# The Management of Occupational Health and Safety in Vocational Education and Training

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**Abstract.** Vocational education and training (VET) providers must provide a safe and healthy learning and working environment for their students and employees. Establishing a culture with effective occupational health and safety (OHS) procedures helps VET providers in meeting this duty of care. The objective of this study was to describe the practices of sustainable OHS management in VET. The procedures were studied in six VET provider organizations; 6 workshops were arranged and 58 employees were interviewed. The procedures revealed were categorized into preventative actions, actions during the incident, and actions after the incident. Prevention is possible when sustained proactive and reactive actions are directed at the individual, team, working environment, and organization levels. The results will guide VET and other organizations toward shaping OHS policies and safety culture in the field of education. Furthermore, developing safety culture may achieve other VET providers' goals, such as quality of education and student performance.

**Keywords:** Occupational Health and Safety · OHS Management · Prevention · Safety Culture · School Safety

## 1    Introduction

In Finland, vocational education and training (VET) involves about 327 000 students and 45% of the youth age group annually [1]. It has been found that risk-taking behavior is established during youth and extends into adulthood [2], and that young workers experience the highest rate of occupational injuries out of any age group [3]. Incorporating occupational health and safety (OHS) issues into VET might reduce work-related injuries and ill-health among young workers. Prevention is possible when sustained actions are directed at team, individual, organization, and learning and working environment levels [4]. Moreover, students benefit from increased OHS awareness when they enter working life.

In Finland in 2018, there are 149 VET providers owned by a municipal federation, municipality, private company, or the state [5]. Based on the education and OHS regulations, VET providers must run a safe and healthy learning and working environment [6,7]. Establishing an OHS culture with effective OHS processes helps in meeting this

duty of care for their students and employees [8,9,10]. Hence, OHS issues are management's responsibility in VET provider organizations. OHS issues can be integrated into existing management processes and development rather than being addressed through separate procedures [4,11,12,13].

VET providers operate under the Finnish OHS regulations [6] including activity in relation to work done by students in connection with their education, if that work is done under a VET provider's direction. The OHS requirements are quite demanding for general vocational teachers who direct and supervise on-the-job learning. VET providers and teachers need information and guidance in complying with the OHS requirements and in ensuring the occupational safety of the students during on-the-job learning in vocational education [14,15].

Currently, VET providers are facing major challenges due to digitalization, economic pressures, vocational educational reform, and a decrease in the number of students among future age groups [7,16]. Among other challenges, VET providers, along with their employees and students, should be supported in both proactively and reactively handling OHS risks. In Finnish VET provider organizations, OHS is traditionally developed via projects with limited resources and competence and is mainly viewed from students' perspective during on-the-job learning [14,15,17]. However, the systematic development of both students' and employees' OHS is the VET providers' responsibility.

Understanding the current safety culture of the organization (here, the VET providers) is an essential prerequisite for improving OHS activities. Safety culture has been characterized as a set of often unconscious thinking patterns, basic assumptions, beliefs, and values that guide operations and ultimately determine how people act at work and whether their working practices support or compromise safety [18,19]. Most definitions consider safety culture to be the part of organizational culture that focuses on safety [19,20].

In relation to safety culture, management commitment to OHS needs to be emphasized [2,12]. Managers' commitment to OHS arises from increased awareness, which may be induced reactively by an accident or other crisis, or proactively by a training or OHS improvement program [21]. Managers at different organizational levels (strategic, tactical, and operational) can support the behaviors and activities of their students and employees through their own actions [22]. This, in turn, can improve the safety and wellbeing of both the students and employees.

VET provider organizations (including their managers, employees, and students) have to be able to manage disturbances and adapt their actions to varying circumstances to control OHS risks. Thus, safety is based on their ability to respond to situations that are not what they expected; to cope with situations that have become critical; to anticipate disruptions and their potential consequences; and to learn from these experiences. This is the focus of recent new safety paradigms, resilience engineering, and Safety-II thinking, which emphasize the resources of individuals, teams and organizations [23,24,25] for both proactively and reactively handling safety risks [26,27]. Here, common and jointly shared organizational OHS practices are key measures for proactively managing safety in VET provider organizations.

OHS issues are addressed inadequately in current school safety models [8,9]. Establishing a positive safety culture with effective OHS management practices helps VET provider organizations to meet their duty of care [10]. Hence, OHS issues cannot be put

aside since they are a core issue in vocational education. Furthermore, developing safety culture and OHS may achieve other VET providers' goals, such as quality of education and student performance [9,10].

## 2    Materials and Methods

The objective of this study was to describe the typical practices of sustainable and preventative OHS management in VET provider organizations. The study employed a qualitative approach [28] due to its descriptive and contextual nature. Information about the practices were studied between 2016 and 2017 in 6 Finnish VET provider organizations where a total of 58 employees were interviewed (see Table 1).

**Table 1.**  Background information about the interviewees (n=58).

| VET provider | Number of personnel (2016) | Number of interviewees |
|---|---|---|
| 1 | 700 | 8 |
| 2 | 760 | 10 |
| 3 | 460 | 11 |
| 4 | 860 | 9 |
| 5 | 650 | 10 |
| 6 | 300 | 10 |

The employees interviewed represented different personnel groups (such as managers, teachers, and support services personnel, including student, catering, cleaning, ICT, and maintenance services personnel) with 29 female and 29 male interviewees (see Table 2). Interviews have been regarded as a valid instrument for evaluating safety culture; this is because safety culture cannot be studied merely by quantitative methods as these cannot perceive the conceptions behind actions [18,19].

**Table 2.**  Background information about interviewees' occupations (n=58).

| Occupation | Number of interviewees |
|---|---|
| Principal or deputy principal | 2 |
| Sector manager | 2 |
| Development manager | 1 |
| Training manager | 4 |
| Team leader (teaching) | 4 |
| Teacher, lecturer, or trainer | 26 |
| Support services manager | 8 |
| Support services personnel | 11 |

In addition to the interviews, six workshops were arranged where OHS professionals of the participating organizations (such as safety manager, head of OHS, and OHS delegate) were involved. The OHS management practices revealed from the interviews and workshops were categorized into three classes according to Teperi & Puro [29]: 1)

before incident situation (preventative actions); 2) during incident situation (to respond to situations); and 3) after incident situation (to cope with situations).

## 3 Results

According to the interviews in the six VET provider organizations, the employees acknowledged the OHS management practices they could identify. The most familiar practices to the interviewees were the practices they participated in regularly, such as evacuation exercises and safety walks. The interview results were categorized based on how OHS is managed proactively as well as during and after incident situations. Table 3 presents examples of preventative actions. Both employees and students participate in the OHS practices, but the VET provider's personnel have a directive role over the students in most of the practices (such as risk assessments, safety walks, and OHS exercises).

**Table 3.** Examples of preventative actions in VET provider organizations.

| Category | Purpose | Examples of OHS practices |
|---|---|---|
| Before incident situation | To prepare preventative actions to situations | OHS management system |
| | | OHS activity plan |
| | | Occupational health care plan |
| | | Definition of OHS responsibilities |
| | | Top management safety group |
| | | Safety groups of the campus or building |
| | | Safety folder and instructions |
| | | Risk assessments |
| | | Rescue plans |
| | | OHS introduction |
| | | Introduction of external actors |
| | | Regular evacuation exercises |
| | | OHS training |
| | | First aid training |
| | | Training for threatening situations |
| | | Chemicals register and safety data sheet folder |
| | | Machine safety instructions |
| | | Safety notices and near-miss reports processing |
| | | Internal fire-safety inspections |
| | | Elmeri+ workplace observation method |
| | | 5S workplace organization method |
| | | Construction site safety audits |
| | | OHS audits |
| | | Safety walks |
| | | Workplace surveys |
| | | Procedure for indoor air problem resolution |
| | | Procedure for psychosocial risk control |
| | | Procedure for threatening and violent situations |
| | | Early support procedure |
| | | Rules for appropriate work behavior |
| | | Well-being development workshops |
| | | Stress analysis and control workshops |
| | | OHS campaigns and themes in communication |

The persons responsible for campus or building safety and particular safety teams were typically nominated in VET provider organizations and were well known. OHS training, such as OHS introduction, occupational safety card training, first aid training, and training for threatening situations was in place in the organizations studied. They had procedures and regular exercises for different kinds of incident situations, such as fire, sudden illness, chemical accident, or school attack. In addition, they had a variety of audits, walks, and observations in use to monitor the safety of the learning and working environment and to carry out preventative actions against the revealed OHS risks. For example, the regular checking of fire extinguisher and first aid equipment was part of the monitoring process. For the management of mental OHS risks, they had such procedures as early support and psychosocial risk control procedures, stress control and well-being development workshops, and rules for appropriate work behavior. One organization had a certified OHSAS management system.

Table 4 shows examples of the practices to respond to incident situations. The VET provider organizations studied had both fixed (traditional) and mobile alarm systems in use to warn and evacuate people in case of an emergency. They also had technical solutions, such as electrical locking of entrance doors. Some employees at high risk (such as welfare officers) had panic buttons in their rooms or mobile systems to call for help in dangerous situations. Available and operational emergency equipment, such as firefighting and first aid equipment, were seen as important during incident situations.

**Table 4.** Examples of practices to respond to incident situations in VET provider organizations.

| Category | Purpose | Examples of OHS practices |
|---|---|---|
| During incident situation | To respond to situation | Persons responsible for campus or building safety |
| | | Alarm systems (fixed or mobile) |
| | | Panic buttons (fixed or mobile) |
| | | Electrical locking of entrance doors |
| | | Evacuation charts |
| | | Firefighting equipment |
| | | First aid equipment and personnel |
| | | Chemical information and first aid equipment |

In Table 5, examples of practices to cope with the incident situation are presented. VET provider organizations reported and analyzed injury and dangerous situations data and took corrective actions based on that information. They had a crisis group, welfare group, or similar, where the dangerous or difficult situations were handled and discussed confidentially. Many interviewees also mentioned supervisor or peer support as important in coping with incident situations. Students have their own welfare services to support them in difficult situations.

**Table 5.** Examples of practices to cope with incident situations in VET provider organizations.

| Category | Purpose | Examples of OHS practices |
|---|---|---|
| After incident situation | To cope with situation | Injury reporting and analysis<br>Dangerous situations reporting and analysis<br>Corrective and preventative actions<br>Crisis group<br>Support discussions with supervisor, peers, or occupational health care professionals<br>Handling in a department meeting |

In VET provider organizations, the employees and students are regularly reminded of the OHS procedures and timely action in workplace meetings, info sessions, and media. Moreover, the organizations participate in national OHS campaigns and utilize related info material as a part of their OHS management.

## 4 Discussion

The current study aimed to emphasize effective OHS management practices in helping VET provider organizations to meet their OHS management responsibilities and their duty of care for their students and employees [10]. Moreover, the study aimed to emphasize OHS issues in relation to current school safety models [9].

This study described a three-class categorization of OHS management practices in Finnish VET provider organizations. The categorization is based on Teperi & Puro's study [29] and includes preventative actions as well as procedures to respond to incident situations and to cope with incident situations.

In the VET provider organizations studied, the focus was on preventative actions, and various preventative actions were in use. Training and practicing are important in maintaining the ability to act in case of an emergency and in safety becoming a day-to-day routine. Moreover, the prevention focus and proactive approach are also important in increasing the visibility and feeling of safety. During incident situations, the roles and responsibilities of all employees should be clear and the emergency equipment available and in operation. After the incident situation, it is important to facilitate understanding of the situation and encourage employees' adaptive coping [29].

The VET provider organizations studied had a large variety of OHS management practices in use, and their implementation varied a lot (see also [9]). The same was found in a study of Finnish elementary school safety management practices [23]. It is known that defined procedures are not necessarily followed in reality, and even good practices can be hidden away, or commitment to their implementation may be eroded over time [4,13]. Moreover, in some VET provider organizations, the OHS practices were somewhat disconnected, and the overall picture of OHS management was somewhat unclear (see also [9]).

Based on this and earlier studies [4], prevention is possible when sustained actions are directed at the individual, team, working environment, and organization levels, while all these may contribute to risks and incidents and inhibit personnel from succeeding in maintain safety at work. Therefore, information about sustained OHS management practices needs to be disseminated among VET providers. Moreover, students

benefit from increased OHS awareness and competence when they enter working life and thus, can proceed good safety culture in their forthcoming work places. Students might also be used as a resource in VET provider's safety culture improvement while VET providers may have limited resources to implement all OHS management procedures proactively as well as during and after incident situations; students could be committed to joint safety improvement at VET organizations (see also [30]).

The scientific contribution of this study is based on its explorative nature. The categorization is based on previous studies on maritime [29] and is complemented with new empirical data from VET. Information was provided on the organizational measures to promote OHS in the educational sector. The practical contribution of the research is the information concerning the OHS management practices being used by VET providers. OHS issues are inadequately addressed in current school safety models [8,9] and VET has not as long tradition in OHS management as for example industrial and transport systems which have done pioneering work with safety management systems [13,30]. Moreover, safety culture is still developing within Finnish VET organizations and there is an important time frame going on to encourage favorable safety culture by offering clarifying models and procedures for the field. Therefore, information about favorable practices needs to be disseminated among both VET and other educational organizations. This kind of cooperation was planned during this study, while safety management and safety culture was simultaneously with this study studied also at ten other Finnish educational organizations, namely comprehensive schools [30].

The results modelled by using concrete three-class categorization model used in this study provide guidance for teachers, school managers, safety professionals, OHS representatives, and VET and other educational organizations toward shaping OHS policies and safety culture in the field of education.

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