enhancing behaviour change’ (Campbell, 2003:51). In certain ways, social capital has logical connections to H&S ‘culture’ in mining, though the social capital appears to have been subject to different forms of analysis. Application of the approach may involve engaging with *existing* social capital in the form of membership of voluntary community organizations (e.g. churches, residents’ associations, youth groups) in order to explore the relationship between health and community networks (Campbell, Williams & Gilgen, 2002:2). The social capital generated by membership of such community groups is said to be associated with the positive community norms of trust and reciprocity between community members and a positive local identity (Campbell et al., 2002:4). It is argued that ‘an important determinant of the success of participatory health-promotional interventions is the extent to which they mobilize or create social capital’ (Campbell, 2003:51). With reference to employed mineworkers, the approach challenges the ‘management tendency to regard HIV/AIDS as a problem facing *individual* workers most appropriately dealt with at the biomedical/behavioural level,’ rather than at a *collective* level (Campbell & Williams, 1999:14).

In terms of social capital, HIV is conceptualized as a social and developmental issue to be addressed not only at the level of particular mines but also at the level of the formal and informal communities within which the mines are located, and within which miners conduct their everyday social and sexual lives (Campbell & Williams, 1999:3). This involves active participation not only of the mine management and trade union representatives, as is usually the case in industrial health projects, but also of a wide range of other ‘stakeholders’ – including the provincial and national health departments, local general practitioners and traditional healers, as well as representatives of a range of grassroots community organizations (Campbell & Williams, 1999:3).

A few primary studies of social capital in discrete communities in South Africa have been conducted, and illustrative examples present the approach most clearly. A study, conducted in Khutsong township in the gold mining area of Carletonville south of Johannesburg, yielded significant results showing connections between social capital and HIV and risk-related behaviour (Campbell, Williams & Gilgen, 2002:41). These results varied by age and gender and occurred in both positive and negative directions (Campbell et al., 2002:10-14). The findings are interesting, and indeed may be unique to the context. Statistically significant evidence of *positive social capital among men* was demonstrated by the following:

- Belonging to a sports club reduces the likelihood that young men will be HIV-positive.
- Belonging to a church reduces the likelihood that men will have casual partners (HIV risk)
- Belonging to a church reduces the likelihood that older men will drink alcohol (HIV risk) (ibid: 16-17).

Statistically significant evidence of *positive social capital among women* was demonstrated by the following:

- Women below the age of 25 years who belonged to youth groups were less likely to be infected with HIV.
- Women below the age of 25 years who belonged to youth groups were less likely to have casual partners than those who did not (HIV risk).
- Women who belonged to sports clubs were also less likely to be HIV-positive.
- Women who belonged to sports clubs were more likely to use condoms with casual partners (HIV risk) (ibid:17).

As the researchers concluded, ‘it was not surprising that membership of youth groups which specialise in activities relating to the personal development of young people’s social skills, confidence and personal ambitions are associated with better health and fewer sexual partners’ (ibid:17). Membership of a sports club may also ‘indicate a commitment to preserving one’s health and well-being’ (ibid). The studies generally concur that there is a connection between positive social capital and health, but that it is complex and variable (Campbell et al., 2002; 20; Kiggundu, 2005: 238-239).

Possible mechanisms that mediate the connection between associational membership (positive social capital) and health are self-efficacy and social persuasion. These are evidenced in the following quotes:

Social persuasion:

Health seeking behavior may be encouraged within intimate and supportive social environments, where fellow associational members might urge one another to seek early diagnosis and treatment of health problems. ...Communities with high levels of social capital might provide a broader range of peer contexts within which people could debate and negotiate the possibility of safer sexual behaviours (Campbell et al.,2002: 20-21).

Self-efficacy:

Members of cohesive and trusting community groupings are more likely to experience generalised levels of perceived self-efficacy or ‘empowerment’ which in turn makes it more likely that they will engage in health-protective behaviours, such as condom use or reduction in the number of partners (ibid:20).

Negative social capital has also emerged, much as it has in studies about the negative safety culture in mining. Overt forms of negative social capital were reported in a shack settlement near a gold mining community. Researchers found that the most powerful network in place was ‘a male-dominated, hierarchical, and exploitative gangster committee’ (Campbell & Mzaidume 2001:15). This finding may have generic validity because:

Communities with the highest levels of HIV infection may often be those that, like our study community, are the most disrupted or deprived. Existing norms and networks that health workers have to build on will often be characterised by violence and exploitation, or by conflict and competition, rather than by co-operation and trust (Campbell & Mzaidume, 2001:16).

Social capital can operate on a number of levels. A study of factors contributing to the stress of peer educators found that their *neighbours* were the second most significant variable after the amount of money earned (Dickinson & Kgatea, 2008:8).

Social capital can also be contradictory, i.e. positive in relation to some dimensions of life and negative in other ways. *Stokvels* or savings clubs present an illustrative example of an institution that has both positive and negative social capital:

For both men and women, stokvel membership was associated with increased sexual health risks. For both sexes young people who belong to *stokvels* were more likely to drink alcohol, young men who belong to *stokvels* were more likely to be infected with HIV, and women of all ages who belong to *stokvels* were more likely to have had a casual partner in the last year (Campbell et al., 2002:17).

Yet *stokvels* are not inherently negative institutions but have utility in poor communities in pooling resources, managing and accessing capital, social support, recreation and conviviality (ibid:18). The value of identifying negative social capital in H&S contexts lies in identifying important targets for interventions, ‘both due to the risk to which members may be exposed and the opportunities offered for negotiating behaviour change in cohesive and trusting community groupings’ (ibid:20). Even advocates of social capital as an approach to HIV interventions admit that it is unequally distributed in particular contexts, that it can be ‘a source of social exclusion,’ and that opportunities for accessing, creating and sustaining social capital are ‘constrained by poverty and other forms of inequality (Campbell, 2003:53). Social capital also operates at different levels.

On a macro- or structural level, the variables involved, such as economic development, rural poverty, migrancy, housing and the economic dependence of women, are beyond the powers of H&S programmes (Campbell & Williams, 1999:25; Campbell & MacPhail, 2002:342). However, an appreciation of micro-level social capital (team culture) could be very useful, as revealed in research on promotion strategies to facilitate mineworkers’ participation in TB prevention: ‘Endorsement of the study by individuals whose views are trusted and respected by the community also seemed critical; our experience suggests that the individuals with this influence may not be those one initially expects’ (Grant et al., 2010: S43). Micro-level social capital may be variable and subject to changing norms, but will influence how intended health and safety messages and behaviours will be taken up or discarded.

How far practitioners or peer educators can influence these norms is debatable, but both practitioners' and workers' understanding of a notion of social capital, and even careful discussion of the question, could enhance the self-awareness and self-efficacy. Researchers advise caution and a need for greater research (Chiu et al., 2008:529; Campbell, Williams & Gilgen, 2002:51). Although the overall focus of social capital is its collective and group setting, notions of mastery and insight learning emerge as relevant, as shown in the following quote:

Our empirical findings suggest it is not enough to conceptualize 'empowerment' in terms of boosting young peoples' emotional or motivational confidence in their ability to protect their sexual health. Empowerment also involves the development of *intellectual understandings of the way in which social relations contribute* (my emphasis) to the transmission of HIV, and undermine efforts to reduce HIV transmission (Campbell & MacPhail, 2002:343).

Peer learning

Associated with engagement with both HIV interventions and social capital is the use of peer learning. Peer learning basically involves the use of voluntary educators from among the peers of a target group of participants. 'In the workplace context, peer education is conducted by selected members of the workforce who receive training in basic health-related information, as well as training on how to facilitate discussion and debate in group settings' (Campbell, 1997:286). The underlying logic lies in the 'similarity between message source and recipient' (Dickinson & Kgatea, 2008:3). There are advocates for and against the use of peer practitioners in health education and communication. Within the social capital approach the use of peer learning is advocated, as shown below:

Such educators are then sent back into the workforce to raise debates about the issue of HIV as often as possible in informal work and recreational settings in such a way that people are encouraged to debate new health-related information in the light of their old views, opinions and identities. ...In such contexts people play an active role in debating the possibilities of alternative recipes for living, rather than passively listening to information presented by a relatively impersonal source in the style of more traditional health education programmes (Campbell, 1997:286-287).

However, research conducted on workers' experiences of mine HIV services reported that workers generally expressed concerns about confidentiality and rated nurses higher than volunteer counsellors in terms of their communication skills and medical knowledge (Charalambous et al., 2002: 714-5). Although H&S representatives are elected, their intended role is comparable to that of peer educators in terms of their part-time, unpaid and advocacy aspects. Research has shown that peer educators experience increased stress, which contributes to attrition of their numbers (Dickinson & Kgatea, 2008:1-2). 'Given this, their voluntary contribution to peer education can place them in awkward positions that challenge their personal commitment to helping others' (Dickinson & Kgatea, 2008:14). Peer educators require support and skills development in the form of presentation skills and networking in order to maintain support from within the peer network, as described below:

This calls for skills of engagement and encouragement *within* the ranks of peer educators if activity is to be maintained and increased. And, finally, if people are to listen, there needs to be attention on teaching peer educators how to engage with others, not only when making a formal presentation, but also in everyday moments for it is here, and not classrooms, that hearts and minds are won (Dickinson & Kgatea, 2008:14-15).

Support for peer educators or representatives

Many other aspects of the experience of peer learning, HIV and other health communication programmes may be applicable to proposed training for H&S representatives.

The target is to support training for 10 000 H&S representatives over the next year (MQA, 2011:53) and 40 000 over the next five years (COM, 2010:129). As seen in Chapter 2, the power and authority of H&S representatives in the industry is not assured (Baleni, 2007:2); nor is their capacity. Research into current functioning of H&S representatives concluded that their preparation had been inadequate: ‘Only a small minority had a systemic view of the necessity to improve health and safety systems and structures and the need to lift the priority generally in companies and the industry’ (Rees et al., 2007:4). Furthermore, a substantial proportion of current mine H&S representatives have limited formal education or English literacy and language skills (Rees, Ingham, Bello & Murray, 2007:21). This affects not only training plans but also engagement with documentation and confident participation in meetings conducted in English. However, I found on the internet agreements between some mining companies and the trade unions that insisted upon English fluency for H&S representatives. As discussed in Chapter 5, the current framework for the proposed training is outcomes-based and made up of the following unit standards:

Table 16: Skills Programme: Occupational H&S activities for part time/ workplace representatives and shop stewards in the mining and minerals sector			
Unit Standard Title	Level	Credits	US no.
Explain basic health and safety principles in and around the workplace	2	4	259639
Describe the functions of the workplace health and safety representatives	2	3	259622
Conduct continuous hazard identification and risk assessment within a workplace	2	2	244383

(Source: MQA, 2009:3)

The skills programme and associated unit standards are all pitched at national qualifications framework (NQF) Level 2, between Grades 9 and 12. This educational level could exclude nearly half of all current representatives. Research into the formal education of H&S representatives in gold mines, coal mines and quarries revealed that 25% to 40% of representatives do not have the level of education usually associated with functional literacy or Grade 7, while 40% of representatives have below Grade 8 education (Rees et al., 2007:21). The relevant unit standards can be accessed on the website of the SAQA, and agencies providing training to H&S representatives can use them to formulate curricula.

The programme guidelines advocate 15 days of training (MQA, 2009:4). A perusal of the relevant unit standards suggests a strong focus on compliance with legislation and documented procedures, as well as hazard identification and risk assessment, with associated data gathering and reporting (See Appendix A). There appears to be little focus on increased mastery of occupational health issues and little engagement with the actual impact, either of the standards or of the representative him- or herself, on the workplace. Essential communication and networking skills also appear to be neglected.

Competing beliefs and interpretations

A recurring theme in the literature is that planned health messages are not simply transferred to workers but are actively ‘located within a complex and detailed web of ideas concerning health, sexuality, traditional values and healing systems’ (Campbell, 2003:25). (See also: Campbell, 1997:275; Fearnley, 2005:148; Charalambous et al., 2004:54; Donovan & Ross, 2000:1899; Liddell, Barrett & Bydawell, 2006:223). Health enhancing messages are not passively accepted by their audiences, but ‘compete with alternate beliefs, experiences and logics that may be more compelling than the information that the health educator seeks to impart’ (Campbell, 2003:26). An example in the mining industry relates to reluctance on the part of mineworkers to give blood samples:

Southern African traditional beliefs do not attribute health and disease to biological processes and infectious agents, and our population of mineworkers have generally received only a low level of formal education. Traditional beliefs of the gold miners contributed to reluctance to give blood samples and difficulties with education about the HIV disease. As traditional healers use blood for medicinal purposes it is believed by some that the blood is sold or that it may be used for malevolent purposes. Many mineworkers feared that the loss of blood may lead to a diminished sexual prowess. Amongst those with asymptomatic HIV disease, the concept of carrying a potentially lethal disease for a number of years without any appreciable impact on their level of fitness or visible sign of illness was sometimes hard to internalize (Charalambous et al., 2004:54).

Competing beliefs and interpretations can shape significant barriers to health messages and operate at all stages of dealing with health and disease, from origins to prevention and cure.⁴⁰ The syndrome is pervasive in all societies. For example, the use of condoms is widely promoted in HIV prevention programmes, but researchers have found a wide spectrum of complementary strategies used by individuals to avoid infection, (e.g. partner selection, topical or systemic chemoprophylaxis) which sometimes undermine condom use in high-risk situations (Donovan & Ross, 2000:1899). Notions of cure and healing are subject to the same complexities. Mineworkers in southern Africa are often located within a plurality of healing systems - seeking care and treatment from conventional doctors, traditional healers, church healers (prophets) and so on (Campbell & Williams, 1999:23). Most HIV programmes are associated with the conventional biomedical approach (though this is changing) and play a limited role in workers' total belief systems regarding health and healing. Although competing beliefs and logics require more care and attention in H&S programmes, they cannot be oversimplified.

The complexity of such beliefs and logics is well illustrated in a qualitative study of indigenous beliefs about HIV conducted in the rural Okhahlamba area of KwaZulu-Natal (Liddell, Barrett & Bydawell, 2006). Most men from the area are migrant workers and HIV prevalence is high. Two aspects of indigenous thought were considered in relation to their attitudes to AIDS precautions: beliefs about *ancestral protection* from misfortune, and *traditional beliefs about illness* (Liddell et al., 2006:218-220). The findings showed strong evidence of traditional belief across the community on the two main research dimensions - ancestral protection and traditional beliefs about illness. 'Overall, these findings suggest that rural Zulu communities possess elaborate and enduring systems of indigenous knowledge and belief' (Liddell et al., 2006: 223). However, when these results were analysed in terms of attitudes to AIDS prevention measures the results were surprising.

⁴⁰ An anecdotal example from community-based adult educators from the North West province is that there is a widespread belief that HIV is the result of a particular curse or 'Makgome'. The curse is visited upon people who do not observe traditional mourning rituals, which demand that a bereaved spouse should remain celibate for at least one year. The logic of the belief is maintained because bereaved people die soon after their HIV-positive spouses (Mahlangu, 2009: Personal Communication). This belief has been reported in other studies (Meyer, 2008; Zaina, 2005).

Concerning the younger group (18-24 years), their intense beliefs in ancestral protection and traditional perspectives on illness did not significantly affect their attitudes to AIDS prevention, such as condom use. The findings for the group described as older, aged between 35 and 45, were different. A belief in *ancestral protection* decreased the acceptance or uptake by the older group of ideas about HIV prevention. Yet *strong traditional beliefs about illness* had the opposite effect for the same group. Strong endorsement of traditional belief about illness was significantly associated with acceptance of AIDS prevention measures such as condom use (Liddell et al., 2006:223). This was an unexpected finding, but some explanation emerged from within the research context:

One possibility is that condoms fit harmoniously with traditional views of infectious substances, and how these can be avoided. In the case of STDs, such substances are found in the bodily fluids of other people. A variety of protective charms and amulets can be worn as a means of warding off their harmful effects, and condoms may fit well with the concept of warding off contamination by polluted substances (Liddell et al., 2006: 223).

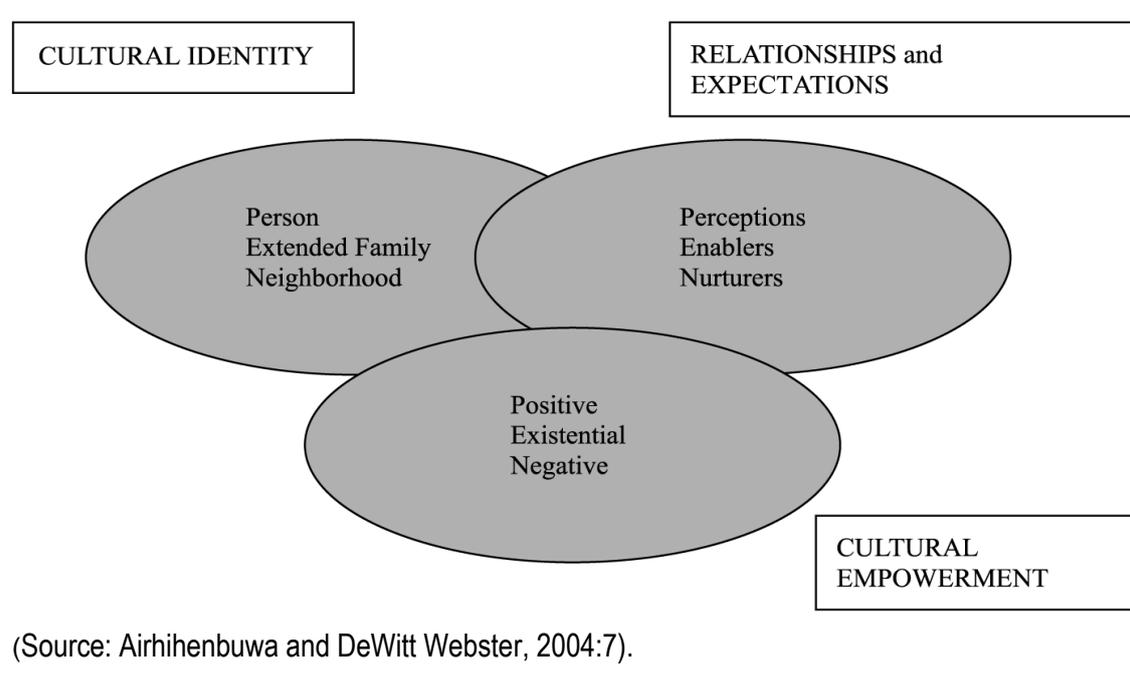
The researchers concluded that indigenous beliefs are not necessarily always at odds with those of Western medicine, a common assumption. 'Indigenous beliefs can play a constructive role in the development of culturally sensitive models of risk and the development of more effective AIDS interventions' (Liddell et al., 2006:224). Comparable beliefs have been long held in the mining sector. Many mineworkers believe that their lungs will be protected from disease if they drink milk and that growing a beard will protect them from noxious dust. The logic of the latter belief is obvious because when a worker emerges from working underground, his beard is visibly covered in dust. To counter the belief, accurate information on risk is required, i.e. that it is the invisible micro-particles of dust that are inhaled and not those trapped in beards that are the most noxious. Such beliefs are context-specific and not usually adequately addressed in mine health and safety training. Obviously, there are serious medical decisions to be made concerning the best treatment for people living with HIV or other diseases, but the issues raised concerning competing beliefs and logics are crucial for effective programmes.

Health education audiences will always engage in an internal debate between the new information presented by the educator and their previous information about the topic in question. ‘Well-planned educational programmes need to predict the way in which old information might seek to block the reception of the new messages they seek to impart,’ and educators need to ‘be informed by understandings of the way in which behaviours are shaped by socially negotiated identities within particular social contexts’ (Campbell, 1997:275-276). However, serious engagement with the competing logics and beliefs of a particular group of workers in a particular situation may require respect, trust, ongoing research and negotiation:

It might be more pragmatic to develop measures that are responsive to the circumstances that particular cultural groups find themselves in at particular phases of the disease’s (HIV) progression, even though such measures would lack cross-cultural generalizability, would be unstable over time, and would require in-depth specialist knowledge of a culture (Liddell et al., 2006: 224).

Acknowledgment of workers’ competing beliefs and logics about a particular syndrome will assist the educator in gauging the appropriateness and uptake of intended health messages. However, engagement with such beliefs and logics inevitably requires serious analytical criteria and skills. Airhihenbuwa and DeWitt Webster (2004) advocate a model, widely known as the PEN 3, for HIV programmes in Africa. The PEN3 model makes use of three domains, which incorporate specific constructs for its use: relationships and expectations, cultural empowerment, and cultural identity, as shown in the following table:

Table 17: The PEN-3 model



Core features of the model are that it advocates both positive and analytical approaches to cultural perceptions and beliefs. Focusing on the need to be positive, the writers state: ‘Culture and empowerment are two words that are almost never used as a coupled term because of the way in which culture is often represented as a barrier and empowerment as strength’ (Airhihenbuwa & DeWitt Webster, 2004:4). By not focusing on only negative practices or beliefs, the models provides ‘an opportunity for interventionists to address positive and existential behaviour so that negative practices, values and behaviours are located within the broader context’ (ibid:12). Thus the focus of change is to address certain issues in a context, rather than rehabilitate people out of their bad cultural beliefs and practices. The cultural empowerment domain of the model relates most directly to competing beliefs and logics as referred to above:

The goal of cultural empowerment is to ensure that an intervention is developed with the idea of *not* only the bad in mind, but also to promote the good and recognise the unique or indifferent aspects of culture. As a result, this model insists that, regardless of the point of intervention entry, the positive aspects of behaviour and culture must be identified as the first priority (ibid:7-8).

The beliefs, values and attitudes that comprise the cultural domain of PEN-3 are also comprised of three categories, those that are positive, existential and negative (ibid:8). The model is illustrated below with specific reference to perceptions of HIV/AIDS:

Positive perception — refers to knowledge, attitudes and/or beliefs that positively influence decisions about HIV/AIDS prevention, care and support. A critical aspect of this category is contextual values that allow one to see HIV as the result of one's behaviour, rather than one's identity (ibid:10).

Existential perception — refers to knowledge, attitudes and/or beliefs that influence decisions about HIV/AIDS prevention, care and support in a manner that could be described as unique to that culture. Such perceptions are often not positive or negative but do reflect characteristics and qualities that help to explain certain values of the people. (ibid:10).

Negative perception — refers to knowledge, attitudes and/or beliefs that negatively influence decisions about HIV/AIDS prevention, care and support. ...Myths and misconceptions about HIV infection lead to discrimination and human rights abuses (ibid:11).

It seems reasonable to post that such beliefs emanate not only from traditional cultures but also from the rapidly changing contexts of developing societies. Another consideration may be the *source of the belief*. Does the competing belief or logic emanate from a long-held traditional system, or has it evolved in the workplace environment? Beliefs that have evolved in the workplace environment may be more susceptible to modification or challenge.

Risk perception

As seen in the previous chapter, much has been written about procedures for the assessment, management and minimizing of risk in mining. However, studies in health refer to *perceived risk* from a different analytical perspective. Personal risk of disease (or accident) can be perceived to be low for a number of reasons, some of which can be addressed in training programmes. The first of these relates to *personal vulnerability*, which is considered to be an important requirement for translating knowledge about illness into behaviour change (Kiggundu, 2005:242; Campbell & Williams, 1999:15; Camlin & Chimwete, 2003:231).

This has also been observed in applications of self-efficacy to the management of diabetes, heart attack recovery, and giving up smoking: ‘the person’s belief in susceptibility to harm’ was found to be an essential attribute of efficacy in relation to the specific health issue (Kear, 2000:5). Other factors that affect feelings of vulnerability include the sense that this problem only happens to other people, referred to as *othering* (Kiggundu, 2005: 242), and exposure to or personal knowledge of a person suffering or deceased from HIV/AIDS, referred to as a PWA in the literature (Camlin & Chimbwete, 2003:231). The link between feelings of vulnerability and acknowledging risk has been studied in Africa. Survey data from Kenya, Uganda and Zambia, involving men aged 20 to 40, found that exposure to a PWA was associated with reported behaviour change, such as condom use and reducing the number of sexual partners (Camlin & Chimbwete, 2003: 231). However, when a similar study was conducted with young urban South African women, the findings were different. There was no demonstrated association between condom use and having known a PWA, and condom use was strongly associated with knowledge that condoms could prevent HIV transmission (*ibid*). The researchers concluded that awareness of risk and behaviour change is not always straightforward, particularly for women in Africa, where *gender* power relations intervene. Social norms in southern Africa favour women’s deference to men’s control over sexual activity, including condom use: ‘Women identified their partner’s behaviour as a risk factor, while men identified their own sexual behaviour as a risk factor’ (*ibid*: 240).

Other contributions to risk perception are emotion, inaccurate information and dysfunctional comparisons. It has been asserted that most of the factors contributing to risk negation are *affective*, involving feelings for the sexual partner and reciprocation of these feelings (Donovan & Ross, 2000: 1900). This has been referred to as ‘affective override of cognition,’ a way of saying that his or her judgment was affected by intense feelings. Inaccurate risk perception may not only be the result of *inaccurate information* but also of *dysfunctional comparisons*, described as behaviour in which ‘people always compare their own risk with someone who is at much greater risk than themselves,’ leading to an inaccurate ‘assessment of oneself as being at substantially lower risk than dispassionate evidence would suggest’ (Donovan & Ross, 2000:1900).

Such dysfunctional comparisons could happen in mining, where H&S records differ vastly on different mines and even on different locations within mines, and where contract workers often have lower status than full-time employees. As stated in Chapter 2, most mineworkers are male, and masculine, even macho, identities are a feature of South African mining contributing to risk taking.

The ABC approach

The ABC approach is included here because of its association with developing countries. The approach is said to have been developed in Africa and has been endorsed by projects funded by significant donors, such as USAID (USAID, 2008:1). It uses the acronym ABC to communicate three main health messages, or build upon three fundamental prerequisites that can prevent or reduce the likelihood of sexual transmission of the HIV virus:

A for Abstain (or, if working with youth, advise delaying sexual initiation)

B for Be faithful

C for Condomise (correct and consistent condom use)

The approach has been used and has demonstrated successful outcomes in settings as diverse as Uganda and the USA (Wellings et al., 2006:1721). The sources of its success, however, vary in different contexts, and ‘the mix of components in national programmes needs to be tailored to the local context’ (ibid). For example, in Uganda the effectiveness of the strategy was based on an emphasis on abstinence and being faithful (ibid:1723), compared to an increased use of contraception and of welfare reform in the United States (ibid:1724). The ABC approach has attracted a polarity of views, one of the main criticisms being its presentation as an approach for multiple contexts. This is evident in interviews with local mineworkers, who, when questioned on their views on abstinence as a way of avoiding HIV, suggested that such an option would actually lead to loss of health:

A range of possible ill-effects of poorly regulated bodily fluids resulting from prolonged celibacy were mentioned. Informants dwelt the most on mental ill-effects: depression, short-temperedness, violence and an inability to think clearly. Less frequently mentioned were such physical ill-effects as pimples and obesity... Behavioural ill-effects included recklessness and impulsive behaviour. Lengthy celibacy might also lead a man to consider homosexual relationships which he would not have considered in other circumstances (Campbell, 1997:278-279).

The approach has reported successes, but is also perceived as instrumental in undermining the quality of interventions, as do inappropriately applied models: ‘The preoccupation with ABC strategies has the negative effect of distracting attention from the need for broader, integrated programmes in which all components are mutually reinforcing’ (Wellings et al., 2006: 1721). The ABC acronym is beguiling and provides a slogan or accessible profile for programmes, but it does not really constitute a full teaching and learning approach.

6.5 Reviews

Sectoral, local and international reviews

Research into HIV transmission has reached a point where both local and international reviews of studies are available. A small selection of these is included here, for two reasons. Firstly, the criteria referred to in review studies tend to relate to programme evaluation criteria, rather than an approach to teaching and learning. Secondly, in spite of the huge volume of HIV studies, the kind of criteria discussed will soon be reaching a saturation point. In Uganda a comprehensive global review of 59 countries where data were available investigated both patterns of sexual behaviour and the implications for attempts to protect sexual health (Wellings et al., 2006:1706). The general conclusion was that behavioural interventions are needed that ‘take account of the social context, attempt to modify social norms to support uptake and maintenance of behaviour change, and tackle the structural factors that contribute to risky sexual behavior’ (ibid:1707).

Systematic reviews have focused mainly on assessment of interventions to change individual behaviour and show increased effectiveness where information is supplemented by skill building and counselling, such as use of condoms and safe sex negotiation, where theory guides design, where several delivery methods are used, and where context and the need for sustainability are taken into account (ibid:1717)

A comparable literature review was conducted in South Africa by Harrison, Smit and Myer (2000), and a summary of their findings is presented in the table below:

Table 18: Elements of successful behaviour intervention programmes

Systematic reviews of behaviour interventions with a positive influence show that successful intervention programmes have addressed:

Outcomes: aim for effect on timing and frequency of sexual intercourse, numbers of partners, and use of condoms or other contraceptives

Design: positive association between intervention design and outcomes

Objectives: include a narrow focus with few behavioural goals

Theoretical basis: is based on social learning or other cognitive-behavioural theory

Content: includes basic accurate information on risk; repeats essential messages

Normative process: strengthens group norms

Skills-based focus: includes experiential activities, especially the modelling and practice of communication and negotiation skills; training in coping skills; interpersonal negotiation and communication skills found to strengthen behavioural outcomes

Duration: interventions that increased condom use and involved fewer partners tended to be longer in duration; sufficient time for 3-5 intensive sessions needed for skills acquisition and retention

Community emphasis: focuses on community and cultural aspects; designs culturally appropriate/relevant and language-appropriate intervention; embeds AIDS intervention in broader contexts; promotes integration into the community

Participation: creates forums for open discussion; solicits participant involvement

(Harrison, Smit & Myer, 2000: 285)

This is a comprehensive list of elements of HIV interventions that lead to undefined 'positive influence', but evidence suggests that knowledge - while a necessary precedent to behaviour change - is not sufficient to make this happen (Harrison et al.,2000: 286). However, the researchers established that, while many studies have shown an impact on knowledge and attitudes, fewer have demonstrated an influence on actual behaviour change (ibid:285).

The researchers then looked closely at South African programmes which had been operating during the previous 10 years in order to suggest what could be done to deliver more effective local HIV prevention programmes (ibid:286-288). Their findings took the form of a more refined list of criteria for local interventions:

Table 19: Criteria for HIV prevention programmes

Targeting interventions at high-risk groups
Development of appropriate and well-designed interventions and the evaluation of their effect
Promotion of appropriate and culturally relevant messages
Combining behavioural and other prevention efforts, and developing links to health services
Providing resources

(Source:Harrison, Smit & Myer, 2000: 288-289).

Both the above tables look like checklists of accepted quality criteria for AET programmes. This serves to underline an ongoing and generic concern about quality in all adult and H&S training for adult workers. A comparable checklist has been compiled regarding HIV programmes for mineworkers and is presented as an ‘Aids brief’ for mining managers:

Table 20: An optimal workplace HIV/AIDS/STD/TB programme

- reflects an understanding of the context of mine workers' lives
- takes account of how the sexuality and health-seeking behavioural norms of the mine workers are collectively negotiated and the choices that they are empowered to make
- recognises the resources that the mine workers have access to
- identifies priorities for action which are realistic, which exploit inherent resources and which will receive support from management, workers, clients and community leaders
- uses the power of peer education
- provides training using participatory and skills-based techniques
- increases self-efficacy amongst mine workers to improve the likelihood that they will engage in health-protective behaviours
- works towards developing social contexts which are supportive of behaviour change
- provides accessible resources, such as condoms

(Source:HEARD, 2002:3)

This table is wider in focus than the previous ones presented and refers to contexts and variables outside of the workplace or training programme. These include variables ranging from developing individual self-efficacy of workers to developing ‘social contexts which are supportive of behaviour change’ (HEARD, 2000:3). The self-efficacy approach and use of peer education methods are advocated. Focusing on the mining context, which consists mostly of men, research suggests that individual-focused interventions need to be targeted to be successful, and that men have been successfully targeted in occupational contexts with consequent reduction in sexual risk-taking (Wellings et al., 2006:1717-1718). This coincides with the principal finding of the study of promotion strategies to facilitate mineworkers’ participation in TB prevention:

In conclusion, our experience suggests that with a tailored communication strategy, a community can be informed about a previously unfamiliar intervention to address a health problem, and community members can be mobilized to take part in community-wide preventive action (Grant et al., 2010: S43).

Targeting of programmes for specific groups appears to be essential. Mastery in the form of accurate information, as well as the necessary skills required to perceive and manage risk accurately, competently and confidently, is crucial. The programme must be linked to practical or tangible operations (e.g. condom supply, health checks) in order to facilitate the translation of knowledge into practice. Programmes need to be underpinned by a sound theoretical or conceptual approach. Many writers advocate cognitive-behavioural models which include Bandura and self-efficacy. Programmes should acknowledge and endeavour to promote messages that are contextually and culturally relevant, taking into account the socio-cultural context of a specific community. Strategies are required to sustain and support health messages and new behaviours taking into account whether life and work contexts are supportive or otherwise, of behaviour change..This can be achieved through a number of training sessions or by developing links and partnerships with other local agencies. The one-off training or awareness day, however, does not bring about behaviour change.

There is still space for deeper inquiry in order to inform the mechanisms of H&S education: ‘We need to know not only whether interventions work, but why and how they do so in particular social contexts’ (Wellings et al., 2006: 1707).

Integrating models and approaches

Several relevant and recurring themes have emerged from HIV studies, adequately supported by research and conceptually and contextually close enough to health and safety problems in mining to take further in this study. It is evident that no single approach to health awareness provides a perfect solution. Ideally informed H&S educators would be able to select appropriately from a number of useful approaches within their knowledge base. Research-based interventions appear to hold the most promise:

When developing an education intervention, it is important to be clear about what the project is attempting to achieve. We also need to understand precisely where the target audience is “at” in terms of the selected behaviour change model. This necessitates a thorough grasp of the target group and their understanding of the topic in question. An understanding of their knowledge about the topic, their attitudes, their self efficacy in relation to desired change, barriers to change and facilitating factors relating to change is needed. In addition, an understanding of the social norms in relation to the desired behaviours and the circles of influence is required (Goldstein, 2007:5).

6.6 Conclusion

Carefully designed health education programmes can facilitate behaviour change and are most likely to do so if programmes are designed for specific target groups; if they aim to provide accurate information and facilitate necessary skills within a narrow range; are linked to practical or tangible activities, e.g. use of condoms or safety gear; are underpinned by a sound theoretical approach; acknowledge and endeavour to promote messages that are contextually and culturally relevant; and provide activities or links for the sustained support of new messages and behaviour.

Social capital has logical links to H&S culture and Bandura's notions of social learning and social persuasion as sources of self-efficacy. Social capital within a target community may be variable and subject to changing negotiated norms, but will influence how intended health and safety messages and behaviour will be accepted, reinforced or discarded in a social or operational context. However, many of the factors contributing to social capital are beyond the control of H&S educators. Consequently, engaging with social capital, culture or contextual norms may be more feasible on a micro- or team level in the workplace. Negative social capital may be useful in identifying specific target groups and potential barriers to the uptake of health messages.

An understanding of the competing beliefs and logics about a particular syndrome, held by individual workers participating in a health intervention, is also relevant. The connection between intended health messages and such pre-existing or traditional beliefs can be positive, neutral or negative. Risk assessment and management are part of mining literature. Health communication studies, however, refer to risk perception. Generally, when people experience a feeling of vulnerability, their efficacy in terms of a particular health hazard seems to be activated. Perception of risk can be modified by exposure to different variables, resulting in a more accurate perception and higher health efficacy. Risk can be displaced or denied through the following mechanisms: affect or intense emotion, 'othering' or a feeling or belief that a problem only happens to other people, inaccurate information, dysfunctional comparisons, and notions of masculinity or machismo. Risk acknowledgment can be enhanced by a feeling of personal vulnerability, personal exposure to someone suffering a condition, accurate information regarding the issue or disease and its prevention, and self-efficacy, which involves the confidence and competence to accurately assess and avoid risk.

Experiences in peer learning suggest that the role of voluntary peer educators is stressful and requires systems of skills development and support to avoid burnout and attrition. The proposed H&S representative system for South African mining emphasizes a rapidly expanding role for representatives and is in many ways comparable to a peer educator system.

The current unit standards, advocated as the base of the proposed training, suggest a strong focus on compliance with legislation and documented procedures, as well as hazard identification and risk assessment, with associated data gathering and reporting. There appears to be little focus on increased mastery of occupational health issues, little engagement with the actual impact of the standards in the workplace or of the role the representative him- or herself, and limited development of essential communication and networking skills.