# Annex 1:

# Best Practice Guidance on Training for Small and Medium Sized Enterprises

for

## PRISM

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**GLOSSARY**

| | |
|---|---|
| **CBT** | Computer-Based Training |
| **DNV** | Det Norske Veritas |
| **JIT** | Just In Time Training |
| **OHP** | Overhead projector |
| **OJT** | On the Job Training |
| **PRISM** | Process Industries Safety Management |
| **SME** | Small & Medium Sized Enterprises |
| **TNA** | Training Needs Analysis |

# Contents

# 1. INTRODUCTION

## 1.1 Background: What is training?

Training is the "process of bringing a person to an agreed standard of proficiency by practice and instruction" (Collins dictionary). This definition summarises much that is important in this document. It tells us that a deficit has been identified and a training need established, a training objective has been defined, training methods have been chosen and that a target level of proficiency has been set. These issues will be addressed in subsequent sections, along with other matters that should be considered by any company when planning training.

Within organisations, there is a need to manage learning in accordance with business requirements. A systems approach to training, such as that proposed by Gordon Eckstrand, in 1964, is based on creating a series of task or role definitions, covering training objectives, training content, and methods and training materials (see Figure 1-1).
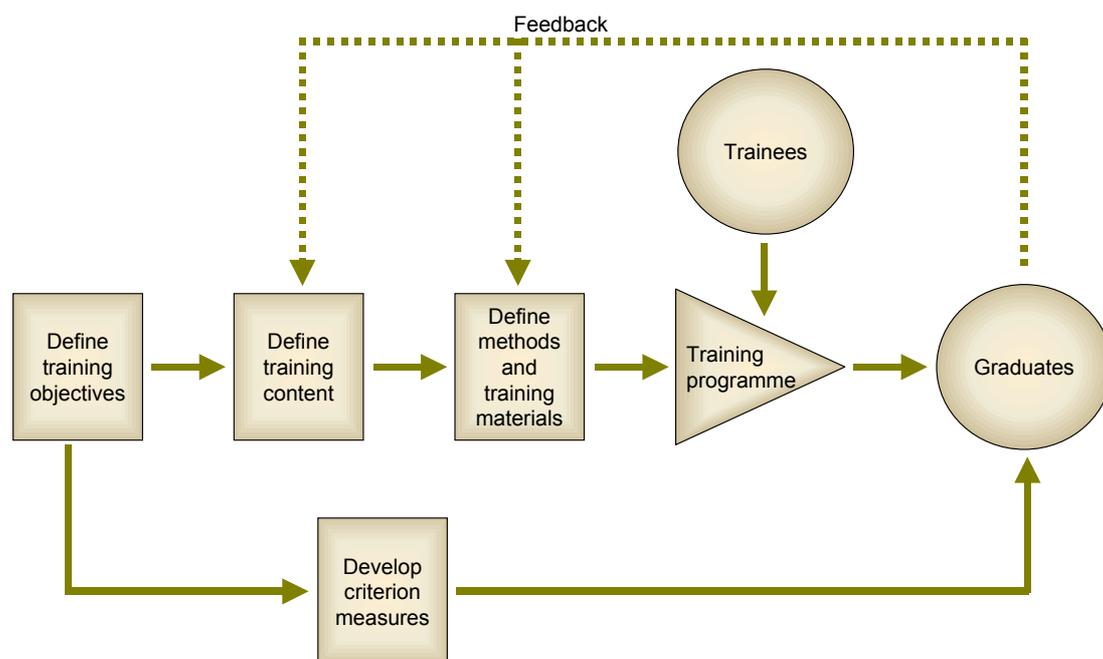


**Figure 1-1: Systems Model of Training (Eckstrand, 1964)**

This approach identifies that several important steps must occur before the start of training and demonstrates that trainees enter the process late in its progression.

Training is not the same as teaching: it covers both teaching and learning. Teaching is something one person does to another, while learning is what the recipient of teaching does. While teaching may involve telling, explaining, demonstrating and discussing, learning is more complex and happens only when the recipient of training….

- Grasps the subject

- Translates it to make sense to them
- Locates it alongside their existing knowledge and
- Does something to implement the new knowledge

This is demonstrated through the learning cycle, shown in Figure 1-2
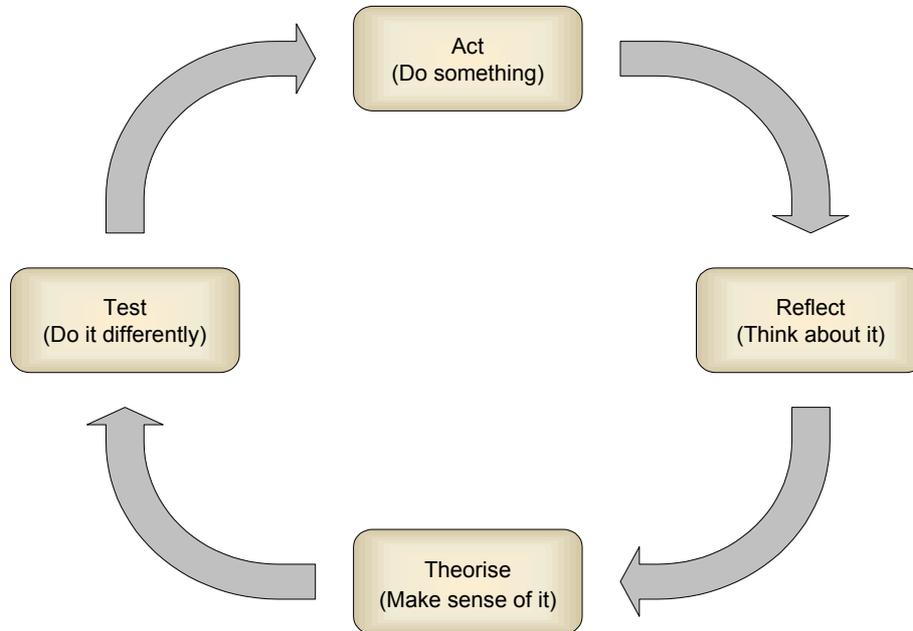


**Figure 1-2: The Learning Cycle (Hackett, 1997)**

Therefore it is important to ensure that both the organisational requirements and human requirements are considered when undertaking training of any kind.

## 1.2   Objectives

The objective of this guidance document is to explain the key elements of the training process and to discuss the methods that can be used to design and implement a training system. This will look at areas including

- Training policy
- Training needs
- Training delivery and
- Training evaluation.

The cost benefits of training will also be considered in Section 10.

The contents of the guidance are applicable to any industry, of any size.  However, the document is aimed at small to medium sized industries that are less likely to have a dedicated training department than a larger scale organisation.

The aim is to provide a sound basis for understanding the role and needs of the trainer within the context of the organisation, and the training needs of that organisation.

## 1.3    Who is Responsible?

Training is vital in ensuring that employees are able to complete their work safely and efficiently.  It is also a key part in developing the employees' potential to progress.  It follows that an authority needs to exist, to identify the training needs of an individual and to ensure that employees get the opportunity to meet those needs.

Traditionally, many companies give the responsibility of training to a dedicated person or department, who might organise training and decide which employees need to receive training in which area.  Thus the training is not driven by the needs of the employee. However, some industries prefer to shift the onus onto shift leaders who inform the training department which members of the team need to be trained in what areas and skills.  It is their responsibility to ensure that they have all the skills they require within their shift team.  Alternatively, an organisation may choose to empower its employees to be responsible for their own training.  In any case, the person responsible either needs to be aware of how to manage training, or be supported by a person or team that can assist in this.

## 1.4    A New Model for Training Management

A new model for managing training, which can be applied to small & medium sized enterprises as well as to larger industries has been developed for PRISM.  This model, which incorporates some of the concepts of Eckstrand (1964), Hackett (1997), Mayo (1998), and others, is shown in Figure 1-3 .  Starting with the identification of training needs, five linear stages are followed, before two parallel stages of course evaluation and review cause two separate feedback routes into the training design process. This allows for shortfalls in the trainee attainment as well as in the training course to be identified and acted upon.
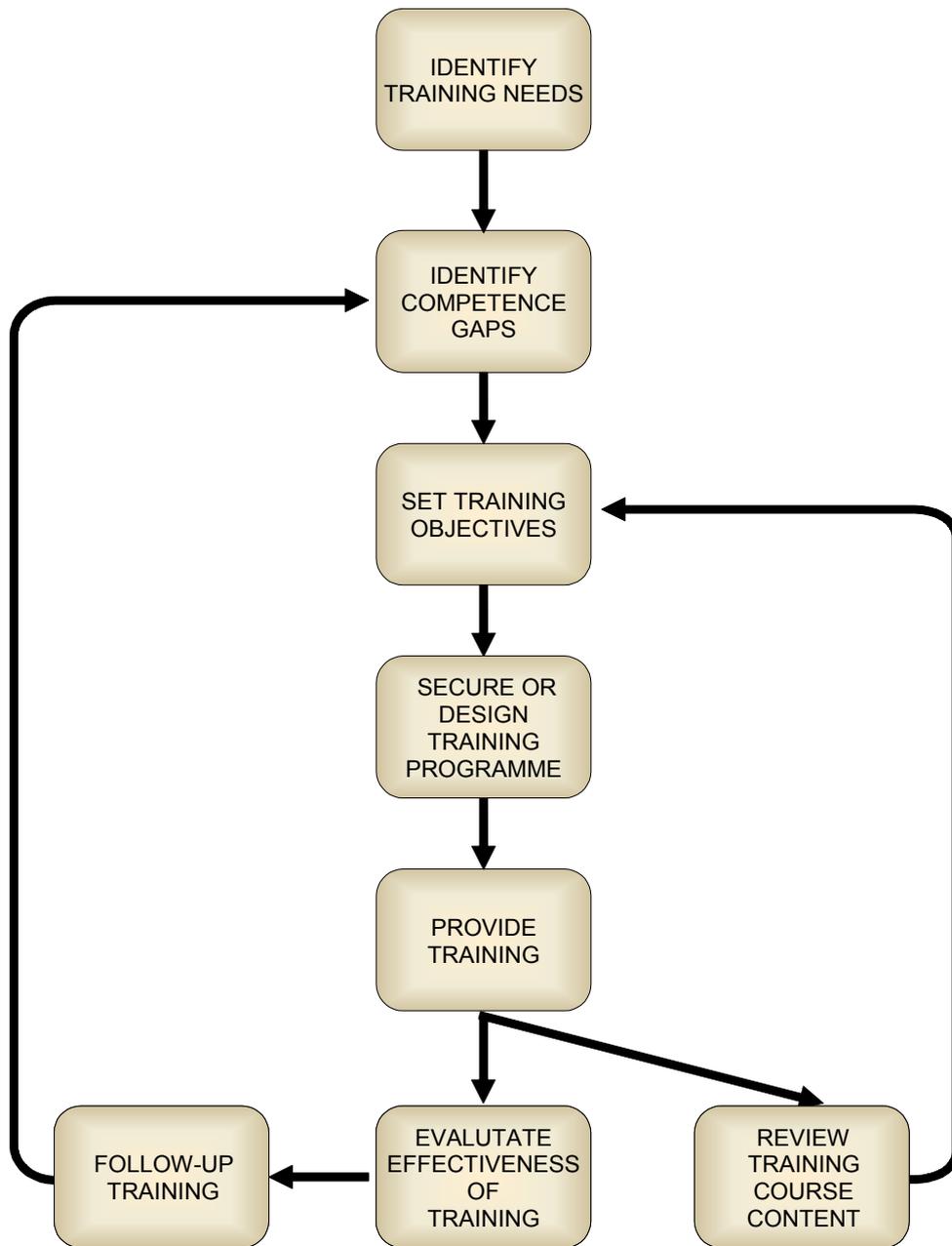
**Figure 1-3: The PRISM Model for Training Management**

The following sections describe each stage of the training management system.

## 2. IDENTIFYING TRAINING NEEDS

The first stage in a training lifecycle is the identification of what the training needs exist within an organisation. The main drivers for training are specific requirements, to enable career progression or to achieve competence assurance.

Training is not limited to basic skills for new employees or for skills required only for an individual's current role. It also covers refresher training to keep skills up to date, training to keep up with technology, to enhance specific skills or to allow advancement. Once basic training is completed, individuals may require further training to fill in any gaps in their understanding, or for further advancement. Such skill specific requirements will vary according to individual needs. Thus a hierarchy of training needs is established (Clemenson, 2002) as shown in Figure 2-1.



**Figure 2-1: Hierarchy of Training Needs**

Initial training is required for new employees, to ensure that a common understanding of the company aims is held. This should provide the cultural basis for all other training as shown above. Task-related training can be dictated by various factors such as legal requirements (e.g. licences to operate specific equipment) or job requirements such as task competence and experience. Personal training aims to provide skills that do not directly relate to task performance but will enhance performance overall. Managerial skills, presentation skills etc. may enable an individual to apply for a new job role or promotion and therefore allow career progression.

Finally, to maintain competence in an organisation, training is an ongoing process to assure against the following:

- Skill degradation, whereby little used skills are not reinforced, so their potency is lost;
- Knowledge degradation, whereby variations in performing a task creep in over time, as learned habits replace trained ones or knowledge is simply forgotten;
- New technology, where news skills and knowledge are required;
- Outdated knowledge, where learned methods are replaced by new procedures / technologies / discoveries;

## 2.1    Training Needs Analysis

Training Needs Analysis (TNA) is a process used to identify training requirements and the most cost-effective way of meeting those requirements.  It is used where a new development in policy, acquisition or procedures will have potential impact on existing training requirements.  This approach has been divided into stages that correspond to those in this guidance to demonstrate how the issues can be dealt with:

- Task analysis / work analysis – define the skills and knowledge required to do the job
- User analysis
    - Who is involved – age, gender,  language, etc
    - What experience / past training do they have?
    - How do they prefer to learn?
    - What expectations do the learners have?
- Context analysis
    - How will this training fit in with the overall job role and business requirements
    - Team learning or individuals?
- Selection of training methods
- Cost benefit analysis

# 3. IDENTIFYING COMPETENCE GAPS

Defined competence (training needs) can be compared with an assessed skills requirement and a training policy. In doing so, the shortfalls can be identified. These competence gaps can be:

- Organisational gaps; for example, a new company-wide system may require that everyone in the organisation undergoes training in the new system,
- Job-related gaps; for example, a job enrichment programme might mean that employees performing a certain task need training for extra duties, or
- Individual gaps; for example, an individual will need refresher training from time to time to ensure that they maintain their levels of competence.

Competence gaps can be identified using skills matrices, which record the skills required for each job to be performed. By giving a clear indication of skills required for each job, you can then identify which employees have which of the required skills and which need training in particular areas. If several employees perform the same role, then a dedicated skills matrix can be produced, listing the skills required, against the names of the employees. The matrix can then show which employees possess which of the necessary skills for the job, and which skills necessitate training. Examples of a job-skills matrix and a competence matrix are shown below:

| Skills | Jobs | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H |
| 1 | √ | √ | √ | √ | √ | √ | √ | √ |
| 2 | √ | | √ | | | | √ | |
| 3 | √ | | | √ | √ | √ | | √ |
| 4 | | √ | | √ | √ | √ | | √ |
| 5 | | √ | | | | | √ | √ |

**Table 3-1: Job - skills matrix**

| Skills | Employees | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | A | B | C | D | E | F | G | H |
| 1 | √ | √ | | √ | √ | | √ | √ |
| 2 | √ | | √ | √ | | √ | | √ |
| 3 | | | | | | | | |
| 4 | | √ | √ | | | √ | | √ |
| 5 | √ | | | √ | | √ | | |

**Table 3-2: Competence matrix**

In the examples shown, Skill 1 is required by all jobs (for example, site safety knowledge) and Skill 3 is not possessed by any of the employees (for example, if that job had been redesigned to use a new piece of equipment). Therefore employees C and F must be trained in Skill 1 and there is a competence gap for Jobs A, D, E, F and H.

In the TNA process, this stage is conducted using a Training Gap Analysis to determine the training requirement in order to fill the gap between the performance achieved by the existing training and that required by the task requirements. The analysis produces a definition of the gap between the new operational performance required and the performance achieved by existing training, and the requirement for the additional training in knowledge and skills.

## 4.  SETTING TRAINING OBJECTIVES

Once competence gaps have been identified, the next step is to set objectives to close them.

### 4.1     Defining Competence

As with any training, it is necessary to establish best practice and the level of competence that must be achieved by the trainee.  A standard must be set against which the effectiveness of training can be measured and an assessment criteria devised.  Testing of competence can then occur, by exam, practical assessment, or by job performance assessment.  When a competence is defined, consideration must be made about non-achievement: what happens if an employee fails to reach the required level of competence.  Follow-up training may provide a solution, but if not, it may become necessary to find a new job for that person.  Training policy needs to consider this.

### 4.2     Management of Training.

Training requires commitment.  The commitment needs to come from the trainees that they will attempt to improve their knowledge and skills, and also from the employers in terms of supporting training with commitments of time, finance and resources:
- time for training to occur, preferably within working hours;
- finance, to pay for the costs of training (manpower, trainer and equipment); and
- resources, to enable training to occur (e.g. classroom space, use of equipment and tools).

If external training courses are seen as an appropriate option, then qualifications will need to be considered.  Some "off the shelf" external courses will lead to qualifications or give credits towards a national or internationally recognised qualification.  This may involve an additional cost, but the additional benefit to the employee and the company may be seen as being worth while, in that it provides an extra motivation to employees and offers an assurance of competence to the employer.

### 4.3     Training Administration

In order to keep track of the ongoing training, records need to be kept.  These should include details of the training provider (whether external or internal), the aims of the training, the length of the training, the method of assessment used and the success rate of training participants.  Training schedules also need to be maintained, detailing what training is available and when.  It is also useful to include details of course capacity, duration and cost, where appropriate.

Training matrices can be useful to easily cross reference the training received by each employee with what is available or required for that employee's work.  If maintained and updated regularly, they can be used to identify when refresher training is required, if the training needs to be updated and where employees need to be trained in new skills.

Training record cards are a permanent record of the training received by employees. They should list all the training that employees have received, when it occurred and the level of competence gained (e.g. external qualifications, where appropriate) Unlike training matrices, the record of received training is not removed from the training record card when the validity of the training expires.

## 5.  SECURING OR DESIGNING TRAINING PROGRAMMES

### 5.1      In-house or External?

Training can be developed and delivered by in-house experts or by specialist external companies.  If suitable training already exists, then creating a new training programme can be a costly exercise.  Buying in training can save much effort and provide access to expertise not available in-house.  External organisations can be used to supply training materials or to run training courses for employees.  External suppliers can provide a ready-to-use source of training material such as audio-visual aids, computer packages and simulators.  They can also provide complete training courses, as is typically the case with distance learning (see Section 2.4.2)

No matter the scale of involvement of an external organisation, it is still necessary to follow the training cycle to ensure that the programme meets the training objectives that have been set.  Courses and materials will also need to be evaluated for quality, currency and to how well they meet the training objectives.  In some cases, materials may need to be modified to meet the identified requirements.  The closer an existing training course meets these requirements, the more time is saved in training preparation.

Where no suitable training course or material is available, it may be necessary to design one in-house.

### 5.2      Determine the Most Appropriate Method

The training format must be appropriate for the task and also for the personnel. Learning styles can vary considerably between individuals and yet are often not considered when training is designed.  Different people learn in different ways and this is often not taken into account when training programmes are formulated.  One should also bear in mind five "principles" of how adults learn (below).

* Principle of Readiness – are the users ready to learn or is preparation work required
* Principle of Association – build upon existing skills, keep training in context
* Principle of Involvement – active participation is more effective than listening to someone talk
* Principle of Repetition – aids memory, stresses importance of key points
* Principle of Reinforcement – positive, enthusiastic feedback from the trainer. Reward effort and always provide constructive feedback.

### 5.3      Variation and Combination

It is often helpful to distinguish between training for normal operating conditions and abnormal conditions such as start-up, shut down, maintenance work and emergencies. The training needs are very different and therefore different formats and schedules will be required for each case.  Training methods can be combined in many different ways to achieve the training package best suited to meet the training needs.  The combinations are made from the methods and the materials used, as discussed below.

## 5.4    Training Materials

Teaching materials can be very simple or highly complicated depending on requirements.  They add to the involvement of the trainees by associating ideas with imagery, or by reinforcing what has been taught.  Some common examples that can be used include the following:

Audio visual aids:
- Audio tapes
- Video tapes
- Projected slides or PowerPoint
- Diagrams.

Printed material:
- Manuals
- Workbooks
- Handouts
- Prepared flip-charts.

Tools, machines & equipment:
- Simulators
- Workplace tools
- Machinery parts
- Models.

Many of these can be procured from training organisations or they can be recreated by the training developer or acquired from the workplace.  A trainer should consider the purpose of a training aid when deciding on the type being used.  This will drive the decision based on functionality, level of detail required and the financial or time costs involved in obtaining them.


## 5.5    Methods:

The number of methods of providing training is as varied as the number of training needs.  Each need is unique and the training should be tailored to meet its requirements by a combination of training types.  In broad terms, methods used can be grouped into the following types.


### 5.5.1   Distance Learning

**Description**: Covers many training options where the trainer and trainee are not co-located.  Trainees work through textbooks or other course materials at home or at work, communicating by mail, telephone or email.  Assessment is made by self- testing, mailed in test papers or through exam centres.  IT based systems can be also used (see section 2.4.5)

**Flexibility**: High

**Resources**: Text books, videos, handouts, postage, internet, coursework assessor.
**Cost**:   Low, apart from possible IT requirements.
**Pros**:   Trainees work at their own pace, instruction is standardised.  Avoids the time and cost of travelling to a place of learning
**Cons**:   Limited links to practical aspects, hard to keep a check on trainee progress or time being taken.  Less easy to focus extra attention where and when required.


### 5.5.2   Classroom Training

**Description**: A lecturer teaches many trainees, away from the work environment to provide instruction on a particular set of topics.  One or many formats might be used, including presentations with videos, computers, slides, white boards, exercises and teaching aids.  Classroom training allows instructors to give a conceptual overview of a topic and is good for teaching interpersonal skills like management or marketing.
**Flexibility**: High, but limited to availability of materials.
**Resources**: Teacher, classroom, training aids (video, computer, handouts etc.)
**Cost**:   Low manpower costs; medium materials costs
**Pros**:   Can teach many trainees at once, instruction can be standardised. Lecturer can respond to trainees' questions, spend more or less time on specific topics as required by the group.
**Cons**:   Knowledge is theory based, with limited practical exercises. Little accounting for individual needs.


### 5.5.3   On the Job Training (OJT)

**Description**: Demonstration and supervised practice with equipment and procedures within the work environment.  Trainees work while they learn their job, being monitored by a more senior employee who knows the task.
**Flexibility**: Trainer can set targets around the needs of the system and the trainee. Training limited to tasks that can be performed at that time: e.g. plant shut downs may not occur during the training period.
**Resources**: Trainer (over and above shift manning level requirements)
**Cost**:   Moderate (allowance for extra shift personnel)
**Pros**:   Trainees perform many tasks, gaining hands on experience and observe highly skilled knowledgeable and experienced technicians performing the skills they are learning.  The pace of learning is set by the trainees' ability to pick up skills from the mentors.

OJT is suited to the following situations:
- Trainees already have prerequisite knowledge and do not need long explanations;
- Target skills can be learned best in the work setting;
- The work setting cannot be easily replicated in a classroom or with computers;
- The target skills involve specialised work systems;
- Training tasks closely match tasks in the workplace.

**Cons**: Very personnel intensive and trainer must be trained to train. Therefore highly dependent on trainer's teaching and interpersonal skills; otherwise it becomes very inefficient and can be incomplete.

OJT is not best suited to the following situations:
- Where the work environment is noisy or has distracting background activity;
- Where target skills require detailed theory to be learned;
- Where OJT will restrict workplace productivity;
- Where skills require considerable practice;
- When large numbers must be trained at the same time.

### 5.5.4   Embedded Training

**Description**: Training is embedded within the system being used in the form of instructions or context sensitive help files.  Also known as "just in time" training (JIT) because the user takes the training just before performing the task.

**Flexibility**: Very: the user receives the relevant instruction when it is needed.

**Resources**: Depends on type of JIT: computer files; labels; instruction manual or reference cards.

**Cost**:   Typically free, as embedded within the equipment being used; but development costs can be high.

**Pros**:   Information is provided when and where it is needed, training time is embedded within time taken to perform task.  Degradation of training and skills is reduced.

**Cons**:   Not suited to novices or for conceptually complex tasks.  Not all tasks can support context sensitive help.  Competence assurance cannot be maintained and practice frequency is unknown.

### 5.5.5   Computer-Based Training

**Description**: Any electronically based technology used to create and deliver training. Trainees use computer packages, which combine video, animation, pictures, text & sound to learn.  May also incorporate interactive testing, record keeping and student management functionality

**Flexibility**: High, depending on availability of training packages and facilities.

**Resources**: Computer, software (CD-ROM, disc, Internet)

**Cost**:   Can be expensive to develop and commercial CBT training packages can have a high price.  More cost effective where the training material will be used frequently over an extended period of time.

**Pros**:   Rich learning environment, which can be standardised and monitored and is self paced.  Using company Intranets makes training highly accessible.

**Cons**:   Not all packages are good or necessarily right.  High costs may lead to packages being incorrectly reused.

Some usability rules for applying CBT are given below:

**Simplicity**:    Must be easy to understand and memorising action sequences should not be required.

**Consistency**:    Interface should be consistent in operation with other computer systems used by the trainee.

**Redundancy**:    Trainees should be able to use their choice of input devices.

**Frugality**:    Only the information needed to achieve the learning objective should be presented and clutter avoided.

**Robustness**:    The computer should be able to cope with a wide range of erroneous responses without crashing or losing data.

**Clarity**:    Use of colour, sound, animation or other forms of coding information should be used sparingly and with consistency, following established usage patterns where they exist.


### 5.5.6    Simulator Training

**Description**: Creating an artificial environment and running scenarios for trainees to use to learn responses.  Level of complexity of simulator is dependent on training requirements and can vary from "wood & cardboard" mock-ups, where an instructor provides feedback for the trainee to full-scale computer controlled interactive systems.

**Flexibility**: Limited by fidelity of simulator and on sophistication of training package.

**Resources**: Simulator, designer, programmer (as appropriate), and instructor.

**Cost**:  Varies with required fidelity of simulator but usually very costly to develop high fidelity simulators

**Pros**:  "Hands on" experience, with no risk to life, plant, or environment.

**Cons**:  Accuracy limited by fidelity of simulator. Very costly, compared with other training methods.


Simulator training is vital for training on safety critical and complex systems.  It is also effective for practising emergency scenarios.  Tabletop simulations or "walk throughs" can be equally as effective as simulator training and in most cases are significantly cheaper.

## 6. PROVIDING TRAINING

### 6.1    Set Objectives for Each Session

It is important to define what should be achieved during each session of training.  In many jobs (e.g. control room operations, maintenance) it can be difficult to formalise when certain parts of a job can only be taught when suitable opportunities arise.  If such opportunities happen to arise during a scheduled period of OJT then training can occur.  However, this cannot be guaranteed and impromptu sessions may be required.  Flexibility is also needed – sessions can not be rigid as the needs of the trainees or of the system should be catered for wherever possible.

### 6.2    Preparation

Lesson plans are a vital part of any training system but are particularly important in classroom based training, where it is possible for trainers to become side-tracked.  They are used to clearly set out the aims of a training session; the steps to be followed are clearly defined, the methods to be used are written out, along with the method by which the success of the training will be measured.  If the objectives stated in the lesson plan are not achieved, then provision should be made for this, either by running additional training, re-evaluating the training requirement or by re-evaluating the objectives for future training sessions.

An example of a lesson plan is given in
Figure 6-1.  It is not exhaustive, as lesson plans should convey the information that is *needed* by the trainer, rather than what is *required* by a training department.

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**Lesson Plan**

**Course:**
**Location:**
**Time & Duration:**
**Session Title:**
**Purposes:**

**Learning Goals:**

**Strategy:**

**Methodology:**

**Programme:**

**Preparation:**

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**Figure 6-1: Example Lesson Plan Pro-Forma**

An appropriate environment should be chosen for the training, free from distractions, at a suitable temperature and appropriately ventilated. Any required audio-visual equipment and teaching aids should be checked for functionality and that materials are correctly prepared for them (e.g. ensure that slide projectors are working and that slide cassettes are loaded the correct way round). Ensure sufficient training materials have been prepared, including manuals, textbooks, and handouts. Handouts should be checked prior to distribution.

## 6.3    Trainer Competence

It is often assumed that everyone who can perform a job has the aptitude to train others on that task. However, this is not necessarily the case. There are different skills required for different training methods but some skills are common. Firstly, it is vital to ensure that the trainer meets the standard of competency that has been established. Next they must be trained how to pass on the required information to others. They should have a high level of motivation and have well-developed interpersonal communication skills. An ability to plan, organise and solve problems will also play an important part. A trainer must have the right personality characteristics and a common experience base with the trainees to allow mutual understanding.

## 6.4    Communication

It should be ensured that the trainee is able to hear and understand the trainer, where both are present in the same location. Both the environment and the individual must be considered. Training may be conducted in a noisy environment or outdoors for example. Some trainees may experience hearing difficulties or simply be seated in at the back of a room. Personal communication awareness is particularly important for the trainer, e.g. if the trainer has a different dialect from the trainees to ensure that the meaning of words is mutually understood to avoid confusion. Language should be kept within the understanding of the participants. Slang terms may be appropriate within an on-the-job context where they are frequently used, however care must be taken to avoid slang terms which the trainees may not be familiar with or that are not generally accepted by the entire workforce. Ideas should be illustrated with diagrams, pictures and models where possible to provide a context to the information being conveyed. Frequently obtaining feedback from the trainees will ensure that they understand the material.

Where the trainer is not in the same place as the trainees, communication can become a more complex issue. Written training material must be checked for legibility and clarity, as well as accuracy. CBT material needs to undergo thorough usability testing before use because it is essential that trainees are able to correctly operate the software, and navigate around the system.

Literacy is an issue that is frequently ignored as a basic level is often assumed. The issue is often sensitive and support must be made freely available for those who experience literacy difficulties. Without this, skill and competence training will not be effective and potential problems in understanding procedures etc will not be identified and overcome.

## 6.5    Training Separation

It is important that "on the job" training is not given "during the job".  Operators who have been chosen to train must be able to dedicate their time to the training without interruption and be free from other tasks demanding their attention.  The scheduling of OJT should not interfere with normal operations and staffing levels.  If the trainee and trainer are both part of the normal staff team during the training session then the training session is likely to be fraught with interruptions and distractions.  Either the training group will have to offload work onto the other members of staff (thus increasing *their* workload) or continue with their work *and* try to complete the training, thus increasing the likelihood of errors and reducing the effectiveness of the training.

Careful scheduling is of even greater importance when shift patterns are in place.  Staff can be reluctant to come in for training on their rest days, and training either before or after a shift is likely to affect either on-the-job performance or the effectiveness of training itself.

## 6.6    Participation

Encouraging participation is a strong way of ensuring understanding, especially in "hands on" training methods like simulator training or OJT.  Likewise, the Internet offers facilities such as on-line seminars, which increase interaction for distance learning or CBT trainees.  It is important to identify when people have questions and to reward participation which helps develop understanding.

It is also important to be aware of group dynamics and inter-personal styles.  Simply, some people prefer to participate more than others.  The level or input must be managed to check understanding and maintain enthusiasm whilst still allowing the session to progress according to its objectives.

## 7.  EVALUATING THE TRAINING EFFICACY

Evaluation enables an assessment to be made of whether the training objectives set in Stage 4 were achieved.  Its purposes are:

- to raise awareness of key issues concerning the training process.
- to provide feedback to trainers as to the extent by which objectives are being met and the effectiveness of particular learning activities;
- to make sure training policy is aligned with organisational goals and delivering cost effective solutions to company needs; and

### 7.1  Course Assessment

Assessment can focus on the learning that has taken place, changes in attitudes and behaviour that result in the job, or it can focus on the impact of results for the organisation.

### 7.1.1  Changes to the learning level

This is traditionally measured by testing with written exam papers, setting case studies, practical challenges, interviews or self-reporting.  All of these need some form of validity checking to ensure that the test is accurately checking how much learning has been achieved and to ensure that the test does not disadvantage any trainees. Best used when the training is focussed on knowledge, skills or attitudes.

### 7.1.2  Changes to the behaviour level

Training objectives that focus on the competencies needed for a job, link knowledge and skills to the particular behaviour required.  Therefore this is typically measured by observation of the trainee, whether at work, or on set assessment exercises.

### 7.2  Non-Achievement

Any attempt to measure the success of training must face the question of non-achievement: what happens if trainees - individually or collectively - fail to achieve the targets set for the training?  Follow-up training is addressed in the next section, but the training system must still accommodate the possibility that the training objectives might not be met.  In the case of an individual who repeatedly fails to meet the standard, it may be that a different role option or skill should be investigated.  In the case of unrealised corporate objectives, the objectives themselves might need to be re-addressed or the training re-designed.

## 8.  FOLLOWING UP TRAINING

Follow-up training can be divided into three types: refresher training; clarification training and retraining.

### 8.1     Clarification Training

Feedback should be provided to trainees on their performance.  This should include the results of the evaluation and where answers were incorrect.  A pass mark on an assessment may be 60%, but if a person attains 75%, there is still one quarter of the syllabus which was not correctly answered in the assessment.  This might be caused by exam stress or an oversight but could also be due to a lack of understanding that could result in unintentional dangerous behaviours.

Clarifying these areas with the trainee will identify where further explanation is required.  It might alternatively identify if the training course itself contains erroneous assumptions concerning the knowledge and understanding of trainees.

### 8.2     Retraining

Where a person fails to achieve the targets set by the training objectives, a follow-up procedure should be in place to identify where failures occurred and how that person's training needs can be met.  Initially, this might be to repeat the training, and re-assess the trainee's learning.  If however the targets are still not being met, then the training is not meeting the training needs of the individual and a new approach might be needed, for example one-to-one coaching.  It is possible that non-achievement occurs for another reason: literacy has already been mentioned, but other issues such as dyslexia, colour-blindness, hearing deficiencies or physical capabilities might also contribute, and the assessment process might have to be reconsidered.

### 8.3     Refresher Training

Skills and knowledge degrade with time.  This can occur through lack of use, preferring alternative work methods, etc.  For whatever reason, the need for refresher training should be identified, by placing a life span on training and recording this on the training matrix.  When the training expires, the employee should be invited to attend refresher training, to ensure that skills remain current.  The frequency of the need for refresher training will need to be assessed for each training course taking into account whether the skills and knowledge included are safety critical.

### 8.4     Failure to Close Competence Gaps

If a course is not meeting its course objectives and requirements to close specific gaps in competence, the training cycle can be reiterated to correctly identify the training gaps in Stage 3 of the training cycle and the course redesigned accordingly.

## 9. REVIEWING THE TRAINING COURSE CONTENT

This can be based on the course evaluation and feedback from trainees. It ensures that the course meets the expectations of the trainees and has relevance for them. Issues may relate to the structure, content or style of the training received and can refer to the trainer as well as to the course. The results of this review feed back into the setting of training objectives stage, to ensure that the correct objectives have been identified and that the trainees are receiving training that is relevant for them. An example feedback form can be seen in Figure 9-1.

| LUDORUM TRAINING | | | | | |
|---|---|---|---|---|---|
| Training Evaluation Form | | | | | |
| **Name (Optional):** | | **Organisation:** | | | |
| **Date:** | | **Location:** | | | |
| **Have you attended a training seminar before?** | | **Yes** | | **No** | |
| Ludorum Training is always aiming to improve the services we provide to our clients. Therefore, we would appreciate your comments confirming the points that have met your expectations and the areas where you feel improvements could be made. HELP US TO COMMEND OR CORRECT | | | | | |
| Please evaluate the following questions by placing a ✔in the relevant box. | **Poor** | **Fair** | **Good** | **Very Good** | **Excellent** |
| Location and facilities? | | | | | |
| Relevance to your business? | | | | | |
| The quality of presentations and presentational material used? | | | | | |
| The relevance/usefulness of questions and discussions following the presentations? | | | | | |
| What did you think of the format of the day? | | | | | |
| Seminar duration? | Too Short | | Just Right | | Too Long |
| **Please use this section to give your opinions, good or bad and overall assessment of the Seminar.** | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

**Figure 9-1: Example Feedback Form**

## 10. COSTS & BENEFITS

### 10.1   Costs of Training

Calculating the cost of training is not necessarily difficult, once you have identified the basic costs involved.  Costs can be broken down into course development and training execution.  Both of these are simpler to calculate if an external training company is used because they should be able to provide a clear cost statement for the components provided.

The costs associated with developing training deliverables from a training specification are derived from:

- Designing the structure of the training against the learning objectives
- Designing the training materials
- Preparing pre-course material
- Preparing course hand-outs
- Preparing evaluation tools
- Travelling expenses
- Refreshments.

If training is carried out in-house, the costs involved include:
- Costs of the trainers.  This should include the person providing OJT mentoring and should consider the cost in hours for which the mentor would not be able to perform normal duties
- Costs of venue, including training room, equipment, accommodation & catering.
- Costs of printing course materials and handouts
- Administration and training management costs

It is also important to remember the cost of the trainee's time and trainer's time away from work.  This is especially true for OJT even though the person is "at work".  During OJT the individual will not be sufficiently trained to perform the task they are being trained on and yet they also cannot carry out normal work activities as they are being trained.

### 10.2   Cost Benefit of Training

While it is broadly true that the more you spend on training, the better the end result is, it should be remembered that table top simulations or "walk throughs" can be equally as effective as simulator training and in most cases are significantly cheaper.  Consideration should therefore be given to the training objectives as well as the cost when deciding on the most appropriate training method.

## 11. FURTHER READING

The Institute of Personnel & Development, London publish a *Training Essentials* series:

- *Introduction To Training* by Penny Hackett
- *Cultivating Self Development* by David Megginson & Vivien Whittaker
- *Delivering Training* by Suzy Siddons
- *Designing Training* by Alison Hardingham
- *Developing Learning* by MaterialsJacqui Gough
- *Evaluating Training* by Peter Bramley
- *Identifying Training Needs* by Tom Boydell & Malcolm Leary

Also
*Creating a Training and Development Strategy* - Andrew Mayo, Chartered Institute of Personnel and Development (CIPD), 1998

The Chartered Institute of Personnel & Development has much useful information presented on their website. In particular, http://www.cipd.co.uk/Infosource/ contains several documents relating to training and development.

## 12. REFERENCES

Clemenson, S. (2002) *Managing People* in Heller, R. *Manager's Handbook* Dorling Kindersley, London

Hackett, P. (1997) *Introduction to Training*, Institute of Personnel & Development, London

HSE (1999) *Reducing Error and Influencing Behaviour*, **HSG48.** HSE Books.

Mayo, A. (1998) C*reating a Training and Development Strategy* Chartered Institute of Personnel and Development (CIPD).