

# GOOD SAFETY TRAINING PRACTICES: CASE STUDY ON OCCUPATIONAL SAFETY CARD

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*In Finland, an Occupational Safety Card (OSC) training system, giving standardised training in occupational safety and health, has recently been launched. The quality of the OSC training system was studied by the Institute of Occupational Safety Engineering at Tampere University of Technology in 2005-2006. Several OSC training courses were observed. Information was collected also using questionnaires and interviews. This paper describes a case study on OSC training and discusses the features of high quality and good practices in safety training.*

*Safety training, Occupational Safety Card training system, good safety training practices, quality of training*

## **1 Introduction**

Safety training is a very important part of safety promotion. In Finland, an Occupational Safety Card (OSC) training system was launched in 2003 with the aim of improving safety. The OSC system is oriented towards the so-called shared workplace and gives standardised training in the field of occupational safety. The aim of OSC training is to provide basic knowledge on occupational health and safety issues and on possible hazards in the shared workplace. The training system involves various operators and two types of training courses. The OSC trainers are educated on a two-day course, which includes two examinations. The basic OSC training course lasts one day and includes one examination. The Centre for Occupational Safety provides the training material, which consists of slides, a textbook for the trainees, examinations and a DVD. Although the system is voluntary, it has become very popular. At the moment, the number of OSC holders is already over 300 000.

The quality of the OSC training system was studied by the Institute of Occupational Safety Engineering at Tampere University of Technology in 2005-2006. The aim of the study was to identify the essential factors affecting the quality of the training system. The current situation of the training system was studied and suggestions for improving and assuring the good quality also in the future were made. In addition, some good safety training practices were discovered.

In safety training, the same principles of teaching are valid as in training in general, and the theory of learning can be applied to teaching safety issues as well. However, safety training differs from other types of training because of the close link with safety performance and avoidance of injuries (Cooper & Cotton 2000). A review of the literature shows the importance of safety training and its positive impact on safety

culture (e.g. Cooper 1998, Glendon & McKenna 1995, Reber & Wallin 1984). The main purpose of safety training is to provide knowledge and to influence employees' safety perceptions and attitudes (Elangovan et al. 2005). It has been pointed out that changing safety attitudes and behaviour requires time (Stave et al. 2007). In the important area of safety training, more information is needed on the features of high quality training and good practises. The aim of this paper is to present the most important factors, discovered in the study, that have an effect on the quality of OSC training. Based on the results, the paper also discusses good safety training practices in relation to the theory of quality management in training and the theory of learning.

## **2 Theoretical background**

### *2.1 Quality management*

Carmichael et al. (2001) present five different approaches to quality in education and training. Firstly, learning-centred thinking emphasises learner transformation or improvements in the learner through the value-adding effects of learning. Secondly, quality of education and training can be assured through a rigorous, external audit of quality assurance processes. Thirdly, this quality can be assured by satisfying the requirements of an external quality assurance process, which however, does not really take into account the idea of learning-centred education and improvement. Fourthly, the quality assurance system can be of industrial origin, utilising the ISO 9000 standard. The fifth approach defines quality in terms of the teaching/learning event, which is the transformational process that is formed by learners, teachers and the curriculum.

According to Harvey and Newton (2004), quality evaluation of education has focused only on external evaluation emphasising the role of administrative and structural processes. Harvey and Newton also suggest that in order for there to be a contribution to student learning experience, attention should be focused on internal processes when the object of the evaluation is the learner and learner output. The evaluation would then focus on learning experience, learning infrastructure and organisational processes. Pond (2001) argues that the challenges for education in the 21st century require quality assurance to focus on the learner rather than the institution.

The process-based approach is typical of quality management. The term process refers to any activities that use resources to transform inputs to outputs. Processes used within the organisation and the interactions between these processes are systematically identified. In a process-based quality management system, the input consists of the demands of clients and other interest groups. The output is the satisfaction of the clients and interest groups. (SFS-EN ISO 9000 2001) According to Lecklin (2002), the phases in developing a process are identifying current situation, process analysis and improving the process.

In teaching and training, the product is the teaching process itself as well as the outcome of the teaching process. In assessing the quality of teaching and training, both the quality of what the learner experiences (teaching) and the outcome of the teaching process (what has been learned) need to be considered. The teaching process is more difficult to monitor than the outcome. The teaching process consists of a number of different tasks to which the actions of quality management can be allocated. Some tasks

related to teaching and training are, for instance, course design and material, teaching, tutoring and collecting feedback. (Freeman 1993)

## 2.2 *Theory of learning*

The theory of learning explains how the learner learns (Nevgi & Lindblom-Ylänne 2002). The three most significant learning theories are behaviourism, social learning and cognitive psychology. Behaviourists hold that in the proper circumstances learners can be shaped (Nevgi & Lindblom-Ylänne 2002). In behaviourism, a good learning result is the exact repetition of the taught topic. Social learning has also been labelled as model learning. In the social context, learners learn by watching others. The cognitive idea of man provides the basis for the current learning theory, i.e. the constructivist theory. This theory emphasises the active role of the learner. According to this theory, a learner can only learn when he/she can link the issues to be learned with his/her existing knowledge. (Nevgi & Lindblom-Ylänne 2002)

Lindblom-Ylänne et al. (2002) describe learning as a change in the learner's experiences and thinking. In addition to this, Tynjälä (1999) emphasises the role of conflict in knowledge. Based on this, Tynjälä makes a distinction between two levels of learning. Surface-oriented learning enables the learner to repeat issues, but it does not cause any changes in behaviour. In order for the new knowledge to produce behavioural changes, the learner him/herself needs to reflect the issues. This is the key issue also in safety training. The main target of safety training should be to affect employees' safety behaviour and attitudes (e.g. Elangovan et al. 2005).

Although the active role of the learner is emphasised, the teacher can influence good learning. The teacher must know what he/she wants to teach the learners. This also needs to be in synergy with how he/she teaches and how he/she evaluates the learning. For example, if the learning is evaluated using multiple-choice questions, learners often choose the surface-oriented learning method. (Lindblom-Ylänne & Nevgi 2002)

## **3 Methods**

The information on the present situation of the OSC training system was collected using observations, questionnaires and interviews. Altogether, seventeen training courses were observed; 15 basic OSC training courses and two OSC training courses for trainers. The training courses were selected so that they represented various course types. The issues that affected the selection were: the experience of the trainers, the location of the training course, the number of course participants and the type of training course. Observations in the training courses were made following the observation list created in this research. The observed issues were divided into five categories: description of the training course, schedule, facilities, training course and trainer. Each of the categories included detailed headings that facilitated the observation. The observed training courses targeted the following sectors: construction (3 training courses), manufacturing industry (3), educational institutions (1) and several sectors (8). Training courses for trainers were not sector-specific. The courses lasted between 4.5 and 8 hours and the number of course participants varied between 7 and 78.

Three different questionnaires were developed in the project. The aim of the questionnaire was to collect subjective information from the trainees. Most of the

questions were closed questions (with the options agree-disagree-do not know). The questionnaires varied a little according to the target group, but all the questionnaires included questions about the content of the course, realisation of the course and background questions. The first questionnaire was distributed in trainer courses and 45 answers were received (response rate 100 %). The second questionnaire was distributed in OSC training courses and 357 answers were received (response rate 95 %). The last questionnaire was sent to persons who had had an OSC for between half a year and one year, yielding 102 responses (response rate 39 %). The background of these three groups did not vary much (Table 1).

**Table 1 Background information concerning the questionnaire respondents**

	Average age	Average work experience	Proportion of men
Questionnaire 1: OSC trainer trainees	44.3 years	9 years 7 months	84%
Questionnaire 2: OSC trainees	37.0 years	9 years 6 months	81%
Questionnaire 3: OSC holders	40.4 years	11 years 2 months	76%

After each training course the trainers were interviewed. Altogether 18 trainers were interviewed (one training course had two trainers). One trainer was interviewed via e-mail, due to constraints of time after the training course. The interviews were theme interviews, with themes and questions created beforehand, but the interviews were directed according to the knowledge and the interest of the trainers. The themes were the background information of the trainer, the OSC training system and the OSC training course. The experience of the trainers giving the OSC training varied a lot. The number of OSC holders they had trained varied from 50 to 4000.

## 4 Results

### 4.1 Observations

The training courses observed fulfilled relatively well the set requirements. From these courses some aspects could be identified and labelled under the heading “good practise in safety training”. However, currently some aspects of the training could be improved on. The competence of the trainers was polarised: they seemed to possess either pedagogical skills or knowledge in occupational safety. The trainers could also have activated the trainees more during the training. In its current form, the training is based on lecturing and only few trainers provide exercises for trainees. Good practices in safety training were related especially to efforts intended to affect trainees’ attitudes and motivation in relation to safe behaviour. Furthermore, the trainers actively aimed at establishing a good rapport with the trainees. Interaction and discourse was also encouraged in training courses.

### 4.2 Questionnaires

The respondents to the questionnaires viewed the training highly positively (Table 2). The respondents who attended the trainer course viewed the training most positively. Also, the OSC course participants agreed with most of the statements. Some differences emerged when the responses were compared with the background information. The youngest age group (less than 19 years) had more negative attitudes compared with older respondents. The respondents who worked in a shared workplace had more positive attitudes compared with others. The same was true of respondents who had previous safety knowledge. Also, the OSC holders viewed the training positively.

**Table 2 Percentage of respondents who agreed with the selected statements**

Statement	Questionnaire 1: OSC trainer trainees	Questionnaire 2: OSC trainees	Questionnaire 3: OSC holders
The issues in the course were important	not asked	93%	98%
The atmosphere of the course was good	98%	90%	95%
The issues in the course were understandable	96%	90%	96%
The course facilities were good	93%	84%	91%

The trainer trainees disagreed more often with only two statements: number of examples (60% agreed) and new information (58% agreed). There were several statements with which the OSC training course participants agreed less. For example, only 48% of the respondents thought that they would seek more information on the safety issues and 69% said that the course increased their interest in safety issues. The respondents to the card holder questionnaire agreed less with a few of the statements. For example, only 47% of the holders had sought more information on occupational safety issues after the course. Also, only 62% of these respondents had read the textbook after the training.

#### 4.3 Interviews

The interviewed trainers were very satisfied with the existing system but they also suggested a few targets for improvement. The system was considered rather complicated and the role of different operators of the training system was not clear for all the trainers. Moreover, the trainers wished for more guidance and material in preparing and arranging training courses. The trainers suggested, for instance, some media through which the trainers could communicate. Material should also contain more concrete examples, which the trainers could present in training courses.

## 5 Discussion

As a whole, the OSC training system functioned well. The participants of the different training courses had very positive attitudes towards the course. Also, the trainers considered the training system to function well. Nevertheless, some factors were detected that could dilute the good quality unless they are taken into consideration. The study presented several suggestions on how the quality of the OSC training system can be controlled more effectively. For example, the role of different operators was not clear to all the trainers. Some major renovations in the system's administration have taken place and these might affect the situation. OSC trainers are in a key position from the point of view of the quality of the OSC training system.

The data collected in this study gives comprehensive picture of the OSC training system. Although, a large amount of collected data is subjective, they support well each other. The results can be considered reliable since they are so similar. As Harvey and Newton (2004) point out, one key aspect of the quality of education is the participants' learning experiences. This justifies the use of subjective data. Although Elangovan et al. (2005) named attitude change the number one issue in safety training and the same was emphasised by the trainers in our study, the target of attitude change was only partially

achieved. Less than half of the course participants felt that they would seek more safety information after the course. The percentage was the same in the case of card holders.

The training process consists of the following components: trainer, trainees and material. The trainer needs to be familiar with the topic being taught and needs to know the basics of pedagogy. Furthermore, the trainer needs to modify the training according to the audience. The active role of trainees should also be emphasised. Material should support different learning styles. For example, the use of a multiple-choice examination at the end of the training course might guide the OSC course participants to choose a surface-oriented learning style. By improving the guidance of the trainers it is possible to contribute to a better learning result among trainees.

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