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ABSTRACT

This document, which was developed for presentation at a seminar on adult learning and safety, examines approaches to occupational safety and health (OSH) learning/training in the workplace. Section 1 examines selected factors affecting adults' learning in workplace OSH programs. The principal dimensions along which individual adult learners will differ from one another and the different learning processes in which individual adults may engage are listed. Section 2 describes three novel patterns/approaches to OSH learning in the workplace--action learning, situated learning, and incidental learning--and identifies characteristics shared by them. Section 3 presents an overview of thrusts and levels of the following types of OSH learning/training programs: fundamental programs; recognition programs; problem-solving programs; and empowerment programs. Section 4 explores the following critical aspects of OSH learning/training in the workplace: assessing needs; establishing learning/training objectives; specifying learning/training content and media; accounting for individual differences; specifying learning conditions; evaluating training (evaluating trainees' reaction to the training, their knowledge gain, their behavior change, and the training program's tangible results for the organization); and revising the training. The training development model underpinning the United States Occupational Safety and Health Administration's voluntary training guidelines is detailed. Section 5 summarizes key lessons/conclusions of the seminar presentation. The bibliography lists 17 references. (MN)

TITLE:
Adult Learning in Health and Safety: Some Issues and Approaches

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NIFAST

Conference

Friday, 28th June 2002, 9.15am - 4.15pm

Adult Learning in Health & Safety:

Some Issues and Approaches

Presenter: Professor Máirtín Ó Fathaigh, PhD

1. ADULT LEARNERS/OSH LEARNING: SOME ELEMENTS/FACTORS.

Heterogeneous Group of Learners/Environments

Cognitive + ↓ + *Affective*

- Knowledge, Skills, Attitudes/Beliefs/Values etc.
- Change and Development: Personal/Organisational
- Planning/Strategies: Short, Medium, Long-Term
- Learning Styles: (Formal/Informal; Dependent/Independent; Competitive/Collaborative etc.)
- Previous Learning/Experiences: Formal/Informal: +ve/-ve
- Life Experiences: Organisational Experiences: +ve/-ve
- Personalities: Individuals/Organisations: Externalists/Internalists, Open/Closed etc.
- Cultures/Climate of the Learning Environments: Inclusive/Exclusive, Discrete/Integrated, Collaborative/Competitive etc.

- Technological Developments: Self-Directed Learning: New Health Issues
- Johari Windows and Learners
- Challenges to Traditional Concepts of 'Knowledge', 'Skills', Intelligence': Multiple Intelligences
- Attained Qualification(s) may not correlate with innate/natural abilities in society
- 'Liberated' Behaviour/Self-Talk and Learners' Self-Concept

All above point to 'Mezza' Factors/Variables

ADULT/OSH LEARNING: SOME IMPORTANT FACTORS

You may find it useful to spend a few minutes considering the following questions. Use the space provided to jot down your thoughts, if you wish.

How would you define/describe Adult Learning in OSH?*

What factors do you think inhibit Adult Learning in OSH?

What factors do you think enhance Adult Learning in OSH?

* Occupational Safety and Health

Adult Learning in OSH may be:

- acquiring knowledge or skill(s) relating to OSH topics

and/or

- committing to memory items of law, machine approaches, symbols etc.

and/or

- a change in human disposition/mindset which is not simply the result of growth and maturity

and/or

- the causing of "old knowledge" to acquire new qualities/implications

and/or

- following HSA guidelines
- increase in self-confidence/self-talk/problem solving/decision-making

and/or

- becoming more open-minded/empathetic/aware of diversity/accepting of difference

and/or

- examining/modifying attitudes/challenging status quo

and/or

- understanding conceptual frameworks/data sets/relationships between seeming different events

and/or

- .....

etc. etc.

Even though we may have used different words, it is likely that we may have referred to **change** in one form or another. Although education theorists may disagree over how this change occurs, most agree that **for learning to take place the learner must change.** However, not all learning is intentional/formal/explicit etc., and there are many areas of our lives where we learn something entirely by accident. Learning, may take two forms (at least):

- incidental learning
- purposeful learning

There is no doubt that we all learn in different ways, even though the common factor in learning is change. How we learn may be related to:

- our personality, circumstances, attitudes
- experiences;
- the learning environment;
- our motivation etc.

However, it can be useful to relate our own learning in OSH to that of adult learners. An awareness of some of the factors in OSH that help or hinder our own learning may help us understand adult/OSH learning of others. The activity that follows may help us to reflect on our own experiences: both individual and organisational. OSH involved at least these two latter dimensions of learning as we will see later.

1. Why are you attending this seminar?

2. What OSH learning, professional experiences, skills, knowledge, attitudes, etc. do you bring to this learning process?

3. In what ways do you expect to change as a result of the learning process?

Knowledge:

Skills:

Attitudes/Beliefs:

PLEASE DO NOT PROCEED

4. What were the most important factors in previous (formal) OSH learning? (Please reflect on some previous (formal) learning experience).

1 2 3 4 5

Important — Unimportant

- Your own motivation ☐
- Teacher's/facilitators efforts ☐
- Your abilities ☐
- Your application ☐
- In-company learning resources ☐
- Your peer group ☐
- Your interest in OSH topics ☐
- Your time management skills ☐
- Assessment procedures ☐
- Your life interest ☐
- Your self-confidence ☐
- Support of others ☐
- Your work roles ☐
- Your enthusiasm ☐
- Your personal contribution to programme design ☐
- Your career plans ☐
- Other(s) ☐

.....

.....

- Relevance of programme to work role ☐
- Pace of Learning ☐
- Participation in Learning ☐
- Using your own experiences ☐
- Interaction with other learners ☐
- Finding out for yourself ☐
- Feeling successful/affirmed ☐
- Being well organized ☐
- Realising personal goals ☐
- Taking personal responsibility for learning ☐
- Working independently ☐
- Putting theory into practice ☐
- Sharing with others ☐
- The Climate of Learning ☐
- Your attitude ☐
- Presentation of Materials ☐
- Workplace emergency ☐

2. SOME NOVEL PATTERNS/APPROACHES TO OSH LEARNING IN THE WORKPLACE.

In today's increasingly socially responsive, legislation governed, more health conscious society, "high performance organisations", all participants must be prepared for continuous on-the-job growth and development. Given the increased personal, organisational and statutory importance of OSH, the lessons/best practices delineated in research, the increased age, variety of experiences, and diverse lifestyles and cultures of the working population, it is understandable that OSH learning approaches/practices must move beyond the traditional, didactic model of lecturers as purveyors of knowledge and learners as passive recipients. Methods and techniques that

- draw upon workers' previous OSH experiences,
- link OSH knowledge concepts and practices, and
- encourage reflection and
- effect the transfer of OSH knowledge from one situation to another are vital to this learning process.

Here, I propose to outline some (perhaps) novel approaches to OSH learning at work, such as action learning, situated learning and incidental learning. We must strive to be flexible and imaginative in our **reflective practitioner** roles.

• ACTION LEARNING/OSH LEARNING

Action learning is a systematic process through which individuals learn by doing. It is based on the premise that **learning requires action and action requires learning.** It engages individuals in just-in-time learning by "providing opportunities for them to develop knowledge and understanding at the appropriate time based on immediate felt needs" (Lewis and Williams 1994, p. 11). Learning itself is the desired outcome of action learning, not problem solving. It is the learning that occurs in the process of finding solutions to problems that constitutes action learning. It is a type of learning that helps individuals respond more effectively to change, learning particularly important in OSH.

Action learning has been adopted in the workplace as a viable approach to OSH education and development and an important element of a training and development strategy in this area (Vince and Martin 1993). **It involves the members of an organisation in group situations with the goal of helping each group member learn through the process of finding solutions to their own OSH problems.** Through this process:

- learners become more empowered
- increase their self-awareness and
- develop new knowledge, attitudes, behaviors, and skills for making changes and redefining their roles within OSH contexts (Williams 1992).

The properties of action learning clarify its relevance to workplace learning, especially in terms of OSH (Beaty et al. 1993):

- Learning is based on the solution of real (OSH) problems.
- Learning occurs with and from others who are also engaged in managing real (OSH) problems and issues at individual/organisational levels.
- Members of the group are responsible for solving their own (OSH) problems, unlike those on a project team or task force.
- Members of the group are concerned with implementing actions,
- Learners move beyond the stages of analysis and recommendation to actual implementation.

• SITUATED LEARNING

Situated learning is another approach that is receiving attention in the field of adult and workplace learning that has major implications for OSH. In the situated learning approach to OSH, **knowledge and skills are taught in contexts that reflect how the learning will be used in real-life situations**. This strategy is based on the premise that OSH learning is not independent, but fundamentally situated, being in part a product of the activity, context, and culture in which it is developed (Brown et al. 1988). Orey and Nelson (1994) highlight the importance of situated learning to OSH, when they state that "learning requires more than just thought and action, or a particular physical or social situation, or just receiving a body of factual knowledge; it also requires participation in the actual practices of the OSH culture" (p. 623). Thus, in situated learning, it is the authentic social context in which learning occurs that offers the benefit of increased knowledge and offers the learner the potential for applying that knowledge in new ways and in new situations.

'Cognitive apprenticeship' is one example of situated learning in which learners participate in a community of practice (such as OSH) that is developed through activity and social interaction, in ways similar to that in craft apprenticeships (McLellan 1994). However, "cognitive apprenticeship supports learning in a domain by enabling students to acquire, develop, and use cognitive tools in authentic domain activity" (ibid., p. 5), which means the activities are performed in the context of the work environment.

In the theory of situated learning, "knowledge is viewed as co-produced by the learner and the situation; engagement of the learner in the situation is critical". One writer clarifies/distinguishes learning and cognition in a situation by using the distinction between traveler and tourist as a clarifying metaphor:

> "A traveler and a tourist can visit the same city, but experience it very differently. A tourist's goals are typically to see all the sights, learn their names, make and collect stunning pictures, eat the foods, and observe the rituals of the city. A traveler, on the other hand, seeks to

> understand the city, to know and live briefly among the people, to understand the languages, both verbal and non-verbal, and to participate in the rituals of the city. At the end of equally long visits, the tourist is likely to have seen more monuments, but the traveler is more likely to know how to use the public transportation."

The implications for OSH in our organisations are evident in the **personal engagement, the authentic social context of learning** and the **emphasis on the culture of the environment.**

• INCIDENTAL LEARNING

Situated learning, like action learning, stresses that behavior change is more likely to occur as a result of reflection on experience, a key aspect of effective OSH. Incidental learning--another way to "learn at work"--differs in that it involves little or no reflection. Ross-Gordon and Dowling (1995) give the following definition of incidental learning:

> "Incidental learning is defined as a spontaneous action or transaction, the intention of which is task accomplishment, but which serendipitously increases particular knowledge, skills, or understanding. Incidental learning, then, includes such things as learning from mistakes, learning by doing, learning through networking, learning from a series of interpersonal experiments." (p.311).

Incidental learning is unintentional and unexamined. It is not based on reflection; thus the **learning is embedded in the learner's actions**, an area which has major import for effective/enduring OSH learning.

The difficulty in validating incidental learning as an effective OSH learning strategy is that learning is not anticipated, and, therefore, not easily assessed. However, extensive research in the U.S.A. indicate that incidental learning may account for over 60% of work based OSH learning. The primary intent of the activity is to accomplish the task, not to learn. When incidental learning occurs, it is a surprise--a byproduct of other activity. The learner in OSH discovers something while in the process of doing something else. To act upon and pursue that discovery, the learner must pull away from the primary or planned task and examine the discovery clearly before he/she can learn from it. Awareness of opportunities for OSH learning and the value of such learning may be brought to learners' attention by emphasizing the outcomes they might anticipate through incidental learning, which may include:

- Increased competence(s) in OSH

- Increased self-knowledge of OSH factors/issues
- Value for lifelong learning
- Improved life skills
- Development of self-confidence
- The learning organisation may eventuate in an OSH continuous learning environment.

• COMMON CHARACTERISTICS

These approaches to learning share **common qualities and attributes of value in OSH.** For example, they **all engage learners in experiential learning.** The sharp/wide gap between the learner and expert disappears as all individuals may be considered to be expert in some capacity in the OSH community. Additionally, all three ways of learning have a **collective dimension.** In the workplace, effective OSH learning often **takes place in teams, enhanced by communication and collaboration** among the individual members and groups and **shared across the organisation.** "Decisions are often taken and implemented by groups and are affected by explicitly or implicitly shared social norms, social history, social values, and social beliefs" (Watkins and Marsick 1992, p. 294). Because much of the workplace OSH context is social and requires interpersonal interaction, the individual's interpretation of an OSH situation and his/her subsequent actions are subject to a great number of differences. **Learning in context** - action learning, situated learning, incidental learning - provides the opportunity for workers to clarify their understanding of a situation within the social context and reduce the incidence of misinterpretation or faulty learning.

Conditions that enhance effective OSH learning that are common to the three approaches are as follows:

1. **Proactivity** - in which the learner(s) takes charge of, and directs, his/her/their learning. It is similar to the conditions of **autonomy** and **empowerment**: dimensions noted in the OSH learning literature as being very important.
2. **Critical reflection** - in which learners "identify and make explicit norms, values, and assumptions that are hidden from conscious awareness" and challenge the "way things are done around here". Especially important in identification/change of the **prevailing OSH culture/climate** at organisational level.
3. **Creativity** - which enables people to think beyond their own points of view, to see situations in a variety of different lights, to participate in decision-making and problem solving, to be effective OSH learning, to see work situations as learning experiences.

- **VALUE OF THE THREE APPROACHES IN OSH LEARNING ORGANISATIONS**

Many organisations foster continuous (OSH) learning for continuous improvement, a practice congruent with total quality management. Driven by the **increased value of individual/organisational health, statutory standards, need to reduce compensation claims and rapidly changing global markets**, OSH conscious organisations are seeking new ways to think, learn, organize, communicate, and work. The relationship between workers and managers is shifting. Workers are required to take more responsibility for their work and OSH and to have skills in critical thinking and problem solving. Managers need to learn the role of facilitator and change their old patterns of directing. New ways of learning that involve experiential activity offer promise to organisations striving to achieve high performance and effective OSH. The concepts and practices of action learning, situated learning, and incidental learning have potential for OSH and the professional self-development of all.

"Education is what remains when what we have learned has been forgotten."

3. TYPES/THRUSTS/LEVELS OF OSH LEARNING/TRAINING PROGRAMMES

An Office Technology Assessment (OTA) report on preventing illness and injury in the workplace drew the distinction between worker learning/training and education programs. This is often blurred and depends on the role that the worker is expected to assume in the process. "**The narrower the role, the more the instruction is training; the broader the role, the more the instruction is education** (OTA, 1995, p. 189).

A meta-analysis of over 40 major OSH learning/training/education programs conducted by business firms, trade associations, unions, hospitals and universities, and coalitions of OSH groups suggested four types of programs viz., fundamental, recognition, problem-solving and empowerment programs.

- **Fundamental Programs:** These programs involve instruction in prevention of work-related injury and illness through proper use and maintenance of tools, equipment, materials; knowledge of emergency procedures; personal hygiene measures; needs for medical monitoring; and us of personal protective equipment for non-routine operations or as an interim safeguard until engineering controls can be implemented etc.

Training interventions having these objectives permeate the OSH learning/training literature.

- **Recognition Programs:** These programs include instruction emphasizing awareness of workplace hazards; knowledge of methods of hazard elimination or control; understanding right-to-know laws and ways for collecting information on workplace hazards; recognizing symptoms of toxic exposures; and observing and reporting hazards or potential hazards to appropriate bodies. Learning training activities of this type are spurred largely by statutory standards/guidelines.
- **Problem-Solving Programs:** Instruction is aimed at giving participants the information and skills enabling them to participate in hazard recognition and control activities; to help identify/solve problems through teamwork, to use union and management means, and to exercise rights to have outside agencies investigate workplace hazards when warranted. Inviting worker input in company planning or in design of new operations or processes is recognized as a viable means for improving productivity, quality of products, and worker motivation. Extending this approach to hazard control seems reasonable especially since workers, owing to their everyday job work experience, possess an intimate knowledge of the hazards connected with their jobs and could be a rich source for corrective ideas.
- **Empowerment Programs:** These programs provide instruction to build and broaden worker skills in hazard recognition and problem-solving skills much like that noted above. Emphasis, however, is on **worker activism** with the goal of ensuring their rights to an illness-and-injury-free workplace (Wallerstein & Baker, 1994). Hence, the program aims at enabling workers to effect necessary control measures through educating co-workers and supervisors, and through use of committee processes or in health/safety contract negotiations. This approach is in accord with the current "Total Quality Management" philosophy – having rank-and-file workers, along with their supervisors, share greater roles in and be more accountable for addressing workplace hazard control needs [see research article by Shepherd et al., 2001).

The above types of training suggest a **progression/continuum** from a workforce learning basic forms of protection to known hazards, through instruction aimed at enhancing their awareness of potential problems and problem-solving skills, and then learning how to make it all happen in their workplaces. Although treated separately, any given training program may contain certain elements of these approaches in varying degrees. However, all programmes/approaches to learning/education training in OSH share/contain some common features.

4. SOME CRITICAL ASPECTS OF OSH LEARNING/TRAINING IN THE WORKPLACE.

Interestingly, in adult/OSH learning knowledge or skills acquired may not always result in improved performance in actual work situations. This may indicate:

1) lack of suitable motivation,
2) training content may not fit job demands (i.e., a problem in defining suitable training objectives, or
3) dissimilarity or conflicts between the instruction/practice in training conditions when compared to actual job conditions (i.e., a problem in transfer of training).

Different authoritative reviews of the general learning/training literature (Campbell (1988), Tannenbaum & Yukl (1992)), and OSH training in particular, emphasize the importance of certain elements as critical to an effective program of learning. A major study identified the following elements as critical in OSH learning and training.

a. Needs Assessment

Learning/training goals presuppose:

- consistency with organisational goals (congruency),
- the presence of jobs designed to yield performance outputs that meet the organisation's goals, and
- performance levels dependent on knowledge of the job tasks, skill, attentiveness to the work or factors where training can make a difference.

On the last point, expecting OSH learning/training to solve problems related to internal personal/organisational conflicts or to overcome deficiencies in equipment or work methods may be unrealistic. Job analyses determine which of the relevant performance factors comprise the highest priority learning/training needs either now or in the future. The process includes defining the tasks involved, their order of importance (in terms of frequency, criticality, complexity), and details of the steps necessary to accomplish them. Needs assessment in OSH may be linked/should reflect the organisations institutional policy/commitment to OSH.

b. Establishing Learning/Training Objectives

Needs assessment provides the information to establish the objectives of the learning/training program. These are stated as observable behaviors expected of the trainee after the instruction, and they may acknowledge the conditions under which they should be performed and the required level of proficiency.

c. Specifying Learning/Training Content and Media

Content represents the knowledge or skill that the trainee must master to be able to meet the behavioral objectives. The judgement of those who know the job role demands is the most common approach to specifying training contents. Other approaches may be the products of problem-solving exercises, or be based on mistakes people make in using a skill such as to design corrective learning measures. Evidence that one teaching method such as lectures, televised instruction, computer-aided instruction, or interactive video methods is superior to another is not that clear (Kearsley, 1991). Much depends on the specific training needs, makeup of trainee group and other factors. Why or how a particular method facilitates learning and how it can be made more effective are issues requiring further study, especially in the Irish context of OSH.

d. Accounting for Individual Differences

According to the general literature, effective learning/training should take account of the characteristics or attributes of the learners/trainees. Aside from differences in aptitude, literacy, or pretraining skill levels, how they view the training program in terms of improving their job performance or self-efficacy may dictate variable approaches. The kind and level of learning/training for new job applicants versus long-term or older workers reassigned to the same tasks also has to be addressed.

e. Specifying Learning Conditions

In general, instructional events comprising the learning/training method should not inhibit, conflict with, or be unrelated to the processes that lead to mastery. If the learning is to develop capabilities in problem-solving techniques, the instructional approach should stress thinking/reasoning approaches not rote memorization. Learning/training methods should require the learner to use the training content in active or productive ways, e.g., restating or applying principles rather than just recalling them, or adapting the information to new situations rather than mere repetition in the same one. The current literature suggests that using learning events that require productive behavior or that provide appropriate feedback (positive/accurate/credible) and opportunities for practice under conditions that promote transfer to the actual job are ideal. **These areas are important to relapse prevention strategies in the workplace.**

f. Evaluating Training

According to some writers, training evaluations in the general literature can take four forms which are viewed as a series of steps or levels. They are:

Step 1: Reaction - How did the trainees like the program? Typically this is done through evaluation sheets completed at the end of the training. Typical items inquire as to whether the material was well organized, relevant to the trainees needs, made interesting through the instructor's manner of presentation or use of visual aids, demonstrations, etc.

Step 2: Knowledge Gain (or Skills Acquired - What principles, facts and techniques were learned? Knowledge of facts and principles is usually evaluated via pre/post paper-and-pencil tests or quizzes. Assessment of skills may be done through performance tests before and after training. An untrained or control group can be similarly tested to indicate any differences resulting from just the test-retest experience

Step 3: Behavior Change - What changes in behavior occurred as a result of the program? For this purpose, reports by the trainees themselves (self-appraisals) of their on-the-job performance, or observations by their peers, supervisors, instructors can be used. A time interval between the end of training and the observations may be necessary to allow for the training to be put into practice. Post-training measures taken at different time points are also suggested to determine if the training effect is sustained or needs refreshment. Again similar observations for a control group are recommended to acknowledge any effects from repeated testing. These control data also provide an added reference for gauging the significance of the apparent behavior changes in the training group.

Step 4: Results - What were the tangible results of the program in terms of its objectives or goals for the organisation? Did it result in reduced injuries or illness, lower medical costs, improved productivity? Extra- or post-training factors can affect these types of outcomes, and it is not always possible to design evaluations that can isolate the specific training contribution. Undertaking evaluations where these "extra-training factors" are held constant during the pre-and post stages of the training assessment or can be segregated as to their influence through use of suitable control groups are ideal. Needless to say, training impacts at the organisation level can require an extended time line especially in using injury/illness outcomes owing to their infrequency.

Criteria for rating learning/training effects are the focus of much discussion in the literature on OSH learning.

g. Revising the Training

The evaluation of training as noted by Goldstein and Buxton (1982) offers information as to whether the instruction has had its intended effect on the measures set out for that purpose. Seldom do the data indicate a program was a complete success or a failure, given multiple criteria for gauging the results. Rather, the data may indicate better understanding, retention or application of some course material as compared with others. Gaps or variations in knowledge or competencies resulting from the training may reflect needs to consider more training time, alternative instructional techniques, or more capable instructors. This feedback dimension of the learning paradigm in OSH is an important aspect of formative evaluation.

The Occupational Safety and Health Administration (USA) (1995) voluntary training guidelines follow a similar model whose elements reiterate most of those outlined above. These include:

1. Determining If Training Is Needed

Are the needs for hazard control more readily solvable by learning/training, i.e., increased knowledge of a work process or adoption of safe work practices as opposed to engineering or physical control alternatives?

2. Identifying Training Needs

Job hazard analyses plus examinations of company health/safety records and worker perceptions of job risks are suggested as means for identifying what learning/training is needed and where improvements can be made in hazard control. Obviously, reference to applicable statutory standards will also shape the training content.

3. Identifying Goals and Objectives

The OSHA guidelines call for identifying what the instruction is intended to achieve and defining evidence for it being met in explicit, observable terms. OSHA indicates that a specific objective (e.g., "An employee will be able to describe how a respirator works, how to ensure an effective fitting, and when it should be used") is preferable to a vague goal (e.g., "The employee will understand the use of a respirator")(Pg. 5, OSHA, 1992).

4. Developing Learning Activities

The OSHA guidelines suggest learning activities be aimed at well-defined objectives and in substance take account of mental and/or physical skill factors as may be required to meet specified needs. The actual content or coverage of topics may be dictated by OSHA regulations. Instruction that employs task sequences and situations to simulate the actual job conditions are suggested to ensure the transfer of

this training to the work situation. Like the general learning/training literature, the OSHA guidelines acknowledge that training materials and techniques can vary; the important point is that the activities allow the employees to demonstrate that they have acquired the desired knowledge.

5. Conducting the Training

This OSHA guideline, like the one in the general learning/training literature, stresses the need for an instructional format that invites worker inputs into the training process, and provides for hands-on experiences and exercises promoting active learning. It also makes reference to other means of motivating and maintaining worker interest. Relating the training to their current skill levels and experiences and emphasizing the benefits (increased worker knowledge and skills, more marketable attributes as an employee who is informed and safety conscious) are among the ideas offered.

6. Evaluating Program Effectiveness

Each program should determine whether the learning/training has accomplished its goal. Trainee opinions, supervisor observations and workplace improvements resulting in reduced injury or illness are among the means recognized for this purpose. As already mentioned, incidents of illness/injuries for rating the impact of OS&H training programs or other intervention activities are such rare events that surrogate measures may be needed. Frequencies of "near miss" incidents, evidence of reduced exposure levels to a hazard, measures of compliance with safe work practices offer possibilities. Also, reduced injury and disease as outcomes of training would have to account for other factors as well. (See Figure 1).

7. Improving the Program

If the evaluation proved that the training was deficient, efforts to revise aspects of the training or to offer periodic retraining may be in order. Repeating the steps in the training model may help determine where course revision is needed.

The OSHA voluntary training guidelines also contain suggestions for identifying those workers who may be at higher levels of risk and thus have the greatest need for training. Occupations posing known exposure hazards or otherwise shown to be associated with excess injury/illness are one determinant. The age and job service of the worker group in question can be another. (Young, new workers show a disproportionate number of injuries and illnesses.) Still another may be the size of the establishment. (Though the pattern may vary with industry, medium size companies (50 to 249 workers) tend to have higher incident rates than the rates for smaller or larger firms.

5. SOME LESSONS/CONCLUSIONS

In the process of research and reflection for the presentation delivered today a number of salient issues/approaches/themes/factors seem to have importance in effective/enduring OSH learning at individual and organisational levels. These include:

- Targeting of a wide range of workplace physical and psychosocial factors, as well as individual variables in the organisation. The research showed clearly (Marmot et al. 1997) that elements such as lack of job control was an important factor in relation to health outcomes. Research from Sweden in relation to low-back injury, Canada in relation lost-time injury rates and others indicated that a truly comprehensive workplace OSH learning programme must adopt a very broad approach.
- Collaboration among all workplace OSH stakeholders, especially between health and safety specialists and organisational operations (professional/voluntary etc.) and human resource management, training and development contributors, union participants etc., and extending across all organisational levels is vitally important. This element assumes an extensive network of communication opportunities/receptive and productive skills/and high trust in organisational and individual terms.
- An ongoing evaluation, in developmental/formative/summative terms, of the impact of health programmes/initiatives and other workplace change factors/developments on all participants' health.
- Design/development/promotion of a corporate culture/climate that includes accountability/responsibility for all employees' health. An understanding that attitudes and behaviours at individual and organisational levels are most important in the promotion of the above safety culture and that organisational developments for example, Total Quality Management, are of enormous value in culture clarification and the achievement of effective OSH safety and health goals.
- An acceptance that HSA standard setting regulations/compliance-driven initiatives are only part effective as a response to reducing injuries and/or OSH illnesses and/or health promotion in the workplace and need to be seen as part of a partnership process in this area.
- Learning/training & development/education programmes/developments/initiatives in the OSH area must recognize the broad set of opportunities that occur at every level of the organisation, in formal and informal settings, and at every level so as to ensure that OSH becomes part of a continuous learning organisational response. Ultimately, learning initiatives delivered out of context, and intended as "number crunching" responses may not have the desired long-term effect in this area. A professional approach to learning design/programme delivery/evaluation process/central location in the organisational culture etc. appears to be best practice in this area in other organisations and jurisdictions.

- A holistic approach to the OSH area is the path to follow which integrates and delivers a coherent , organisation-wide response, mindful of the all the parties, stakeholders, learning opportunities, etc.
- The acceptance/understanding/integration of an effective change management process in the organisation may be of value in the status of OSH.
- A learning climate which values and includes approaches and processes such as inclusivity in programme design, negotiated learning frameworks, linking learning to personal responsibility, emphasizing positive self-talk/self-efficacy at individual/unit/organisational level etc. should be part of the individual/social contract of learning in OSH.

REFERENCES

1. Applebaum, S. and Herbert, D. (1999). "Empowerment: Power, Culture and Leadership", in **Journal of Workplace Learning**; 11(7):233-254.
2. Beaty, L., Bourner, T. and Frost, P. (1993). "Action Learning: Reflections on Becoming a Set Member". **Management Education and Development**; 24 (4); 350-367.
3. Brown, J.S. et al. (1988). **Situated Cognition and the Culture of Learning. Technical Report.** Palo Alto, CA, Palo Alto Research Center.
4. Campbell, J. (1988). **Training Design and Performance Improvement.** Jossey-Bass, San Francisco.
5. Cooper, M. (2000). "Towards a Model of Safety Culture", in **Safety Science**; 36:111-136.
6. Goldstein, I. And Buxton, C. (1989) **Training and Human Performance,** Fleischman and Erlbaum, Hillsdale, NJ.
7. Lewis, L.H. and Williams, C.K. (1994). "Experiential Learning: Past and Present". **New Directions for Adult and Continuing Education**; 6:5-16.
8. Marmot, M.G. et al. (1997). "Contribution of job control and other risk factors to social variations in coronary heart disease incidence" in **Lancet**; 350: 235-239.
9. McLellan, H. (1994). "Situated Learning: Continuing the Conversation". **Educational Technology**; 34(8):7-8.
10. Mukkerjee, S. and Overmann, L. (2001). **Evaluation of Training: Worker Safety and Health in the Workplace.** 1-17, www. wetp.org.
11. Orey, M.A. and Nelson, W.A. (1994). "Situated Learning and the Limits of Applying the Results of these data to the Theories of Cognitive Apprenticeships", in **Proceedings of the Selected Research and Development Presentations at the 1994 National Convention of the Association for Educational Communications and Technology**, edited by M.R. Simonson et al., Washington.
12. Ross-Gordon, J. and Dowling, W. (July-August 1995). "Adult Learning" in **International Journal of Lifelong Learning**; 14(4):306-319.
13. Shepherd, O., Ritzal, D. and Kittleson, M. (2001). "The Components of a successful company Occupational Health & Safety programme in a TQM setting" in **The International Electronics Journal of Health Education**; 4:92-99. http://www.iejhe.org.
14. Tannenbaum, S.I. and Yukl G. (1992). "Training and development in work organisations." **Annual Review Psychology**, 43:399-441.

15. Vince, R. and Martin, L. (1993). "Inside Action Learning: An Exploration of the Psychology and Politics of the Action Learning Model" in **Management Education and Development**; 24 (4): 205-215.
16. Watkins, K.E. and Marsick, V.J. (1992). "Toward a Theory of Informed and Incidental Learning in Organsations" in **International Journal of Lifelong Learning**; 11(4):287-300.
17. Williams, R.L. (1992). "Social Advocates and Action Learning: The Discontent Dancing with Hope" in **New Directions for Adult and Continuing Education**; 53:37-50.

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