

SMART Training

Mark Mutter, Cement Performance International (CPI), UK, reveals the basic principles for successful training.

Introduction

Most readers will at some stage have been through the annual appraisals process, whereby an individual's performance over the previous period is reviewed and new targets are set for the future. Many readers will also have heard of SMART targets as a way of assisting in setting the targets for the future. SMART stands for Specific, Measureable, Achievable, Realistic and Timely. Without too much imagination, and some adaptation, this methodology can also be applied to the design of training courses. In fact, it also gives a good rationale for companies to spend some time actually designing training courses instead of sending employees on standardised training courses that offer no flexibility in their content nor cater for the wide range of different backgrounds, skills and capabilities of the audience.

The meaning of SMART in the training context has been slightly modified for the purposes of this article so that the letters take the following meanings: Specific, Measurable, Agenda, Realistic and Timely. Taking each of these criteria one by one, it is possible to identify and therefore design the most appropriate training content and format for the target audience within the organisation. In considering each of these criteria, it is assumed that the target audience has already been defined.

Specific

The starting point of designing a training course is the definition of the content of the course. As such, both the target audience and the objectives or reasons for training that audience must be considered to set the content of the course. This must be specific or relevant to the job that the participants are currently performing, or relevant to a role that will be commenced in the near future (see 'Timely').

When designing a pyroprocessing course, the content for kiln burners and plant operators will be different to that for process engineers and the plant management team. For the plant operators, the focus should be on how to operate the plant: what are the warning signs that things are going wrong; what are the key parameters that should be tracked, and what impact will operating outside of "normal" conditions have on the process and product? From the process engineer's point of view, the above information is important and should be treated as the background knowledge, with much more importance being placed on the optimisation of the process such that output can be maximised, fuel consumption and variability reduced and costs kept to a minimum. How to perform and construct the kiln heat and mass balance would be a key element for a process engineer's course. From the plant management perspective, the focus should be on the KPIs for tracking performance of the plant, identifying what are the key parameters that may be causing any lack of performance, and the key questions that should be asked of production and engineering departments to assist them in troubleshooting on the plant.

Obviously, there is some overlap between the courses moving up or down the plant hierarchy. For example, it would be relevant for the kiln burner operators to have an understanding of the heat and mass balance and where the heat in the process goes, but training them in plant measurements and the heat and mass balance calculations would be pointless, as they will never be doing these things, and therefore it is not specific or relevant to their job.

One final comment within the Specific criteria is that the content of the course must be relevant to the sphere of influence of the target audience. This means that the content should be designed such that the target audience can take actions and implement their training once it has been completed. For example, there is very little point spending a long time explaining the pros and cons of different alternative fuels to kiln burner operators, when they have no influence over the decision to implement an alternative fuels programme. Such a subject would be much more appropriate for the plant management team.

Measureable

The Measureable criteria is related to how effective the training of the target audience has been. However, before the success of the course can be judged or the improvement in performance can be assessed, the starting point must be known. The simplest of assessments is a pre-course test, whereby the knowledge of the participants is assessed prior to the training; this is useful as areas of weakness can be identified and the course tailored to either the groups needs or, in some

cases, individuals needs. The same test can be used at the end of the training to identify the improvement gained from the course (assuming that the training has been effective!).

In some cases the starting point can be an assessment of individuals or teams by one of the trainers during a pre-plant visit. Assessment can be made by on-the-job observation, discussions with the participants, as well as discussions with the course sponsors (those that have instigated the training). These discussions are often very useful for all parties involved, as different perceptions of plant performance and training needs frequently come out during these discussions. Again, some form of written test can be undertaken at the end of the training course to determine which areas were understood and, more importantly, which were not.

Another form of measurement is the establishment of action plans. At the end of the course, time is set aside for the participants to develop their own action plans with timescales to achieve them, based upon knowledge of their own plants and the information that has been passed on during the training course. Care must be taken that the targets are within the sphere of influence of the participants, and the action plans should also be passed on to the course sponsors so that the success of the action plans and the training can be measured.

Whatever method is chosen, it is essential to measure the success of the course to ensure that value has been added.

Agenda

The criterion that has been changed compared with target setting – Agenda – relates to how the training is timed and set out for the participants. Different groups are receptive to different forms of training. It is probably well established by now that sitting course participants in a room for eight hours listening to lectures by different presenters (or, worse, the same presenter!) is not effective in terms of retaining information. Within an individual's normal working day, they are used to different tasks and duties that keep them stimulated, and therefore the key to this criterion is how to organise the training in such a way as to keep the participants alert and receptive.

A number of different options are available. The first of these is to break up the time spent on presenting information into small sections and including exercises and activities between each of the information sessions. Setting different tasks for individuals or groups allows for group discussion during feedback about the task. Such exercises are also an effective way of assessing understanding during the course, instead of waiting until feedback at the end. In this way, any misunderstanding can be corrected at the time.

Another method of breaking up the training sessions is by changing the setting of the training (obviously, this is only possible if the training takes place in a plant). Plant visits can range from a simple walk around an area of equipment to identify parts, circuit flows, sampling points, etc., to spending longer at the plant to undertake plant testing. In the latter case, the training involves learning about the theory and purpose of plant testing in the classroom, while the practical aspects of plant measurements are carried out on site. If samples are taken, for example on

a mill axial survey, then time can be spent in the laboratory to undertake the tests on them to properly understand the site test-work and the interpretation of the results.

Whatever is planned, it is essential that the format be arranged to allow regular breaks from continuous presentation and to initiate different stimuli to assist the learning process.

Realistic

This relates to the training sponsors' expectations and the capacity for individuals to learn. It is about the length of the training. Some audiences are more suited to experiencing a five-day training programme, whilst others would be more suited to being involved with two-day modules. This may be due to the complexity of the course – for example, breaking the plant down into modules such as raw milling, pyroprocessing, cement milling, chemistry, etc. It might be due to job demands because individuals can only be spared for short or long periods of time – for example, shift workers.

In mentoring programmes, such as can be designed for developing process engineers or plant managers, it is often realistic to plan over a long period and provide the training in discrete packages, leaving the participants with time to review the training information and actually implement the knowledge before delivering the next part of the training. Again, the length of training and substance for any programme must be realistic.

Timely

Finally, the Timely criterion. Often, training occurs

when new equipment is being installed in a plant – for example, as part of an upgrade to existing equipment or when a new kiln line is being built. It is therefore important that the training is given far enough in advance that the participants understand what is going to happen during commissioning. At the same time, it should not be so far in advance that by the time the equipment is commissioned all the learning has been forgotten. It is often appropriate to start with providing basic briefing sessions some six months before the new equipment is installed, to provide the concepts of the new plant, followed by more intense training closer to the commissioning and hands on training as the plant goes live.

Another key period of training should (and often does not) occur when individuals are set to retire. In this situation, time should be set aside for the younger employees either in the plant or in different parts of the organisation to be trained by retirees so that knowledge and experience is not wasted, but can be passed on. Such information and experience is invaluable, and could otherwise take many years to rebuild.

Conclusion

It is clear that there is much more to training than simply sitting people down and lecturing them for eight hours a day. Spending some time evaluating SMART and each criterion as it relates to training and as described above will hopefully ensure that any training undertaken is a more enjoyable and effective experience for both the participants and those that are paying for the training. 🌟