Building a Generation of Safe and Healthy Workers.
Safe and healthy youth.

Guide for the mainstreaming of
Occupational Safety and Health
in vocational training programmes

Practical guidelines and tools for designers, teachers and training.

Building a Generation of Safe and Healthy Workers.
Safe and healthy youth

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Occupational Safety and Health (OSH)

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Acknowledgements

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Introduction

1.1. Project Presentation

Occupational safety and health (hereinafter referred to as OSH) is critical when it comes to young workers, since they are the most vulnerable to both accidents and injuries at work as well as to diseases arising from occupational exposure.

According to recent estimates published by the International Labour Organization (ILO), 2.78 million workers die every year from accidents and work-related diseases. Furthermore, nearly a thousand times more non-fatal occupational injuries occur every year, affecting 374 million workers a year. Young workers, between 15 and 24 years old, suffer injuries at work at a much higher rate than older workers. According to Eurostat, in the European Union, the rate of accidents at work among young people aged 18-24 is 50 per cent higher than other workers (ILO, 2017).

Uruguay has been no exception since, according to data from the National Insurance Bank (BSE), 41.8 per cent of workers who suffered accidents in 2014 were between 15 and 29 years old and 45 per cent had been for less than two years in the job. This percentage dropped to 37 per cent in 2015, and 35 per cent in 2016.

A recent study concluded that young workers who receive OSH education registered a 50 per cent lower rate of accidents at work than those who have not received such education (conducted by the National Institute of Research and Safety, INRS, 2018).

In this scenario, training and awareness-raising on OSH among youth should be a priority for all the stakeholders and institutions related to education, in general, and vocational training, in particular. Indeed, it is essential to cater for the capacity building in safety and health at work in employment programmes, in education and vocational training for young people.

The global Project "Building a Generation of Safe and Healthy Workers -- Safe Youth@Work Project", executed by the ILO and funded by the US Department of Labor, pursues among its main components: mainstreaming OSH in vocational training programmes, awareness raising of vulnerability of young workers and enhancing the technical capacities of labour inspectors to better identify the occupational risks faced by youth at work.

In this framework, ILO/Cinterfor (Inter-American Centre for Knowledge Development in Vocational Training) is responsible for implementing the Project component related to OSH in vocational training in Uruguay and as a learning outcome of the implementation of the Project in the country, this guide was defined with the purpose of being a valuable tool for the entire region. Based on an applied experience, the impact of the Project is regionalized through a tool that is available to other countries.

1.2. The Guide

Under this section, we discuss: what is the purpose of this Guide?, how was this Guide developed? and how can it be used?

What is the purpose of this Guide?

The purpose of this Guide is that the different actors involved in training processes (curriculum designers, leaders at educational centres, teachers or facilitators, in-company tutors, etc.) can find tools and practical suggestions that may enable the application of OSH principles and practices at all times.

The guidelines and suggestions that are here systematized aim at approaching the prevention of risks at work, the protection and the promotion of health in different areas in a cross-cutting manner, while also taking into account the particular features of the target audience: young people who are participating in educational processes of different kinds.

These guidelines include:

- the identification and description of the different types of OSH skills that participants should develop,
- methodological suggestions for mainstreaming,
- guidelines for analysing work processes by identifying risks, common errors and systematizing good practices,
- examples of learning activities linked to different risks,
- grounds for building up a repository of resources to support training processes, and
- specific recommendations for different roles and actors involved in the training processes.

These can be applied to both the design of new training offers and to adjust and improve existing programs.

Finally, it is worth noting that this Guide considers training and skills development from a perspective that encompasses the different learning spaces in which young people participate. Therefore, it applies both to formal as well as informal training processes, within educational institutions, training centres or enterprises.

How was this Guide developed?

The guidelines and solutions that are proposed here are the result of the conceptual and methodological drafting of the advisory services that, during the first stage, were aimed at suggesting practical solutions to mainstream OSH into two selected training programmes: forestry and culinary studies (first stage of the 1st component of the project in Uruguay).

Afterwards, the wide receptivity noted among teachers and youth programme participants prompted the idea of rethinking and expanding this to a tool that could be applied in other training programmes

and in other countries. From this perspective¡, the contents were analysed and redefined, so that they could cover a wider scope.

It is worth mentioning that during the first stage, the analysis and reflection process about good practices, learned lessons and the validation of proposals was based upon the exchange among institutional leaders, state organisations, the teaching staff, students from training centres and sectoral social partners within a systematized framework enriched by research and the authors.

This is important because it has enabled to nourish the research by contributions and the perspective from the different actors involved. We are convinced that the generation of knowledge, learned lessons and good practices in the field of OSH that are most useful and relevant are those that arise from reflection upon experience and building innovative solutions based on experience and learning of the different actors involved together with the guidance and contributions of the advisory services.

During the second stage, and in order to broaden the scope of the Guide, examples are offered as Annexes and we have focused on the aspects that go beyond training for an occupational profile, a productive sector or a specific training programme.

It is worth saying that the proposals offered by this Guide are certainly not closed nor a unique course of action. On the contrary, the objective is to reflect upon methodologies and tools that are expected to be nourished by new contributions, experiences and revisions. Furthermore, it seeks to provide inputs and resources that can be used by different training offers in different contexts.

How can it be used?

Although this is not an exhaustive systematization of the available strategies and resources, this Guide gathers and organizes a set of considerations, strategies and resources of different kind, drawn upon the analysis of good practices, lessons learned so that they are available to:

· The teaching staff of technical training programmes.
· Team coordinators and/or training centre headmasters.
· Curriculum designers
· Institutional leaders
· Vocational training policy makers

In all cases, it must be pointed out that this paper is an input to include OSH issues in the vocational training agenda, by providing tools and resources so that trainer teams use them according to the needs and characteristics of the participants, adapt them, contextualize them, combine them and suggest new individual or collective settings.

How has the content been structured?

Chapter 1 includes an introduction and **chapter 2** is intended to answer the following question:

Why is it necessary to mainstream OSH into training? To do this, some basic concepts are introduced to set the grounds for common understanding of terms. Information about the high rates of occupational injuries affecting young people is provided. Also, it addresses the risk factors that are specific to young workers and hazards to which they are exposed to. The importance of considering OSH in VT and when preparing for future work is discussed. The chapter concludes by analysing how young people learn and their characteristics and attitudes towards risk prevention and management.

In **chapter 3** we explain the meaning of mainstreaming OSH into training, by clarifying the concept and the methodological guidelines to include it in curriculum design, in practice and in training materials.

Chapter 4 focuses on the importance of the participation and commitment of all the actors involved (teachers, enterprises, youth, the training institution itself).

Chapter 5 introduces the necessary skills to work safely and healthily, according to the occupational profile. It includes the OSH skills framework for youth vocational training.

Chapter 6 answers the question 'How can we mainstream OSH into training?' It offers a methodological sequence for mainstreaming OSH in existing training programmes and for developing joint projects at the training centre.
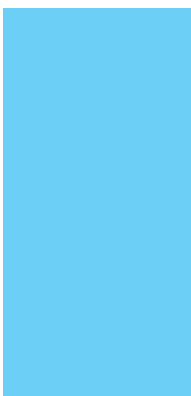
Finally, **chapter 7** includes support tools such as examples of learning activities, a repository of support materials to work on OSH in training and some examples to make mainstreaming possible in forestry and culinary sectors training.

The Annexes address the hazards to which young people are exposed at work and, finally, and present the application examples implemented within the framework of the project.

02

Why is it necessary to mainstream Occupational Safety and Health (OSH)?

2.1. Starting point: some basic concepts

Preventing harm to workers requires identifying hazards and assessing risks, as well as taking appropriate risk control measures through a general OSH management system to control such risks.

It is thus important to clarify the meaning of the terms **hazard** and **risk**, they are not synonym, although they are often used interchangeably.

A **hazard** is anything that can cause damage or harm (for example, machinery without maintenance, noise, work at height, manual handling, dust, chemicals, long working days). A **risk**, on the other hand, is the combination of the likelihood of a hazardous event occurring and the severity of the damage that may occur, including consequences that may appear over the long term. For example, workers who spend a lot of time exposed to chemicals are at risk of respiratory disorders, or those exposed to sunlight are at risk of skin cancer, and machinery operators face an increased risk of serious and even fatal occupational injuries if they operate machinery without regular maintenance.

OSH **risk assessment** is a systematic analysis process in which hazards arising from working conditions are identified and assessed. It enables us to eliminate all possible hazards, assess risks that cannot be eliminated immediately and plan the adoption of preventive and corrective measures.

The Guidelines on Occupational Safety and Health Management Systems (known as ILO-OSH 2001) state that preventive and protection measures should be implemented in the following order of priority:

i) eliminate the hazard/risk;

ii) control the hazard/risk at source, through the use of engineering controls or administrative measures;

iii) minimize the hazard/risk by designing safe work systems (including administrative control measures) and

iv) where residual hazards/risks cannot be controlled by collective measures, the employer should provide for appropriate personal protective equipment (PPE), at no cost to workers, and should implement measures to ensure its use and maintenance (ILO, 2001).

OSH management systems

Eliminate the hazard/risk	Control the hazard/ risk at source (control and/ or administrative preventive measures)	Minimize the hazard/risk (administrative control measures)	If the risks cannot be controlled: PPE
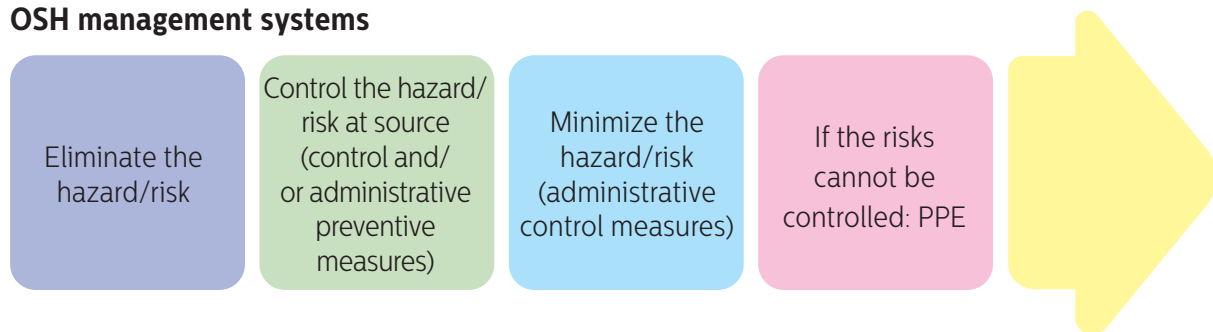
According to the ILO, a satisfactory level of safety and health is achieved when specific principles are applied in a coordinated manner nationwide, in companies and in the workplace.

These principles are:

- compliance with legal provisions,
- a clearly defined policy specifying the nature and severity of inherent risks in sector-specific operations, and
- allocation of responsibilities among those in management, supervision and implementation positions.

These are essential principles for promoting safe working conditions that do not pose a risk to personal health and well-being (ILO, 1998).

Compilance with legal provisions

Clearly defined policy

Allocation of responsibilities among all hierarchical levels

2.2. Youth and OSH

In Latin America and the Caribbean, approximately 57 million young people aged 15-24 work or want to work. Of these, 9.5 million are unemployed (42% of total unemployment in the region). Twenty-one per cent of young people do not study or work, and two out of three of these are women.[1]

Young people can start their work lives by entering the world of work in a variety of ways.

They:

· may have completed compulsory education or training and enter the labour market,
· may have left school and enter the labour market without prior training or experience,
· work in family enterprises (paid or unpaid) and,
· are self-employed or set up their own business.

They may also be students who:

· work in their free time (before or after school hours, on weekends and/or during holidays),
· go on apprenticeships alternating training and work (apprenticeships, internships).

Young workers have significantly higher rates of occupational injuries than adult workers. For example:

· The incidence of non-fatal occupational injuries in Europe is over 40 per cent higher

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[1] These data and the following from this sub-chapter were taken from: ILO (2018). Improving the Safety and Health of Young Workers. Geneva.

among 18 to 24-year-olds than among adult workers (EU-OSHA, 2007).

In Spain, there was a higher incidence rate among younger men, rate which gradually decreases with age (339,599 occupational accidents affected men). Women showed a different behaviour, as the highest incidence rates occur in the 16-19 and 50-plus age groups, placing the incidence rates of the 25-44 age groups below the average for women (Ministry of Employment and Social Security, 2016).

In the United States, the risk of non-fatal occupational injuries among young workers aged 15-24 is approximately twice as high as for workers aged 25 and older (CDC, 2010).

Regarding the countries of the region, in Uruguay 41.8 per cent of workers who suffered occupational accidents in 2014 were between 15 and 29 years

old, and 45 per cent of the injured workers had been working less than two years (BSE, 2014). This means that those with less experience and qualifications suffer more accidents, in relative terms.[2]

Meanwhile, in 2016, Mexico recorded 516,734 occupational accidents and accidents on the way to work, 12,622 people became ill due to the work they do and 1,408 died during or as a result of their work (Ministry of Labour and Social Security – STPS). According to the Mexican Social Security Institute, most accidents occur among young people aged 25-34 (2010).

In Argentina, according to the 2017 Annual Occupational Accident Report, the Occupational Risk System covered an average of 9,757,285 workers, recording a total of 374,251 occupational accidents and diseases with days off work, and 395 fatal accidents at work. Young people suffer 50 per cent more accidents at work than adults. Young men have an incidence rate that is 45 per cent higher than for workers aged 25 and over, while for young women, the rate is 11 per cent higher than for those aged 25 and over.

According to international standards, the dividing line between childhood and adulthood is the age of 18. According to this limit and in view of labour regulations, two large groups of young workers can be identified:

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[2] Injury/ accidents are under-registered: workers in small and medium-sized enterprises (SMEs) and those in the informal and rural economies are not represented in the figures cited.

- Young workers whose age is above the minimum age for admission to employment, but under the age of 18. **These young people between the ages of 15 and 17** fall into the category of "children". The type of work they do and the circumstances in which they work are protected by restrictions on hazardous child labour. These restrictions -- often codified in nationally developed 'hazardous work lists' -- take into account children's rapid growth, stage of development, lack of experience and greater vulnerability to exploitation.

- **Young workers between the ages of 18 and 24** are considered adults and are covered by occupational safety and health legislation. Despite their lack of job experience, their continuing mental and physical development, and their vulnerability to workplace hazards, they no longer enjoy the protection of hazardous child labour restrictions. Consequently, they may be employed in almost any job without the benefit of restrictions regarding tasks and hours that apply to younger workers.[3]

Under 18
Protected by restrictions regarding type of work, tasks, hours, exposure to hazards.
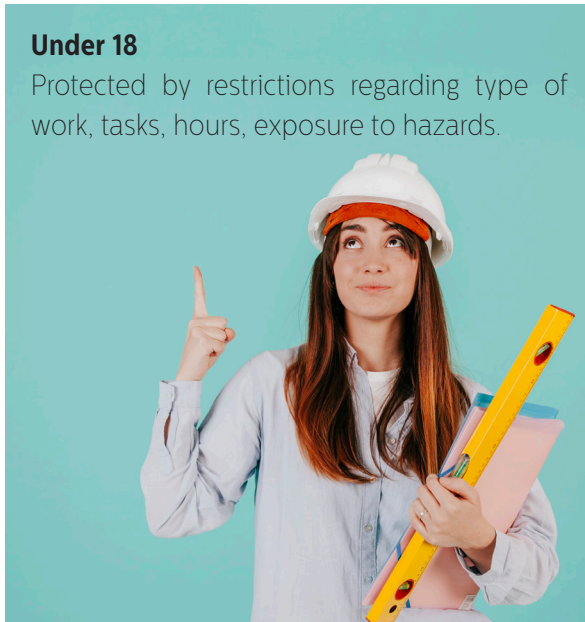
Aged between 18 and 24
Not protected by specific restrictions.
Limited or no work experience, developing mentally and physically, proven vulnerability to workplace hazards.

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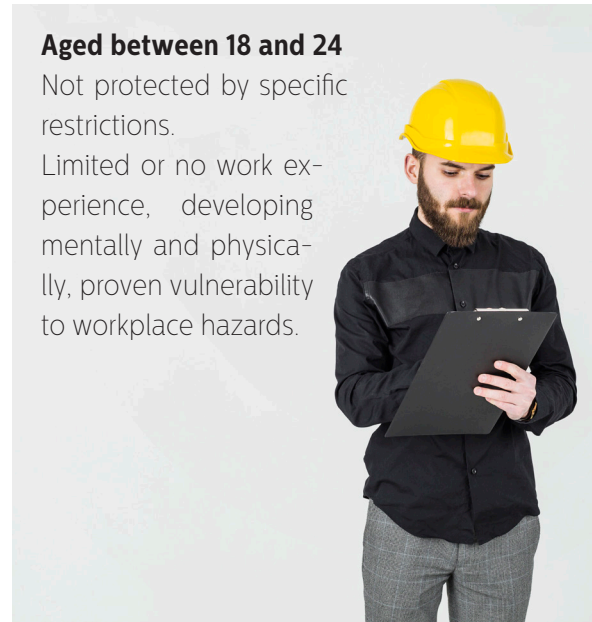
[3] An important distinction between the two groups is that under ILO Convention 182, Art. 7, Member States are obligated as a priority to take steps to prevent the engagement of children in the worst forms of child labour (including hazardous work), and provide direct assistance for the removal of children from the worst forms of child labour.

2.3. Risk factors that are specific to young workers

Various risk factors increase the likelihood that young people will suffer harm from workplace hazards. These risk factors can be inherent to their age (for example, stage of physical, psychosocial and emotional development) or influenced by their age (for example, relative lack of skills, minimal experience, and lower levels of education).[4]
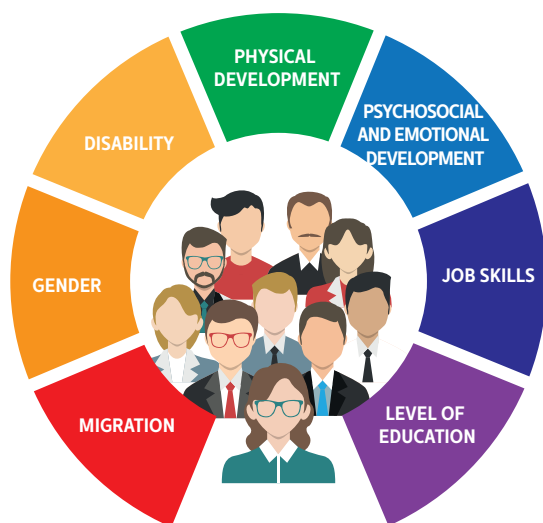
- **Stage of physical development:** Young workers, and especially adolescents, are at higher risk of suffering occupational injuries and diseases because their bodies (including their brains)[5] are still developing. Their reproductive systems and brain functions are particularly susceptible to hazards that interfere with the organs involved. Moreover, where adolescents are concerned, higher respiratory rates and higher metabolic rates per unit of body weight cause their bodies to absorb more toxins and to experience more extreme reactions to the effects

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[4] Sub-chapter based on ILO (2018). Improving the Safety and Health of Young Workers. Geneva.

[5] The frontal lobes are among the last areas of the brain to mature and they may not be fully developed until the mid twenties. The prefrontal cortex, which is situated in the frontal lobes, coordinates higher-order cognitive processes and executive functions (skills needed for goal-directed behavior, including planning, response inhibition, working memory and attention) (Johnson et al., 2009).

of these toxins. Special attention must be paid to young workers' – especially adolescents – exposure to pesticides, neurotoxins, endocrine disruptors, allergens, or carcinogens. Lastly, workstations, tools, machinery and equipment are usually designed for adults and can impose higher demands on young or adolescent bodies (IPEC, 2011).

- **Stage of psychosocial and emotional development:** Young workers tend to be less able to discern the consequences of their actions and to assess risks associated with various situations, and are more susceptible to social and motivational pressures, including the desire to belong, to be considered attractive, and to achieve independence. These traits affect young people's decision-making skills and can result in risk taking. They can also make young workers reluctant to speak up about difficulties regarding their work or about hazardous physical and psychological conditions.

- **Job skills and work experience:** Young workers often lack the skills and experience that they need for the work to which they are assigned, including an understanding of the safety and health hazards and risks associated with this work. A worker's risk of injury is four times greater during the first month in a new job than it is after just 12 months on the job, and a young worker's risk of harm in their first months in a job is higher than that of older

workers (Smith & Breslin, 2013).

- **Level of education:** Higher levels of education and training, and the experience of having worked while studying tend to make the transition to the labour market easier. Young people with lower levels of education are more often exposed to informal employment (ILO, 2017). In this same line, workers with basic levels of education have fewer opportunities for mobility and tend to remain in the same job despite difficult working conditions (EU–OSHA et al., 2017). Awareness of workplace safety also appears to be positively influenced by education. Workers with higher levels of education have a better understanding of safety, are most compliant with safety procedures and suffer fewer occupational accidents than workers with less education (Gyekye & Salminen, 2009).

- **Gender:** Labour segmentation on account of gender also affects OSH. Young boys appear more likely to be engaged in hazardous work and to suffer more occupational injuries than young girls, but relevant figures may be biased because young girls are more likely to be working in informal employment, often unpaid family work, and this makes them "invisible" and, consequently, less likely to feature in official statistics (ILO, 2016).

- **Disability:** Young people with disabilities tend to be at higher risk for exclusion, isolation, bullying and abuse, and they also tend

to have fewer educational and economic opportunities (UNICEF, 2013).

● Migrants: Migrant workers have occupational accident rates that are among the highest experienced by any group of workers. People under 30 years of age represent about 70 per cent of international migration flows worldwide (ILO, 2004). Language barriers can increase the risk that migrant workers will suffer occupational accidents and diseases (they may have difficulty understanding and complying with workplace safety and health rules and procedures, or they may misunderstand warnings and information on the labels of chemical containers). Cultural attitudes and behaviours of migrant workers, their employment status (most migrant workers are in precarious and seasonal work) and their need to prioritize income over all other considerations may prevent migrant workers from raising safety and health concerns (EU-OSHA, 2013).

2.4. OSH in vocational training

All the actors involved in training and work agree that it is a priority to ensure through appropriate training – including through TVET – that young people acquire the necessary knowledge, skills and risk identification and prevention behaviours to work safely.

The inclusion of OSH training into vocational training programmes is commonplace. However, most programmes use a generic approach that focuses on the transmission of conceptual and informative content rather than a practical approach that allows students to develop prevention practices alongside functional job-related skills. Occupational safety and health issues are usually taught in a subject, in a training module or concentrated in a given number of training hours at the beginning or in parallel with training processes geared towards the development of vocational skills, without a clear connection with the problems that participants face in learning situations and in work practice.

*For participants in training processes, in particular young people, to effectively adopt **safe and healthy work behaviours**, they must understand and value their importance, associate them and apply them in the different processes and moments of their work practice, know their rights and duties in this field and, most of all, identify and act to prevent the specific risks to which they are exposed by developing OSH skills. It is essential that they see OSH not as a boring set of rules, but as relevant knowledge in the profession.*

2.5. OSH and the future of work[6]

Training should take into account not only the OSH needs and requirements of the current productive sector, but also the new challenges ahead in the work of the future. Thinking about OSH in a forward-looking way involves considering the impact of new technologies and ways of working on workers and the environment. Issues such as time management, work-life balance, a sedentary lifestyle, lack of socialization and peer contact, and job instability are some of the problems that must be analysed and considered in training proposals, in the light of sector specific realities.

We call for a Universal Labour Guarantee including fundamental workers' rights, an 'adequate living wage', and limits on hours of work and ensuring safe and healthy workplaces." (Global Commission on the Future of Work, 2019)

OSH in the workplace is one of the priorities called for by the ILO, through the Global Commission on the Future of Work, noting the importance of guaranteeing the fundamental rights of workers in the face of a world of work in permanent transformation: an adequate living wage, limits on working hours and **safety and health** in the workplace. The document states the following:

· As the organization of work changes, new ways must be found to afford adequate protection to all workers, whether they are in full-time employment, executing micro tasks online, engaged in home-based production for global supply chains or working on a temporary contract.

[6] Based on Working for a brighter future, Global Commission on the Future of Work. International Labour Organization, Geneva, 2019.

- The international community has long recognized health as a human right[7]. But in a world where almost 3 million workers continue to die every year as a result of occupational accidents and work-related diseases, **it is time for safety and health at work to be recognized as a fundamental principle and right at work**. The different elements of the Universal Labour Guarantee are interconnected and mutually reinforcing. Limits on excessive working hours will reduce occupational accidents and associated psychosocial risks. An "adequate living wage" will help fight child and forced labour that stem from working poverty and low wages.

- Workers need greater time sovereignty. The capacity to exercise greater choice and control over their working hours will improve their health and well being, as well as individual and firm performance. Governments, employers and workers need to invest effort in crafting working time arrangements that give workers choice over scheduling, subject to the company's needs for greater flexibility.

> *"We call for measures that create working time autonomy that meets the needs of both workers and enterprises." ILO, 2019.*

- The discussion about technology in the future of work has tended to focus on the issues of job creation and destruction and the need for reskilling. The human centred agenda requires equal attention to the broader role of technology in advancing decent work. Technology can free workers from arduous labour, from dirt, drudgery, danger and deprivation. Collaborative robots, or "cobots", can reduce work related stress and potential occupational accidents. However, technology driven processes can also render labour superfluous, ultimately alienating workers and stunting their development. Automation can reduce worker control and autonomy, as well as the richness of work content, resulting in a potential deskilling and decline in worker satisfaction. Realizing the potential of technology in the future of work depends on fundamental choices about work design, including reliance on detailed "job crafting" discussions between workers and management.

> *"We call for the use of technology in support of decent work and a 'human in command'*

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[7] The 1948 Universal Declaration of Human Rights recognizes the right to a standard of living adequate for health and well being (Art. 25). The 1966 International Covenant on Economic, Social and Cultural Rights (Art. 7(b)) recognizes the right to safe and healthy working conditions. This right applies to both mental and physical health.

2.6. How do young people learn?

Young people undergo several stages of significant emotional, psychological and physical changes, which are critical to the acquisition and development of skills for life and work, including caring for oneself, others and of the environment.

In order to design relevant training proposals, i.e., that cater for their needs, it is essential to ask ourselves what interests young people, how they learn and how they position themselves regarding the potential risks they may be exposed to in their work.

One of the issues to consider, and which has been extensively analysed in recent times, is the relationship of adolescents and young people with danger situations and the risks they may be exposed to.

In general terms, young people have been said to "dismiss dangerous situations" while seeking new sensations that may increase their exposure to risk. Neurosciences explain that the last region of the brain to reach maturity is the area of the prefrontal cortex, responsible for decision making, impulse control, moral judgment, among other functions[8]. Along these lines, Dr. Silvia Bunge (University of Berkeley) identifies three aspects that can affect their behaviour: changes in the brain, the role of hormones and the influence of context and peers.

Risk behaviours in adolescents and young people can be linked to the search for autonomy, responses to uncertainty, defiance of authority and rules, reaffirmation and belonging to the

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[8] Lecture by Dr. Ignacio Acuña, National University of Córdoba. Available at: https://psico.edu.uy/noticias/toma-de-decisiones-en-adolescentes-desde-las-neurociencias-cognitivas-conferencia-del-dr (Accessed in March 2019)

"group", the need to test the attention and affection of others, among other things. In any case, it is essential for the facilitators of the training processes to take on the challenge of working with a young audience to develop safe behaviours, to learn to care for themselves, others and the environment.

Experience shows that young people can be very open to integrating new OSH behaviours, provided that the environment (training and work) promotes these behaviours through strategies that arouse their interest, move them and gives them sense and meaning.

For real attitudinal change to take place and for new forms of action to be integrated, young people must first understand the importance of care, not only intellectually but also experientially. Following Edgar Morin, human understanding is a process that involves going beyond information handling, as it refers to identifying with others and empathy.

> *"Human understanding is beyond explanation. Explanation is adequate for objective or intellectual comprehension of anonymous or material things. It is inadequate for human understanding.*
> *Human understanding implies subject to subject knowledge. If I see a child crying, I am not going to understand his tears by measuring their salt content but by finding my own childish distress deep inside, by identifying him with me and me with him.*
> *We do not only perceive others objectively, we perceive them as other subjects with whom we identify and whom we identify with ourselves, an ego alter that becomes an alter ego.*
> *Understanding necessarily includes a process of empathy, identification, and projection. Understanding, always intersubjective, demands an open heart, sympathy, generosity."*
>
> *Morin, E.*[9]
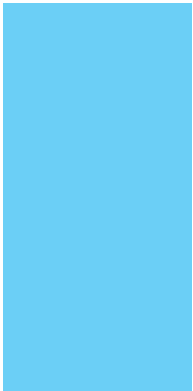
[9] Morin Edgar, Seven complex lessons in education for the future. Available at:
https://unesdoc.unesco.org/ark:/48223/pf0000117740 (Accessed in November 2018)

03

What does it mean to mainstream OSH into training?

3.1. What is mainstreaming in training?

The term cross-cutting, or *mainstreaming*, refers to something that passes through or traverses an object from one side to the other.

As for curricula, mainstreaming is a strategy whereby certain drivers, topics and/or skills that are considered key or priority are present throughout the programme, permeating all the specific subjects, modules and/or projects.

> *Mainstreaming "... basically refers to a new way of structuring the curriculum from a holistic or total perspective, contributing to overcoming the fragmentation of the areas of knowledge (independent subjects)." (2011, Magendzo)[10]*

Mainstreaming takes up and operationalizes some of the ideas in contemporary pedagogy, mainly regarding:

- focusing training processes on the people that learn, considering them integral beings, instead of focusing the design on the contents and spaces for each subject,

In recent decades, the inclusion of cross cutting drivers in education in general and in initial and lifelong vocational training in particular has been a challenge for designers and teachers.

- facilitating learning processes, emphasising their contextualization, significance and transfer to the world of work and society as a whole,

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[10] Abraham Magendzo K., (2011). Una propuesta de un currículum en competencias genéricas e indicadores de logro para la formación de un sujeto de derechos: Desarrollo y complejidades, Chile, 2011

- promoting skills development as skills for acting and interpreting uncertain professional situations in a changing environment, skills that involve bringing into play a complex mix of different types of knowledge,

- coordinating the curriculum and training processes with life itself, integrating the concerns and interests of young people and different interest groups (employers, workers, families, the community).

The development of transversal skills[11] for OSH, citizenship, gender equity, entrepreneurship, quality and environmental sustainability, among others, pose the need to design learning processes from a holistic and inclusive, participant centred and transdisciplinary approach.

> *Transdisciplinarity is a way to organize knowledge that goes beyond all disciplines in a radical way. Transdisciplinarity has been understood by emphasizing (a) what is between disciplines, (b) what goes across all of them, and (c) what is beyond them. Transdisciplinarity does not renounce or reject disciplines; only misrepresentations do. Basarab Nicolescu has explained that discipline, Interdisciplinarity, Pluridisciplinarity and Transdisciplinarity are all like arrows of the same bow: the bow of Human knowledge.*
> *Transdisciplinarity aspires to relational, complex knowledge that will never be complete, but which aims to achieve ongoing dialogue and revision.[12]*

[11] Transversal skills are those typically considered as not specifically related to a particular job, task, academic discipline or area of knowledge but as skills that can be used in a wide variety of situations and work settings. Source: UNESCO IBE 2013, Global.
[12] Available at: http://edgarmorinmultiversidad.org/index.php/que-es-transdisciplinariedad.html (Accessed in November 2018)

3.2. What does it mean to mainstream OSH in training?

Mainstreaming OSH into training means considering that, in order for young people to develop the skills of caring for themselves and others, it is necessary to **integrate this perspective in all learning situations** as well as in the different **stages and products that** guide the training design and implementation processes. This involves considering the risks and their incidence, as well as safe and healthy work practices in relation to **all work processes and each** and **every one of the specific technical skills** included in the occupational profile to be developed by the programme as a whole.

This implies considering OSH in:

- **occupational profiles**, as these are the reference of curriculum design (so that the required OSH skills are clearly described),

- the **curriculum**, linking OSH skills to each stage of the work process, to each module and teaching unit,

- the **teaching strategy** and **the formative and summative assessment of learning**, so that the practices and knowledge linked to safe and healthy work are considered and assessed at the same level as the learning of technical skills,

- specific **training and support materials** on the subject and including this dimension in all support materials,

- **teaching practice**, to ensure that facilitators pay ongoing attention to the subject, both from reflection and content and from performance during learning processes,

- the **learning environments**, which should be an example, offering the best conditions from an OSH perspective,

- **apprenticeships or professional practices**, as opportunities to learn good practices in this field,

- **the role of the teaching staff and the coordinator**, through their practices of care and promotion of OSH, for which they must have solid training in the subject and, at the same time, work in coordination to implement an inclusive approach.
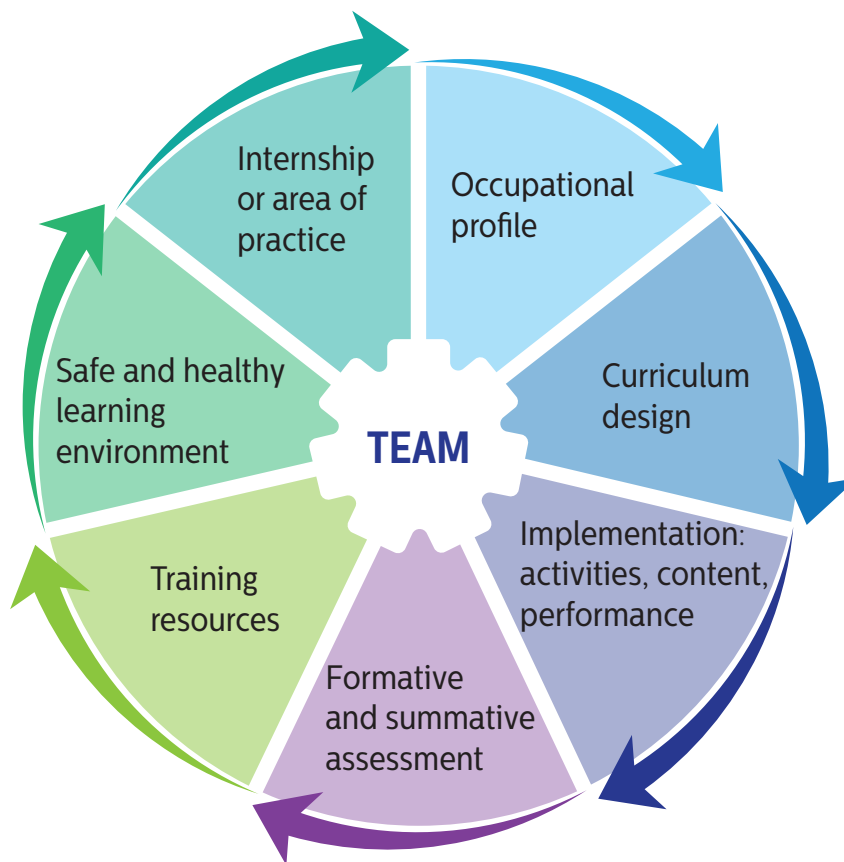
Mainstreaming OSH into the curriculum, that is, an integrative and transdisciplinary approach, does not imply eliminating specific spaces devoted to the topic. On the contrary, **occupational safety and health** modules or subjects must not only be maintained but also strengthened, as they make it possible to raise awareness, present and clarify conceptual aspects. However, when mainstreaming OSH, training should not only be addressed from this perspective.

Mainstreaming OSH involves collaborative work, permanent coordination among trainers, with the support of institutional managers and a joint project approach to be developed from the spaces that are part of the training proposal. The role of the teaching staff is key, since all this will be possible as long as there is a team of committed trainers to lead it.

3.3. Mainstreaming OSH into curriculum design

The curriculum design process for a training programme begins with the identification of the skills required for the occupational profile(s) the training proposal addresses.

Occupational profile and graduation profile: The occupational profile, identified from the reality of the world of work, usually in consultation with social partners (employers and workers and their organizations), includes skills that are key to exercising the targeted profession. Experience shows, however, that actors in the world of work do not always mention OSH skills or environmental care skills spontaneously among the required skills.

OSH skills must be explicitly included in the occupational profile, not only as an implementation condition but as a capacity to be developed. In this way, OSH skills will be considered and duly hierarchized in the graduation profile and, consequently, addressed in the curriculum and evaluated.

The mastery of technical skills is not sufficient to build these capacities, mainly in a young audience that in some cases will have to lead teams of adult workers, with years of experience in the sector and deep rooted practices.

For a technical expert to be a leader, promoter and multiplier of good OSH practices, it is essential to address OSH skills jointly with another set of key transversal skills: assertive communication skills, people management, teamwork, leadership.

At the level of curriculum design as a whole: It is essential to mainstream OSH objectives and content in the design of the training programme. This mainstreaming is pursued in two directions: along (from start to finish) and across the programme (through the different subjects or modules, with

joint or coordinated projects and initiatives).

Horizontal mainstreaming or between areas, subjects and/or training environments. Mainstreaming challenges the fragmented and subject based approach, as it focuses on addressing learning processes in a coordinated manner, focusing students' skills development versus each teacher developing content.

This implies working together, in a coordinated manner, so as to articulate the concepts addressed by the Safety specialist with the knowledge imparted by teachers in technical subjects.

Articulation entails the necessary contextualization of concepts regarding the work practices that are essential to understand them and for them to make sense.
Horizontal mainstreaming also implies, as far as possible, having shared work sessions (where the specialist participates jointly with other teachers), providing ongoing feedback to participants.

Longitudinal mainstreaming (along each educational environment and the programme as a whole).
OSH is addressed throughout the programme, from beginning to end, from a space specifically devoted to the topic, as well as in all the subjects, as work processes are focused, working on the associated risks.

EXAMPLE OF LONGITUDINAL AND HORIZONTAL MAINSTREAMING

First Semester
Subject 1, Subject 2, Subject 3,
Subject 4, Subject 5, Subject 6,

Horizontal

Second Semester
Subject 1, Subject 2, Subject 3,
Subject 4, Subject 5, OSH

Horizontal

Longitudinal

Third Semester
Subject 1, Subject 2, Subject 3,
Subject 4, Subject 5, Subject 6

Horizontal

Fourth Semester
Subject 1, Subject 2, Subject 3,
Subject 4, Subject 5, Subject 6

Horizontal

3.4. OSH mainstreaming in practice

At methodology level: Learning processes are individual and group experiences, built on previous knowledge and the ability to relate new information to experience, the willingness to learn, and the young person's perception of the value of what they learn and the interest they have in their work and life.

In this scenario, training responds to the objectives to be defined, based on OSH skills and also to the needs, emotions, perceptions and interests of young people in order to achieve meaningful learning opportunities that translate into safe and healthy work behaviours.

For young participants to be interested in learning and developing their OSH skills, we should apply active methods that are also attractive, experiential and meaningful. For example, instead of theoretical classes, implementing practical exercises, making use of technology, conducting drills, learning visits, testimonials and internships, evaluating OSH knowledge.

As mentioned above, it is key to make the participants themselves responsible for their own care and that of the team (peers) in OSH matters, and to train them in risk detection and the integration of safe and healthy work practices.

For example, activities can be implemented in groups aimed at identifying risks and developing proposals for improvement in real context, such as:

· going on tours, examining the conditions of the workplace in order to verify that they comply with the relevant regulations, documenting practices and making proposals,

- during performance, conducting a peer review and giving feedback to peers,
- preparing a brief talk or presentation on risks before starting work on a particular process,[13]
- designing and making posters to illustrate risks or exemplify incorrect vs. good practices,
- playing (and recording with photos or videos) role-playing games simulating accidents and appropriate interventions (e.g. falls, fires, etc.),
- making videos or presentations to explain and train work teams (peers) on the use of equipment or safe practices, among others.

In everyday teaching practice: Reviewing OSH concepts routinely at the start of each practical activity, or implementing safety checklists, sends a powerful message regarding its importance in everyday practices.

The training process must include rest periods and students should identify their importance and how to use them properly in the workplace[14]. It is recommended that trainers explain that rest periods should be used to relax tired muscles and make certain movements, to walk when the workspace limits the change of position, etc. It is also key for young people to know that they must report ailments, discomforts and emerging problems during work, so that working conditions can be improved and corrected. In this sense, teachers will seek to encourage reflection on how the organization of work, and certain forms of recruitment that lead to increasing the pace, sacrificing rest and working long hours, affect OSH.

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[13] See SENATI's example of distraction in the materials repository.
[14] There is literature on how to properly use daily rest breaks at work. Available at: https://socialtriggers.com/why-you-need-to-take-more-breaks-and-how-to-do-it/ as it's more than just checking your social media feeds on your mobile phone. (Accessed in November 2018)

There follow general suggestions for workshops or subjects focused on technical skills development:

- **Before starting each of the work processes**, present/activate previous information on risk factors, preventive measures and current regulations. Warn about common errors

- **During each work process**, observe participants' performances and provide feedback individually and collectively, carry out specific activities aimed at raising awareness and holding participants accountable for OSH skills.

- **At the end of each process**, encourage reflection on the measures implemented and any possible OSH oversights and/or errors. Encourage self-assessment in the field (what went right to prevent risks and avoid accidents, what could be improved, individually and collectively).

At the beginning of each work process:
Present/activate previous information on risk factors, preventive measures and current regulations.

During the activity:
Observe and provide feedback individually and collectively, carry out specific activities to help develop OSH skills.

At the end of each process:
Reflect together on successes and errors.
Encourage self-assessment and assess.

Resources and training materials: Finally, **attractive and relevant training and support materials** must accompany and facilitate skills development. Digital technologies should be used, with demonstration and interactive software, videos, games, etc.[15]

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[15] Both the teachers and the students consulted have emphasized that they are attracted to texts that have illustrations, photographs or images.

"When we talk about materials as aids for educators, let's think of a very large set of symbolic productions (if you prefer, messages) built using different codes, including words, images and sounds. They take shape in different ways: in books, articles, folders, leaflets, and many types of printed texts; in a variety of illustrations and graphic designs; in audio and video; in exhibitions, games, and dramatic performances; in research guides and project plans, etc. Beyond their physical diversity, they have a common purpose – educational intent – which allows us to refer to them by distinguishing them qualitatively from others, for example, propaganda intent, commercial intent, or mere entertainment."[16]

To advance in this regard, this guide includes a repository of materials so teachers have training materials (literature, videos, etc.) on OSH (to be expanded by advisors and teachers).

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[16] Producción y uso de materiales didácticos para la educación en derechos humanos en Iberoamérica, author and date unknown. Available at: http://www.derechoshumanos.unlp.edu.ar/assets/files/documentos/produccion-y-uso-de-materiales-didacticos-para-la-educacion-en-derechos-humanos-en-iberoamerica.pdf. (Accessed in November 2018)

04

Everyone's participation and commitment

4.1. Involvement and participation of VT actors

Mainstreaming OSH into vocational training is not an end in itself, but a **means of facilitating and consolidating the development of OSH skills by the participating youth**.

It is a strategy to ensure that safe and healthy work becomes a key objective and dimension in the design, implementation and evaluation of training programmes and practices and thus clearly contribute to building new generations of safe and healthy workers.

Like any training strategy, however, it cannot guarantee the results it sets out to achieve on its own. For this strategy to become operational, the different actors involved in vocational training (public policy makers responsible for training policies, training institutions, teams of trainers, tutors in companies, students) must be committed to the approach.

Effective changes in youth care behaviours require paying attention not only to the apparent or explicit curriculum but also to the hidden curriculum, institutional culture and coordination with the productive sector and the community.

4.2. The teaching staff

Training centres must take occupational risk prevention as a major part of comprehensive student training and for this to be possible, teachers need to have the necessary awareness and be adequately trained on the subject.

In a similar vein, both inspectors and school directors must also be committed to the topic, including mainstreaming OSH into their practices and into the criteria used to assess teacher performance.

As mentioned above, mainstreaming requires trainers to work as a team to address OSH issues together, from different perspectives, in a coordinated and articulated manner.

This implies providing spaces and times for teachers to coordinate their work, as well as promoting a culture of collaborative work, focused on the needs of participants and not on the logics of each subject or specialty. Faced with the need for regular coordination, it is often argued that teachers do not have paid hours for this, but in fact there are coordination hours that are often used to harmonize operational aspects, and it would be important for them to focus on this type of collaborative work.

Working as a team involves considering the need to view learners from a holistic perspective, paying attention to what happens to them. In learning processes, especially regarding OSH, emotional state strongly influences the lack of attention to potential risks. It is essential to timely detect anything that may be interfering with concentration and care practices in students, which requires a holistic approach.

It is advisable – although not always possible – to have more than one teacher in practical training sessions per class in order to ensure each student is permanently aided and monitored. If there are two teachers, one can specifically pay attention to OSH aspects (anticipating risks and hazards, monitoring compliance with health and safety standards and measures, warning and teaching students, based on successes and errors). If this is not possible, it is essential to have a teacher specialized in safety in some of the practical and assessment sessions so they can observe and provide feedback, complementing the session with their OSH perspective.

4.3. Learning in a safe and healthy environment

Mainstreaming OSH issues implies that this approach must be integrated into the organizational life of educational institutions, so that students and educators work together to make the Training Centre a safe and healthy place to work and learn, through:

- **institutional management of OSH**, for example, by making young learners play a leading role in risk prevention and hazard detection,

- the **development of centre projects/ institutional initiatives for responsible and systematic OSH management**, for example, by running OSH improvement marathons, developing institutional action protocols for accident response, risk maps, etc. These projects are valuable not only in terms of their practical results regarding OSH, but they also provide an opportunity to work on a set of transversal skills (teamwork, leadership, innovation and creativity, communication,

etc.),[17]

- articulation with other cross-cutting drivers, in particular **environmental concerns and management**, for example, on the responsible use of materials, recycling and reuse, and waste management,

- the **promotion of OSH in the sphere of influence of the educational centre** (families, the community, companies, other learning institutions), for example, through information and/or awareness campaigns, dissemination materials, fairs, meetings, presentations by specialists, etc.

[17] Perrenoud (2007). Diez nuevas competencias para enseñar, invitación al viaje. Biblioteca de Aula, 96. España.

SUSTAINABLE DEVELOPMENT GOALS

4 QUALITY EDUCATION

Target 4.a
Build and upgrade education facilities that are child, disability and gender sensitive and provide safe, non-violent, inclusive and effective learning environments for all

Along this line, the "whole school approach" (WhSA) developed by ENETOSH, the European Network on Education and Training in Occupational Safety and Health, is very interesting.

The whole-school approach can be considered as the 'Gold standard' of mainstreaming OSH into education. Such holistic approaches include the different fields of actions of which mainstreaming actions can consist of: integrating OSH into school curricula; training of students, teachers and school management representatives; introducing risk management at school level; and active participation of the students in risk management." [18]

It is a holistic approach adopted by the educational centre that includes and combines a set of measures and strategies for OSH mainstreaming. It proposes a change in the methodology that seeks to "activate" the different actors and stakeholders in the development of good practices and experiences of OSH promotion and management that articulate the school and the environment.

Young people do not "learn" but are **protagonists of OSH management experiences**, in ongoing coordination with other internal and external actors. Hence, according to the experiences, students feel more motivated and, at the same time, contribute new ideas, develop skills to seek creative solutions to the challenges and problems that reality poses and take responsibilities in the field of OSH.[19]

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[18] Carsten Brück, Kooperationsstelle Hamburg IFE GmbH, Germany
[19] For more information, please see https://oshwiki.eu/wiki/A_whole-school_approach_to_OSH_education

By combining and further developing the different fields of action of mainstreaming OSH into education, the whole-school approach can be characterised by a set of innovative features:

- *School management profits from new ideas which are brought in by students and teachers. Management representatives receive more support for safety and health management and health promotion.*

- *OSH responsibilities can be used as a means of supporting and promoting risk education at the same time.*

- *Pupils/students also benefit from participating in the management as they develop skills in risk assessment, safety management and health awareness which are usually not covered in the curriculum.*

- *Also teachers become active and participate in OSH management processes. They can also be trained as auditors and get the opportunity of gaining new knowledge in safety and health as well as in the use of new teaching methods.*

- *All stakeholders at school profit from better health and safety awareness and prevention.*

- *Employers profit from the broadened skills of the pupils/students and a more positive approach towards the safety and health of the future employees.[20]*

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[20] Carsten Brück, Kooperationsstelle Hamburg IFE GmbH, Germany.

4.4. In companies

In TVET training programmes that include apprenticeships, practices, internships, alternation modalities or dual training, the training institution must ensure that the company complies with OSH regulations, while trainers must be properly trained in occupational risk prevention and prepared to carry out adequate supervision, observing, assessing and evaluating the safety of young people's practices. To do this, it is necessary to work in advance with company managers and trainers to ensure that they meet their responsibilities in the prevention of occupational risks affecting their apprentices.

As an example, this is part of the checklist recommended in "Herramientas para el aprendizaje de calidad" (Quality Apprenticeship Tools) to verify OSH compliance with international labour standards.

Occupational Safety and Health at work (OSH)	Apprentices have a right to OSH protection and the application of OSH standards.
	Provisions regarding: limitation of night work, protection of hazardous tasks, work with dangerous machinery, manual handling of heavy loads, work in high latitudes, work for excessive periods and other issues related to OSH.
	Young people (16 to 18) who work in mines must receive adequate training, particularly through quality apprenticeship (underground and on surface) under the corresponding measures to prevent labour risks.
	Only paint-related tasks (with lead white) shall be assigned to apprentices after consultation with workers representatives.

4.5. Young people: how can we involve them?

Finally, the most important challenge is to engage young people, make them interested, and also committed to being active in the development of their OSH skills, as well as to contribute creatively to achieving healthy, safe and sustainable educational, work and community environments.

This involves developing individual and collective learning strategies and projects so that students take ownership of OSH prevention culture, and:

- value OSH and self care, caring for others and the environment, as essential in their professional development,

- pay ongoing attention to OSH risk factors and are trained to observe the environment, and to identify and assess them,

- play an active and leading role in prevention, encouraging them to take responsibility and to be creative, both in curricular environments and at the centre, family environment and community,

- promote OSH among their peers and in their respective environments.
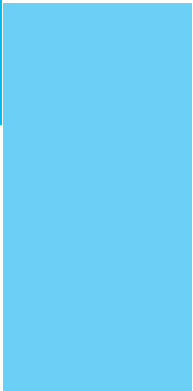
"As the empowerment and the activation of the students and the young workers are core ideas of mainstreaming OSH into education, communication between management, teachers and students should be part of every mainstreaming/integration project. Students should not passively learn about safety and health, they should be motivated to live it and to actively bring in their ideas and perceptions." [21]

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[21] Mainstreaming OSH into education. OSHwiki. Available at: https://oshwiki.eu/wiki/Mainstreaming_OSH_into_education#The_model_of_ mainstreaming_OSH_into_education (Accessed in November 2018)

05

What are the necessary skills to work safely and healthily?

5.1. OSH skills young people must develop

The starting point when designing and implementing a strategy focused on the **development of OSH skills** is to determine the skills, performances and knowledge of various kinds that are required to work safely and healthily in the professional role(s) which young graduates will be able to perform at the end of their training. Ultimately, it is a question of identifying which OSH skills education needs to address, as they are the ones required by the occupational profiles targeted by the programme.

Competency Based Training (CBT) seeks to develop a dual relevance approach, that is, capable of catering to both the demands of an ever changing world of work and to the diverse needs of subjects that learn and have heterogeneous characteristics and starting points.

It is a dynamic approach that seeks to address the profound changes that have been taking place and will continue to have an increasing impact on work organization, qualifications and social relations within organizations. Alongside innovations and new learning paradigms, it involves significant changes in the way vocational training is conceived, articulated and organized. Although the approaches, uses and definitions referring to vocational skills are diverse, they all share certain aspects, such as:

- their connection to the demands of performing as a professional in a given context,

- the use or mobilization of a complex combination of internal (knowledge, skills, values, attitudes, emotions) and external resources to solve the professional situations that arise,

- considering people as subjects capable of understanding the implicit meanings of their performance in order to obtain a result with the required quality in a dynamic and ever changing world of work,

- vocational skills are developed in training processes and in professional practice, work and social experience or as Guy Le Boterf[22] proposes, in the apprentice's daily work, when navigating different situations.

The first step in defining effective training (and mainstreaming) strategies for OSH is to identify and formulate the skills young participants need to develop, based on the occupational profile(s) targeted by the Training Programme.

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[22] Perrenoud, P. Op. Cit.

5.2. Transversal skills

The skills required in OSH are transversal, broad spectrum skills that go beyond specific professional roles. They are skills that combine different types of resources: cognitive, procedural, with a strong emphasis on attitudinal aspects.

There is an extensive literature on transversal skills which, in many cases, are assimilated to socioemotional, behavioural, personal, "soft", value skills, among others. That said, the concept of transversal skills refers to the scope, to the fact that these are generic skills required for a large number of occupations and in different contexts. Anyway, in most cases, highly transferable skills are precisely those that refer to workers' attributes and behaviours, which can be generalized to different situations and last over time.

This type of skill are not only the most demanded today in the world of work, but they are also those that present a lower margin of obsolescence in the face of the work of the future.

"The IDB found employers value socioemotional skills — a series of behaviours, attitudes, personal traits and values that include honesty, teamwork, punctuality, and accountability, among others —, over specific and cognitive skills".[23]

"The skills employers value the most — socioemotional and higher-order cognitive skills — are for the most part developed at youth, therefore, it is essential to analyse the changes in training strategies both in secondary school and in vocational training to encourage the development and acquisition of these skills".[24]

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[23] Salazar, J.M.; Vargas, F. (2017). The future of vocational training in Latin America and the Caribbean. Montevideo: ILO/Cinterfor.
[24] Cunningham, Acosta and Muller (2016), cited in Salazar, J.M.; Vargas, F. (2017).

That said, transversal skills are transferable to a variety of situations and contexts, but not in a mechanical way. They entail the "intelligence of situations", that is, the ability to interpret the new situations that the person faces, regulate their action and adapt it according to the objective pursued and the context where this occurs.

In this sense, for a training proposal to focus on developing such skills, they must be translated into tangible, verifiable and manageable behaviours that can be integrated into young people's performance, developed and contextualized. Let us remember that competition as such **is not observable, but can be inferred from performance, from the real and proven ability** to act with the expected quality, reflecting, unlearning routines that are obsolete and influencing your environment.

"From shifts in the organization of work to the new technologies being adopted, change is a constant feature of the world of work. Leveraging the transformations under way to open doors and create opportunities for human development requires that workers have an entitlement to lifelong learning (...). Lifelong learning encompasses formal and informal learning from early childhood and basic education through to adult learning, combining foundational skills, social and cognitive skills (such as learning to learn) and the skills needed for specific jobs, occupations or sectors. Lifelong learning involves more than the skills needed to work; it is also about developing the capabilities needed to participate in a democratic society. It offers a pathway to inclusion in labour markets for youth and the unemployed" (ILO, 2019).[25]

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[25] *Working for a brighter future,* Global Commission on the Future of Work, ILO, 2019.

5.3. Skills and occupational profiles

While transversal OSH skills are essential in all occupational fields, the same level of depth, complexity, autonomy and responsibility is not required for all occupational roles.

For example, if the type of roles for graduates, according to the employment opportunities in the territory, involves leadership and responsibility for work teams in different types of organizations, the OSH skills to be developed must include not only self care behaviours but also actions to control and promote the safe and healthy work of the entire team.

If, on the other hand, the training programme seeks to develop an entrepreneurial culture among young people and prepares them for self-employment, OSH skills will include planning, management and decision-making aspects, as well as relationships with other stakeholders.

Finally, if training focuses on preparing gradua-tes for operator level occupations, OSH skills will have a different emphasis, with a lower level of responsibility and complexity compared to other occupations.

Therefore, depending on the occupational profiles the training programme addresses, designers must identify and select **the OSH skills to be developed** during training and establish the different levels of development, depending on the scope and depth required in terms of action, autonomy and decisions.

To facilitate this selection, an **OSH Skills Framework** has been developed under the project at three levels corresponding to the type of professional roles young VT graduates will play.

61

5.4. OSH Skills Framework for Youth Vocational Training

The OSH skills presented here were developed to provide designers, teachers and managers with a reference framework to define the OSH learning outcomes young people are to have achieved by the end of their training.

We worked around four OSH dimensions considered critical in the work processes: identification of risk factors and preventive measures, enforcement, OSH promotion and timely intervention.

A key skill was defined for each dimension, according to the type of occupational role in question: operator, team management and entrepreneur.

Each skill has a series of associated performances to assess the extent to which the young person has developed the relevant skill.

As stated above, this is a **reference framework** that seeks to facilitate the work of curriculum designers and teachers, and which in each case must be contextualized and adapted according to the characteristics of the sector or specialty targeted by the training programme.
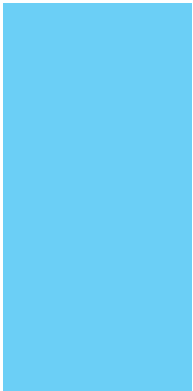
OSH Skills Framework for Youth Vocational Training						
Areas	**Young graduate – operator occupations**		**Young graduate – "middle management" occupations**		**Young entrepreneur**	
Risk factors	**Identify risk factors in processes and workspaces**	• Identifies health and safety risks for each work process. • Identifies the possible consequences of an accident based on risk. • Identifies the worker's rights and duties in the field of OSH.	**Manage OSH risks in your work team**	• Identifies hazards and assesses risks for team members. • Implements the necessary preventive, corrective and improvement measures • Communicates to the team information on hazards, risks, control and prevention of accidents and occupational diseases.	**Identify and prevent risks to OSH in your venture**	• Identifies hazards and assesses risks for the enterprise. • Takes measures to prevent risks to OSH itself, and to collaborators and customers in the processes and workspaces.
Regulations	**Comply with OSH regulations and preventive measures**	• Uses tools, equipment, clothing and machines safely. • Uses required protective equipment. • Complies with established safety and health regulations and procedures • Maintains the workspace in hygienic and safe conditions.	**Ensure compliance with preventive measures and OSH regulations by team members**	• Monitors compliance with preventive measures and OSH regulations by team members. • Ensures compliance with preventive measures and OSH regulations by the company.	**Comply with OSH regulations and preventive measures in their venture**	• Complies with established safety and health regulations and procedures. • Maintains the facilities/workspaces in hygienic and safe conditions. • Monitors that subcontractors/ suppliers and inputs comply with OSH requirements and regulations.
Promotion	**Contribute to the promotion of safe and healthy work in the organization**	• Promotes OSH among peers. • Makes proposals for improvement to their manager or organization where they work.	**Promote safe and healthy work among team members**	• Trains workers on OSH. • Promotes the improvement of OSH organizational practices.	**Promote safe and healthy work in the facilities**	• Communicates the OSH management policy to all stakeholders. • Trains workers on OSH (if applicable). • Improves the company's OSH practices.
Intervention	**Timely intervenes in risk or accident situations for themselves and others within their role**	• Handles information to act in the event of an accident (locates the first aid kit, provides first aid and states steps to follow before the competent bodies). • Warns/ Corrects own or someone else's actions to prevent an accident. • Acts promptly and correctly in the event of an accident, according to protocols.	**Ensure timely team interventions in risk or accident situations**	• Provides information to the team so they can respond to accidents. • Watches out for team members, intervening in a timely manner to prevent an accident. • Acts promptly and responsibly in the event of an accident, according to protocols.	**Acts timely in risk or accident situations**	• Defines and acts upon emergency and accident protocols/procedures. • Makes timely and responsible decisions when faced with emergencies, risk situations or accidents in the company.

06

How to
mainstream
OSH into training?

6.1. Methodological sequence for mainstreaming OSH into existing training programmes

So far we have looked at how to mainstream OSH into the design and implementation of a vocational training programme. However, in many cases institutions or teachers have a previous curriculum design, or a curriculum or programme framework which does not include OSH skills development as a cross-cutting theme.

In those cases, the challenge is to consider which revisions can be made to the programme, the teaching plan and/or the practices in the training centre that will allow us to move forward with mainstreaming OSH and carrying out coordinated and effective actions in relation to OSH learning.

We propose the following methodological sequence for incorporating OSH across the design, planning and implementation of training processes:

Selection of skills to be developed

Analysis of the relevance of the programme. Consultation with various sources. Demand and foresight of qualifications and occupational profiles.

Analysis of work processes

Risks.
Common errors
Preventive measures and good practices
Regulations

Revision of the design Plan

Revision of objectives. Learning activities according to risk. Evaluations.

Support materials

Repertoire. Guidelines for the development of new teaching materials.

Mainstreaming OSH into the programme

1. Stage 1: Selection of the OSH skills to be included in the programme

We will look at each of these components in detail, beginning with the **selection of the OSH skills to be developed**. How should the skills be selected according to the occupational profile to which the programme is geared?

The key questions that should be answered by this process of analysis and consultation with stakeholders from the world of work are:

- Are the occupational profiles for which the programme aims to train young people clearly formulated? Are the skills to be achieved identified? Do they include OSH skills? Which ones?

- According to the profile for which it is intended, does the programme meet current and/or future needs for qualified workers? Within the territory? At the national or regional level? What are the trends?

- Is the profile for an operational or middle-management (in charge of a team) level, or is it geared toward the creation of an enterprise (entrepreneur)?

Depending on the conclusions reached by the work team (trainers, persons in charge, designers, as the case may be), it may be necessary to make adjustments to the profile and incorporate the OSH skills from the skills framework proposed in this Guide. Skills will be selected according to the corresponding occupational level. For example:

	Operational level	Middle management	Entrepreneur
Risk factors	Identify risk factors in work processes and spaces	Manage risks to OSH in the work team they are in charge of	Manage risks to OSH in their enterprise
Prevention and regulations	Take preventive measures and comply with OSH regulations	Ensure compliance with preventive measures and OSH regulations in the work team they are in charge of	Ensure compliance with preventive measures and OSH regulations in their enterprise
Promotion	Contribute to promoting safe and healthy work in the organization	Promote safe and healthy work in the work team they are in charge of	Promote safe and healthy work in the enterprise
Intervention	Timely intervention in situations of accident or risk to themselves and others within the framework of their role	Ensure timely interventions in situations of risk or accident	Ensure timely interventions in situations of risk or hazard

2. Stage 2: Analysis of the work processes

As a second step, an in-depth **analysis of the OSH aspects connected to each of the work processes** and stages in which the activity of the corresponding sector is structured, and which are addressed in the training programme, is proposed. This analysis will help identify the risk factors present, preventive measures and regulations, the most common errors and, essentially, the tasks which training graduates should be able to carry out as part of their role managing and multiplying good practices in OSH.

This will be the starting point for contextualizing the skills and identifying the learning situations that make working on OSH skills possible.

In addition to the specific risk factors associated with each process, some factors which, in general, can affect all processes, need to be considered.

common errors

risk factors

For each process

corresponding regulations

preventive measures
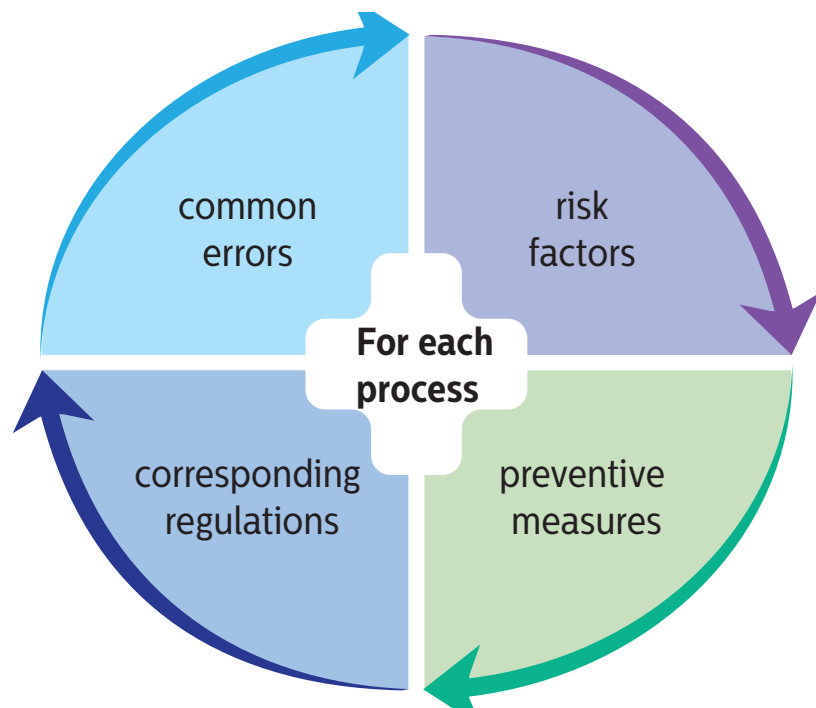
The chart below shows, by way of example, the systematized information for one process in the culinary sector. The chart is not exhaustive, it is just an example, and its purpose is to display the information to be used by teachers and students in an orderly and organized manner.

Five processes that are carried out sequentially and replicated for the various techniques and recipes used in the programme can be identified in culinary studies:

| Entry into the kitchen / work planning | "Mise en place" | Product preparation | Presentation and | Cleaning and tidying up |

Work process: Entry into the kitchen / work planning			
Risk factors	Preventive measures	Common errors and accidents	Safety standard or procedure
Falls Temperature changes	**In this stage, all tasks are focused on prevention:** · **Remove rings or earrings. Tie back hair.** · **Wear appropriate clothing and shoes:** Wearing clothing with long, loose fitting sleeves, which can inadvertently contact a flame or catch on a hot container, is not recommended. · **Wear personal protective equipment:** 1. Head and face protection (hat or cap) 2. Respiratory protection (fabric mouth mask) 3. Hand and arm protection (gloves) 4. Foot protection (closed leather shoes with slip-resistant rubber soles). 5. Body protection (waterproof apron, cold room jacket, cotton pants with pockets, short-sleeved shirt with collar). · **Check the facilities:** before starting work in the kitchen, all cooking and storage equipment, the electrical system (each stove on a separate outlet, do not use one outlet for more than one appliance), and the water and gas connections should be checked. · **Before entering the cooling chamber, anticipate what materials you will need** in order to avoid remaining for extended periods of time (should not remain for more than 10 minutes).	· Poor personal hygiene. · Not removing rings. · Wearing inappropriate clothing may cause accidents in the following work stages. · Using a cell phone.	Occupational safety and hygiene rules Decree No. 406/988 of 3 June 1988, Art. 1. Hand protection, Art. 14; foot protection, Art. 15 and 19; Working clothes, Arts. 24, 26 and 27. Art. 24. Clothing that is appropriate for each task you are performing in good condition and clean. If there is a possible risk of pull-in, wearing loose-fitting clothing and other clothes such as ties, scarves, bracelets, necklaces, rings, etc. is forbidden. Art. 49. Before beginning work, operators shall check all elements subject to stress and shall report any anomaly they may find to their supervisor.

Relevant information about risks, prevention and regulations is organized and presented for the purpose of having both:

- Input for the team of teachers to analyse as a basis for the joint and/or individual planning of specific training activities and teaching materials for mainstreaming OSH.

- Reference materials for the students.

Regarding the design of the curriculum, the systematization of risk factors, preventive measures, errors and regulations is essential for teachers to know all the information about OSH they need to consider in order to work on the issue, both in each specialty and in joint projects.
Each of these aspects will help focus the development of the OSH skills to be acquired, for instance:

Risk factors	Preventive measures	Common errors and accidents	Regulations
Identifying and managing risks to OSH Promoting safe and healthy work	Preventing risks Timely intervening in situations of risk or accident	Ensuring compliance with OSH measures and regulations	

As for the approach to teaching each of these aspects, below is a list, not meant to be complete, and of some of the main contents derived from each of them:

Risk factors	Preventive measures	Common errors and accidents	Regulations
Conceptual and procedural contents (detection and evaluation)	Procedural and attitudinal contents	Procedural (how to avoid) and attitudinal contents	Conceptual and procedural contents
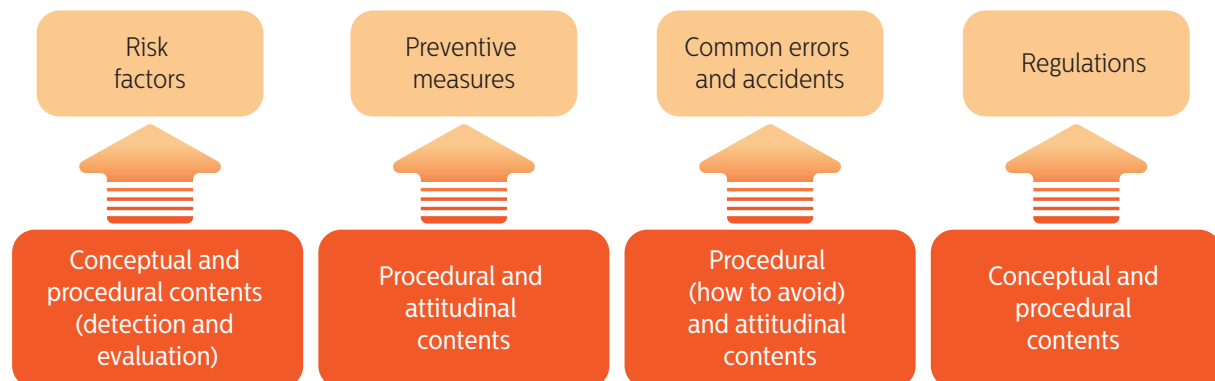
3. Stage 3: Review of the curriculum, the session plan and joint planning

The third step involves **analysing the design of the curriculum and planning** for mainstreaming OSH.

First, each teacher/facilitator looks at the curriculum for their training environment (subject or module) longitudinally in order to mainstream OSH at this level. This requires:

·   reviewing the **specific objectives**, explicitly introducing the care of OSH and clearly identifying the OSH skill they intend to develop;

·   defining (or adapting or expanding) the **learning activities** aimed at developing the skills based on the analysis of the processes carried out before;

·   identifying **strategies** and **guidelines for evaluation** according to the achievement criteria established in the OSH skills.

A second stage of analysis is carried out **jointly by the team of teachers**, at two different time points and including two perspectives:

i) **horizontal coordination** for each block of the programme (quarter, semester, school year) in order to define the interventions that can be coordinated and applied transversally by the teachers working simultaneously in each block, and

ii) l**ongitudinal coordination for the programme as a whole** (all blocks, semesters or modules) in order to ensure a comprehensive approach focused on the progressive development of skills.

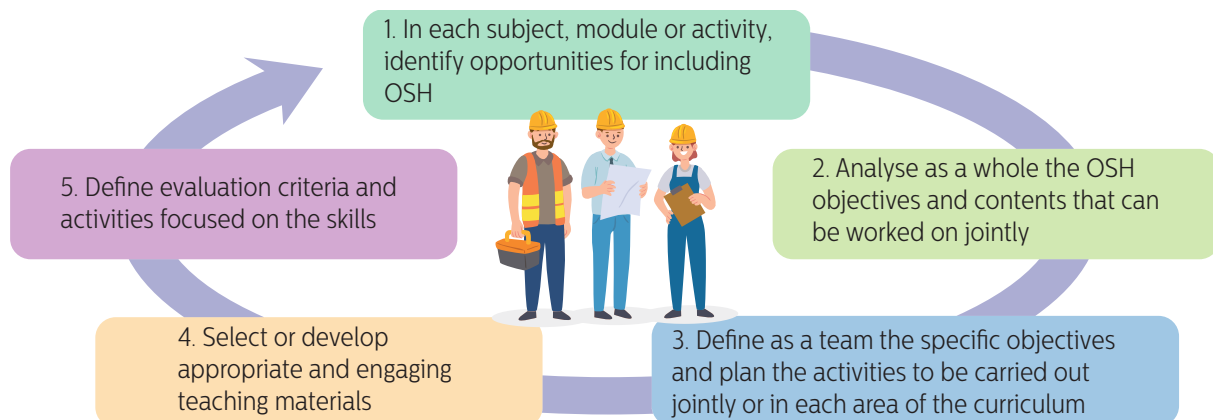# 6.2. Planning cross-cutting projects or activities

Planning for projects designed for working in a cross-cutting manner must clearly state the objective, learning activities and how they will be evaluated.

For planning joint projects or activities, it is recommended that:

1. Each teacher, within their specialty, carries out an initial analysis of the programme for their module or subject, **identifying opportunities for including OSH** in each learning unit, always taking into account the skills to be developed and the productive processes connected to the subject.

2. As a whole and, as far as possible, with the support and guidance of the OSH teacher and/or advisors, the **OSH objectives and contents that can be worked on jointly** are analysed in a coordinated manner. This can be carried out as a group project or as coordinated activities in two or three modules or subjects in sync.

3. For each collaborative work project on OSH, that **the collective definition of the specific objectives and the planning of the activities** is carried out jointly or in each area of the curriculum taking into account the suggested selection criteria (activities that are meaningful and connected to the future occupation, with an active role of students, consistent with the skills to be developed, tailored to a young audience and its interests, that facilitate the development of key transversal skills such as communication, leadership, teamwork, etc.).

Example of format to develop a collaborative OSH project:				
General objective:				
Specific objectives	Activities	Person in charge	Time frame	Resources

4. Appropriate and engaging **teaching materials are selected or developed** jointly.

5. **Evaluation criteria and activities focused on the skills** and the corresponding achievement criteria are defined. The importance of evaluating fundamentally the incorporation of safe and healthy behaviours in the work practice at the centre should be considered.

6. That **young people are included in the planning and implementation process**, so they can take ownership of the projects, opening up spaces for generating ideas, improvements, innovation and new projects.

1. In each subject, module or activity, identify opportunities for including OSH

2. Analyse as a whole the OSH objectives and contents that can be worked on jointly

3. Define as a team the specific objectives and plan the activities to be carried out jointly or in each area of the curriculum

4. Select or develop appropriate and engaging teaching materials

5. Define evaluation criteria and activities focused on the skills

Finally, in order for the implementation of projects to be possible, it is recommended that the team of teachers are organized and meticulous in establishing operating agreements to ensure that the team holds regular work meetings that will enable the monitoring and execution. Creating a simple work plan containing the commitments of the persons in charge, time frames and resources needed is recommended.

6.3. Suggestions for curriculum designers

Recommended actions for curriculum designers

Make sure that OSH skills are included in the occupational profile	Include OSH among the objectives of the programme or subject
Mainstream OSH horizontally or longitudinally in the curriculum	Include OSH skills and knowledge in the required teacher profile
Anticipate times to work on OSH skills and for coordinating among teachers	Design assessment strategies that mainstream OSH
Integrate OSH to on-the-job internship or practice plans	Make sure the design of the programme aims at cross-cutting work and integrate learning spaces

6.4. Suggestions for teachers

Recommended actions for teachers	
Analyse and plan opportunities to mainstream OSH into your module or subject	Define and communicate clearly what is expected from students in terms of OSH
Suggest activities where young people have an active role and are related to the occupational contents	Revise the curriculum and integrate OSH procedural and attitudinal notions throughout it.
Focus on the care skills development through hands-on activities that arouse the interest and empathy of participants	Work together with colleagues, coordinate and carry out common projects that integrate OSH
Encourage autonomy and finding creative solutions to prevent OSH risks	Use attractive support materials tailored to young people interests
Make contact with OSH areas of the enterprises of the sector, make visits and joint activities	Make sure to include OSH in formative and summative assessment activities

6.5. Suggestions for institution officials

Recommended actions for those in charge of training centres	
Promote and support OSH training for all teachers	Implement permanent OSH coordination activities in the different teams
Articulate, invite, contact enterprises of the sector so that they share OSH good practices with teachers and students	Foster ongoing improvement of OSH at the training centre, in the community, among families and enterprises of the sector
Promote measures to make the Centre a safe and healthy place to learn	Involve students, teachers and all the staff in the permanent care and improvement of OSH

07

Support tools
and resources

7.1. Support tools for mainstreaming OSH

This section presents support activities and materials that may be useful for planning and implementing the learning processes, thus contributing to the development of OSH skills, for the purpose of helping designers and facilitators in mainstreaming OSH.

7.2. Examples of learning activities according to the type of risk

A series of activities, which can be implemented for working on identifying risks and preventive measures both in the entire set of processes or for each type of risk, has been identified for the purpose of making the mainstreaming of OSH easier. It is worth noting that this is not an exhaustive or closed list, quite to the contrary, it contains examples and is expected to be expanded and enriched through the practice and reflection of teams.

Risk analysis and preventive measures for each work process

The following can be used for analysing each work process according to the types of risk and errors:

- Interviews with OSH specialists or interventions from students pursuing said qualification.

- Case studies.

- Educational visits to enterprises with guided tours.

- Projects on preventive measures for a rural establishment, etc.

- Research project on the accident rates in sector enterprises in the area (surveys to entrepreneurs, workers).

- Research on the accident rates in the sector, according to available data.

- Development of OSH rules in a typical establishment in a particular sector.

- Preparation of awareness materials on risks, preventive measures (posters, leaflets, videos, presentations with slides, etc.).

- Work camps (in the context of real or simulated work).

- Organization of a competition on OSH good practices in the training centre.

Falls:
- Analysis and discussion based on videos, photos. Reflection based on observations (events that take place and cause accidents in the workplace, what should they do to avoid said risk, what are the consequences of their actions).

- Interviews to specialist doctors.

Cuts:
- Practical classes on the use of equipment and tools.

- Videos.

Overexertion/load lifting:
- Role-play.

- Instructional videos.

- Load lifting exercises.

Risks resulting from the use of chemicals:
- Application practices.

- Reading and analysis of product labels. Awareness.

- Observation of photos with skin injuries, poisoning, etc.

Risk of injuries for not wearing PPE:
- Observation of photos, videos.

- Interviews or statements from injured workers.

- Practices using PPE (including heavy clothing).

Fire:
- Practical training on the handling and use of portable fire extinguishers.

- Review of escape routes and exits, as well as signage and access to extinguishers, hydrants, etc.

- Evacuation drills.

First aid training:
- For each type of risk, discuss with students the reaction or procedure they should follow in case of accident or emergency. For example, what to do in case of a cut, or a fall, or a snake bite. The trainer teaches how to help someone in case of an accident.

- Reading and discussion of information leaflets about the regulatory framework and where to turn to in case of accident.

- Drills, role-play and gaming activities that encourage learning "what to do in case of".

Occupational health, food and living conditions:
- Group reflection on physical care, understanding one's strengths, analysis of how weather conditions affect the health of people in summer or winter.

- Interviews with sector workers.

Electrical risks
- Analysis of videos.

- Visits to industries.

- Training by experts tailored to young people.

7.3. Repository of support materials for including OSH in training

Teaching materials could be any kind of device designed and made for the purpose of facilitating the learning process.

They are the resources teachers can rely on to facilitate and guide the learning process of participants (books, posters, maps, photos, prints, videos, software, texts, content handbooks, handbook of learning activities, etc.).

Teachers identify and prepare teaching materials to plan their courses, as vehicles and support for facilitating the development of skills by participants.

For teaching materials to be effective and foster a successful learning setting, they must take into account:
- The skills to be developed.
- The problem situations in the professional environment that need to be solved.
- The contents (conceptual, procedural, attitudinal) that will be covered using the materials.
- The characteristics and interests of participants.
- The characteristics of the context (physical and curricular in which the teaching takes place, and where we plan on using the teaching material selected).
- The teaching strategies in which the materials can be introduced.

Materials to be used with students will be selected based on the context, within the design of a specific educational intervention, considering all of these aspects and taking into account the specific elements of the curriculum that are involved. A careful revision of the possible ways in which the material can be used will help design effective learning activities and teaching methodologies that will ensure the planned

lessons are learned.

It is recommended that materials should include significant amount of pictures, photos and, in general, be aesthetically appealing to young people. It has been found that one version of a material with too much text makes students lose their focus, while a different version of the same material with pictures and photos makes comprehension easier. This shows materials must be clear, include figures and diagrams. The more pictures, the simpler and more understandable it is. There are many support materials available for teachers to easily use. Below are some videos and publications to that effect.

Videos about OSH in general

Prevention of accidents	**Riesgos laborales, cosa de dos** Available at: https://www.youtube.com/watch?v=Q5TJwk10PB4 Length: 18:38 minutes **Siembra seguridad. Prevención de riesgos laborales en la agricultura** Available at: https://www.youtube.com/watch?v=XGjdWNc40QI Length: 9:58 minutes **Prevención de riesgos no es cosa de risa** Available at: https://www.youtube.com/watch?v=CRATBQP3wdk Length: 8:38 minutes **¡Cuídate! prevención de riesgos laborales en el trabajo** Available at: https://www.youtube.com/watch?v=fj7e-uE_5NY Length: 10:35 minutes **Campaña de Prevención de Riesgos Laborales de LafargeHolcim** Available at: https://www.youtube.com/watch?v=VDhydb-1UsQ Length: 5:49 minutes **Orden y limpieza en la zona de trabajo** Available at: https://www.youtube.com/watch?v=bnCuXY_gEqQ Length: 2:08 minutes

Prevention of accidents	**Best signs for safety** Available at: https://www.napofilm.net/en/using-napo/napo-for-teachers/napos-best-signs-safety/lesson-two-mandatoryrescue-signs#node-33 Length: 5:49 minutes
Stress Management	**Campaña de Prevención de Riesgos Laborales de LafargeHolcim** Available at: https://www.youtube.com/watch?v=VDhydb-1UsQ Length: 5:49 minutes **Counter stress** Available at: https://www.napofilm.net/en/napos-films/napo-when-stress-strikes/counter-stress Length: 0:49 minutes
Hazardous substances	**Accidentes graves frecuentes en la manipulación de sustancias peligrosas. Medidas básicas de prevención** Available at: http://www.insht.es/InshtWeb/Contenidos/Documentacion/TextosOnline/FichasNotasPracticas/Ficheros/np_enot_78.pdf **Prevención de riesgos en el manejo de sustancias químicas** Available at: https://gestoresderesiduos.org/noticias/prevencion-de-riesgos-en-el-manejo-de-sustancias-quimicas **Napo in ... Danger: chemicals** Available at: https://www.youtube.com/watch?v=5PrAybF5mJg Length: 12:06 minutes **Simulador manejo de sustancias peligrosas** Available at: https://www.youtube.com/watch?v=3cNxqBNiUl4 Length: 2:47 minutes

Electrical hazard prevention	**Prevención Riesgos del Trabajo – Riesgo Eléctrico** Available at: https://www.youtube.com/watch?v=xwyeFfjtyx8 Length: 1:22 minutes **Riesgo eléctrico** Available at: https://www.youtube.com/watch?v=Jl3TJ8XUA9A Length: 3:25 minutes
Fall Prevention	**Accidente del chef** Available at: https://www.youtube.com/watch?v=HXS_O1G3KXI Length: 0:31 minutes
Musculoskeletal disorders	Available at: https://www.youtube.com/watch?v=djadHooEMrE Length: 1:20 minutes
Burns and cuts	**Fomento y difusión de la seguridad y salud en cocinas, bares y restaurantes** Available at: https://www.youtube.com/watch?v=gwkpvLaravE1 Length: 14:00 minutes **El combate de seguridad en la cocina | Ronda 1: Quemaduras y cortaduras** Available at: https://www.youtube.com/watch?v=95cZxS_ELuI Length: 5:14 minutes **Trastornos musculoesqueléticos en la enseñanza** Available at: https://www.youtube.com/watch?v=ebd7foIItyw Length: 3:12 minutes
The importance of machine maintenance	**Visión 7: Ascensores en la ciudad: El mantenimiento ayuda a evitar accidentes** Available at: https://www.youtube.com/watch?v=RKzg01HzHgk Length: 3:52 minutes

Exposure to agrochemicals	**Napo video on hazardous substances 1** Available at: https://www.youtube.com/watch?v=5PrAybF5mJg Length: 7:22 minutes **Simulator – management of hazardous substances** Available at: https://www.youtube.com/watch?v=3cnxqbniul4 Length: 2:47 minutes
Repetitive movements Loading and unloading Ergonomics / Positional	**Prevention of musculoskeletal disorders** Available at: https://www.youtube.com/watch?v=djadHooEMrE Length: 1:20 minutes **Ergonomics at the workplace** Available at: https://www.youtube.com/watch?v=syFev-ojRnQ Length: 10:28 minutes
Risks of slips or falls	**Forestry work Agricultural mechanization** Available at: https://www.youtube.com/watch?v=EJ4_QN-LuB4 Length: 5:49 minutes
Machines and transportation overturn	**Best signs for safety** Available at: https://www.napofilm.net/en/using-napo/napo-for-teachers/napos-best-signs-safety/lesson-two-mandatoryrescue-signs#node-33 Length: 3:36 minutes **Risk prevention in forestry transportation** Available at: https://www.youtube.com/watch?v=UrJfl8ewOr4 Length: 12:01 minutes
Fires	**Risk prevention in fighting forest fires** Available at: https://www.youtube.com/watch?v=JAutQMglygE Length: 9:37 minutes

Electrical hazard	**Electrical hazard** Available at: https://www.youtube.com/watch?v=Jl3TJ8XUA9A&t=101s Length: 3:25 minutes
Risk prevention in forestry	**Some advice from our forestry colleagues.** Campaign launched by the Bureau of Occupational Safety and Health that works for multiple institutions linked to OSH in Chile. Available at: https://www.facebook.com/forestalesceroaccidente/videos/332781406913822/ Length: 1:00 minute **Risk prevention in forest harvesting** Available at: https://www.youtube.com/watch?v=WSPx5x50DWY Length: 23:35 minutes **42 Typical excuses to safety** Video presented by the Joint Committee of the Remanufacturing Plant CMPC during the "5th Meeting of Joint Committees and the Department of Risk Prevention of the Forestry Pulp and Paper Sector". Available at: https://www.youtube.com/watch?v=jXRHTgwK9H4 Length: 3:26 minutes **Safety and health measures at work drill** Available at: https://www.youtube.com/watch?v=do6_FKsK_Js Practical demonstration about the effectiveness of safety systems Length: 8:04 minutes **Forestry zero-accident campaign** Available at: https://www.youtube.com/watch?v=q7eRY3bAcOM Length: 4:30 minutes

Risk prevention in forestry	**Video about safety for visits to Arauco Cholguan Sawmills** Available at: https://www.youtube.com/watch?v=35JSksMTlVk Length: 4:40 minutes **Risk prevention at sawmills** Available at: https://www.youtube.com/watch?v=qH_xJ72hqjo Length: 16:58 minutes

It is recommended to visit the European Agency for Safety & Health at Work. In particular, it has strategies on risk prevention for teachers and a variety of cartoon videos suitable to work on important OSH-related concepts in a dynamic way (including guidelines for teachers; these are the NAPO videos).

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Other good examples of educational and training tools about OSH for young people

▶ The Canadian Centre for Occupational Health and Safety (CCOHS) has prepared teaching tools, the Health + Safety Teaching Tools to make it easy for teachers to educate their students about what they need to know to stay healthy and safe when they enter the workforce. The content is geared for middle and secondary school students.

▶ The National Institute for Occupational Safety and Health (NIOSH) of the United States has designed the Youth@Work—Talking Safety curriculum to teach the basics of OSH in a fun and interesting way to young people. The activities described in the curriculum highlight the hazards and prevention strategies of a great variety of work places where young people work. An assessment tools has recently been added to measure the knowledge that students have on safety and health at work, if they pass, they obtain a digital credential.

▶ The California Partnership for Young Worker Health and Safety, that brings together government agencies and statewide organizations representing educators, employers, parents, job trainers and others, has developed strategies to protect youth at work. Among its projects, it includes Young Worker Resource Centers in California, which provides information, training, educational materials, technical assistance and referrals to help educate youth, employers and the community on OSH, and protection to young workers. Its webpage, Youngworkers.org, includes information for adolescents, parents, teachers, job educators and employers.

▶ The Entrepreneurs Association of Navarra (CEN) has published a guide to help entrepreneurs to manage and prevent risks in terms of OSH for all young workers in small and medium-sized enterprises. The guide describes the specific requirements applicable to workers under 18 years of age (CEN, 2015). Available at: https://www.cen.es/documentos/ficheros_publicaciones/20170213123711_2653.pdf

▶ Oklahoma (United States) has been the first state to enact a law for "OSH integration into education" (2015) which establishes that the competent state authorities in work and education must provide training on safety and health in the workplace at schools for students of grades 7-12 (i.e., students from 12 to 18 years of age). The State of Texas has recently enacted a similar law and, other two states, California and Arkansas, are studying laws inspired by Oklahoma Law.

▶ The Guide for young workers focuses on the rights and responsibilities of young workers at work, with a particular emphasis on OSH (Ombudsman for fair work of Australia, 2017).

▶ The ILO has developed practical and easy to use tools to assess and manage risks, in:

- A 5 step guide for employers, workers and their representatives on conducting workplace risk assessments

- Training package on workplace risk assessment and management for small and medium-sized enterprises

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Annexes

A 1. Work hazards to which young workers are frequently exposed[26]

Several different kinds of hazard can exist in every workplace, with various consequences for the safety and health of workers. The following are types of physical and psychosocial hazards that are particularly threatening to young workers because of young workers' increased risk of exposure and due to the underlying risk factors unique to them.

Safety hazards have the potential to cause injury immediately (for example, burns, strains, lacerations, bruises, broken bones, internal injuries, head trauma, and suffocation) if no risk control measures are in place. Safety hazards include, for example, working with flammable or explosive materials or substances, working at height; using dangerous machinery, equipment or tools; driving, riding or working near vehicles; building trenches; walking on slippery surfaces and untidy floors. Young workers may be particularly vulnerable to safety hazards because of their limited work experience, poor skills training, lack of information or instruction

on safety hazards and procedures; and lack of supervision (IPEC et al., 2002).

Physical hazards include exposure to a range of different physical agents that can be harmful to health, such as noise, vibration, certain kinds of lighting, extreme temperatures (both heat and cold) and radiation (including exposure to ultraviolet radiation from the sun and from welding). Workers exposed to UV radiation when they are young have an increased risk of developing skin cancer during their adult life, due to their long-term exposure (as the exposure starts at an early age). Young workers

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[26] Taken from ILO (2018).

are also more susceptible than are adults to hearing loss due to excessive noise (even noise exposure limits established for adults are inadequate for the protection of young workers. Young workers face significant exposure to excessive noise due to their employment in the hospitality, manufacturing and construction sectors.

Biological hazards include exposure to bacteria, parasites, viruses, and dangerous animals, insects and plants. They can result in many different types of disease, such as skin, intestinal and respiratory diseases. Biological hazards are common in sectors of the economy in which large numbers of young people work, such as agriculture, food processing and restaurants (handling food), health care (contact with people, blood and other bodily fluids) and garbage/waste management.

Chemical hazards include gases, dusts, fumes, vapours and liquids. Chemicals are used in most workplaces, and in all sectors (fertilisers are found in agriculture; paints and solvents in manufacturing; asbestos, silica, thinners, adhesives, and welding fumes in construction; and cleaning agents in the service sector. The toxic effects of a substance depend on the dose and duration of exposure, and on other contributing factors, such as individual sensitivity and characteristics (e.g., gender and age); exposure to chemical hazards when young can cause serious harm to reproductive systems and hormonal balance (Gerry, 2005).

Ergonomic hazards include carrying heavy loads; fast or repetitive movements; and poorly designed machines, equipment and work processes that cause workers to adopt awkward positions. Musculoskeletal disorders (MSDs) such as back pain; tendinitis, herniated discs and carpal tunnel syndrome are typical outcomes of exposure to ergonomic hazards. Adolescents carrying heavy loads are at higher risk of skeletal damage and impaired growth because their bodies are still growing and developing. Furthermore, work methods; tools and equipment are typically designed for adults, meaning that young workers whose bodies are not yet fully developed are at higher risk of fatigue, injury and MSDs. (IPEC et al., 2002).

Psychosocial hazards are the result of the design and management of work and its social and organizational contexts, all of which can cause psychological or physical harm. A common response to psychosocial hazards is stress, which results in a deterioration of well-being and quality of life for workers (ILO, 2016). Because young people continue to develop into their mid- twenties, mentally, emotionally and socially, their exposure to psychosocial hazards can be especially harmful (it can cause momentary distraction, errors of judgement, or failure in the performance of normal activities), increasing the risk of workplace accidents. It can contribute to the development of mental disorders

(burnout and depression) and other physical problems (cardiovascular diseases and MSDs), as well as negative coping behaviours (alcohol abuse or smoking).

Psychosocial hazards are usually divided into two main groups:

- Those related to the **content of work**: working conditions, for example, an inadequate task design; workload and pace of work; long or unpredictable work schedules.

- Those related to the **context of work**: the organization of work and labour relations including, for example, organizational culture (the culture that exists around the issue of safety), leadership and management style, role in the organization, opportunities for career development, decision-making power and control, work-life balance; and interpersonal relationships at work (including workplace violence and harassment).

safety hazards

biological hazards

ergonomic hazards

psychosocial hazards

chemical hazards

physical hazards

Where there is limited clarity about work tasks to be performed, and where workers have limited influence on the outcome of the work, this, in combination with other factors, can result in low motivation at work. Furthermore, stressful and poorly organised work environments and poor leadership create a negative work climate, increasing the risks.

Besides, young workers are vulnerable to violence and harassment at work and this is a contributing factor for the development of cardiovascular disease, depression, burnout, anxiety, nervousness, reduced job satisfaction and reduced well-being.

Brief explanation of the application examples implemented under the project in Uruguay

The OSH mainstreaming into training pilot was conducted on two training programmes of different institutions from Uruguay: CETP – UTU and INEFOP. Both were counterpart institutions of the project.

The selection of specialties to be prioritized was carried out in 2017 in the framework of a tripartite workshop where it was agreed to address the culinary sector and the agricultural sector, particularly the forest chain.

CCETP – UTU (Vocational Technical Education Council – Technical University of Uruguay) is a public educational institution founded in 1878. It has 291 centres throughout the country that are divided between technical schools, agricultural schools, regional campuses divided by regions of the country and technological poles.

The pilot was carried out in the educational technological pilot of Tacuarembó, which was inaugurated in 2017, which offers nine higher education degrees. One of the courses taught here is the associate degree in forestry which was selected by CETP-UTU since it is a strategic training course for the institution.

INEFOP (National Institute for Employment and Vocational Training). It has a tripartite conformation and its main task is to execute vocational training and workers' employment strengthening policies in Uruguay. The pilot was conducted, together with a training institution, in one of its culinary training courses for young people (accessed through calls for tender).

A.2. Example of the application of the methodological sequence for students of the associate degree in forestry and wood production

According to the institutional documentation of the Technical University of Uruguay (UTU), the graduate profile aims at "middle management" roles, that is, someone able to lead and manage work teams, which seem to match the needs of the productive sector in the area.

Based on these definitions and the information collected through consultations held with teachers, young people, institution officials and leaders in the sector, OSH skills must be geared toward:

· managing the risks to health and safety,
· complying and enforcing the regulations by the team and the enterprise, and
· promoting safe and healthy work in the work teams.

OSH skills to be developed by students of the associate degree in forestry and wood production

Skill	Key activities	Achievement criteria
Managing risks to OSH in work teams	**Identifying hazards and assessing risks for members of the team.**	• Identifies the risks to safety and health in each work process and the possible consequences of an accident according to the risk. • Identifies the worker's and the enterprise's rights and duties in the field of OSH.
	Preventing risks, implementing the necessary preventive, corrective and improvement measures.	• Assesses risks. • Plans and organizes routine or non-routine team activities preventing risks. • Proposes and implements preventive and control measures based on the identification of hazards and the assessment of risks.
	Communicating to the team information on hazards, risks, control and prevention of accidents and occupational diseases.	• Assertively communicates to the team all the necessary information on measures, regulations, procedures and roles regarding OSH. • Explains to the team general and specific information on the identification and control risks, and the prevention of occupational accidents and diseases.
Ensuring compliance with OSH measures and regulations by team members.	**Monitoring compliance with preventive measures and OSH regulations by team members.**	• Controls the application of safe work techniques and the use of tools, PPE, clothing and machinery in safe conditions. • Supervises the order, hygiene and safety conditions in the work space.
	Ensuring compliance with preventive measures and OSH regulations by the company.	• Inspects facilities, machinery and equipment, and takes corrective measures or suggests them to the responsible persons. • Ensures the enterprise meets OSH regulations. • Ensures compliance with the established OSH prevention procedures.
Promoting safe and healthy work among team members	**Training workers on OSH.**	• Carries out the induction and provides formal or informal training on OSH and basic first aid to team members. • Provides feedback on OSH performance to team members. • Supervises/when appropriate corrects the actions of team members to prevent accidents.
	Promoting the improvement in OSH organizational practices.	• Makes suggestions for improvements observing the hierarchical structure of the organization where they work. • Promotes exchanges, collective reflections and proactive attitudes regarding OSH in the team.
Timely intervening in situations of risk or accident.	**Disseminating information to the team so they can respond in the event of accidents.**	• Keeps the information up-to-date and available. • Provides instructions, manuals, etc. on OSH.
	Acting promptly and correctly in the event of an accident.	• Complies in due time and form with established procedures in case of an accident. • Participates in the investigation of incidents, accidents and/or occupational diseases.

Analysis of work processes

The chart below shows, by way of example, the systematized work processes in the forestry sector and the corresponding information about risks, preventive measures, etc., for each process. It is not exhaustive, it is just an example and its purpose is to display the information to be used by teachers and students in an orderly and organized manner.

Indeed, this example only discusses some risk factors for each process, therefore, in order to be a valid tool, it must be completed with the help of the institutions advisers for the forestry sector and validated with leaders from this productive sector (employers and workers) and OSH specialists.

This example is based on the review of documentation at the national and international level, and the interviews and workshops carried out.

It is important to note that because this is a very dynamic sector, in which new technology is continuously being introduced, this systematization should be revised periodically so that it can be kept up-to-date.

Example: Forestry work processes

Forestry work processes in commercial production systems[27] can be summarized into six areas:

Nurseries and seedling production	Planting of forests	Pruning and thinning	Harvest	Wood transport	Industrialization

The chart that comes next follows the following format:

Nurseries			
Risk factors	Preventive measures	Common errors and accidents	Regulations
Planting of forests			
Pruning and thinning			
Harvest			
Wood transport			

As an example, there follows the chart on the risks and preventive measures for the **nursery process.**

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[27] There are other areas (environment, management and conservation of native forests, technical support services) which, even though they can be marginal, are included in the graduate profile of the degree.

Work process: Nurseries and seedling production			
Risk factors	Preventive measures	Common errors and accidents	Safety standard or procedure
• Exposure to agrochemicals	• Wearing personal protective equipment that matches the requirements in the identification label of the product. • Following the waiting periods recommended by the manufacturer of the chemical used before entering the treated area. Warning workers carrying out activities in the area to wait. • Never eating or drinking anything, or smoking, during and after handling these products. • Storing chemicals in facilities specifically designated for such	• Incorrect handling of agrochemicals. • Chemical spills. • Drinking, eating or smoking before removing personal protective equipment or before washing hands and face.	Decree 372/99 Art. 74 "Workers shall wear the following protection equipment in nurseries (7.4.1.): rubber boots or shoes, gloves, hat or visor and waterproof clothing as appropriate according to the season and weather conditions." Decree 372/99 Art. 78 "All containers with chemicals must be identified and marked with a label, and employers shall be responsible for ensuring that said information remains on the container." Decree 372/99 Art. 84 "Employers must provide appropriate above the shoulders head protection, as well as face protection including respiratory and eye protection, by providing a mask with a filter that is appropriate for the substance used."

Furthermore, in this example of the forestry industry, all work processes must be taken into consideration:

Internationally, forestry work is considered among the most dangerous in the world.[28] In Uruguay, however, the sector has low accident rates.

In this regard, even though all the industry leaders interviewed claim safety and hygiene conditions and, in general, working conditions in forest enterprises have improved substantially in recent years, it is a very physically demanding occupation with exposure to weather conditions and in which workers can spend long periods of time away from their place of residence, all factors which can affect the health of workers.

Lower limb trauma injuries are the most frequent injuries in forestry, while alterations in upper limbs are the most common injuries in timber extraction. The trend shows that the most frequent case of accidents is "falling objects during manual handling" for both activities, which cause bruises and cuts according to the tools used. Also, in forestry, injuries to the eyes and lumbosacral region tend to be twice as common as in other activities.
Occupational Hazard Supervisory Authority (SRT), Manual de buenas prácticas de la actividad forestal, Argentina, 2017

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[28] ILO (1998). The ILO Encyclopaedia of Occupational Health and Safety, Forestry.

Some suggestions for mainstreaming OSH into the selected Programme

It is worth noting that these suggestions are not intended to represent the entire universe of potential ideas and possibilities for OSH mainstreaming offered by the Centre, the team of teachers, and the programme. That would require more far-reaching analysis conducted jointly with the technical team of the Project.

However, these proposals are made based the workshops and interviews carried out with all the actors involved, and the review of the available documentation, as well as the good practices learned by comparing experiences, for teams to discuss and for further in-depth analysis in the future.

Within the teaching staff:

It is essential to maintain the interest and secure the commitment of the entire team (teachers, director, leaders of the productive project, students) regarding this issue. During the visit and meetings held, teachers expressed the need to reinforce OSH in the curriculum because, as one of them pointed out, "safety is implicit in everything they do outside". They also say it is essential "to think about OSH for everything (subject, task) or project", and relevant and feasible suggestions came up during a first brainstorming session.

Conduct a **basic training process in OSH for teachers** in the forestry and wood production sector. Training can be conceived as a process with a first stage within the team with help from sector leaders (for example, a forestry advisor from UTU, a leader from the productive project, a Forestry Safety teacher, etc.) on one or two days before the semester begins.

Joint planning of OSH mainstreaming into the subjects of one semester: a working day before the start, working jointly to determine transdisciplinary collective projects based on the methodological sequence proposed.

Regular team coordination, sharing the advances, difficulties and support materials on OSH.

At the level of the programme:

Currently, OSH is covered by a series of subjects, namely: silviculture, forestry mechanization (both included in all semesters) and labour and environmental legislation. The first two have a very substantial workload (352 hours of forestry mechanization and 512 hours of silviculture, in total, counting all four semesters) and both teachers are already working in coordination. One of the difficulties raised by teachers is that for forestry mechanization there is currently no equipment available for practical lessons, so the subject is mainly theoretical. However, the implementation of the productive project will solve this situation by providing opportunities for working practically on the set of processes.

The other subjects have not currently integrated OSH. Although it can be said that it is more difficult to integrate in some subjects (such as Forest Mensuration or Dendrology), in others, it is easier to collectively think of how to mainstream OSH and how to articulate horizontally with the subjects that are more closely connected to the productive processes. For example, it is key to mainstream OSH into subjects such as Communication, Mathematics, Production Systems, Management and Administration, Wood Industry and, mainly, in the Integrated Project.

The **Integrated Project** is devised and developed by a team and the oral examination is taken individually. This is conceived as a valuable opportunity for practical mainstreaming, and also for focusing on the issue of OSH (for instance, researching real applications in the labour field, the experience of the enterprises in the area, etc.).

Strengthen, through the different areas of training, the skills related to human resources management, with an emphasis on OSH management within the teams: leadership, work organization, assertive communication, etc.

At the Centre:

Promote the continual improvement of OSH as a **Centre's project**, working with students on the

detection of risks, and improving the safety and health conditions at the centre, implementing awareness raising activities in enterprises in the community, etc.

Coordinate with the associate degree in **Occupational Safety and Health** in order to contribute to the training of students and teachers of the forestry degree, and students of the OSH degree (since the coordination takes place with a specific field that is relevant for their context).

Promote the **optimization of the resources that will be provided by the productive project** to steadily mainstream OSH.

Conduct **workshops, seminars or meetings on OSH**. Encourage students to present their research projects (integrated project) or work experiences related to OSH during said activities. Integrate experts on the subject matter.

Coordinate with **forestry companies** to participate in some of the **training sessions** they provide for their new staff.

Organize visits/workshops with OSH experts from enterprises in the area to the Centre.

Promote **peer-to-peer learning**, fostering exchanges on OSH among students from different courses (for example, there are electromechanics, electricity and agritech students doing internships in forestry companies).
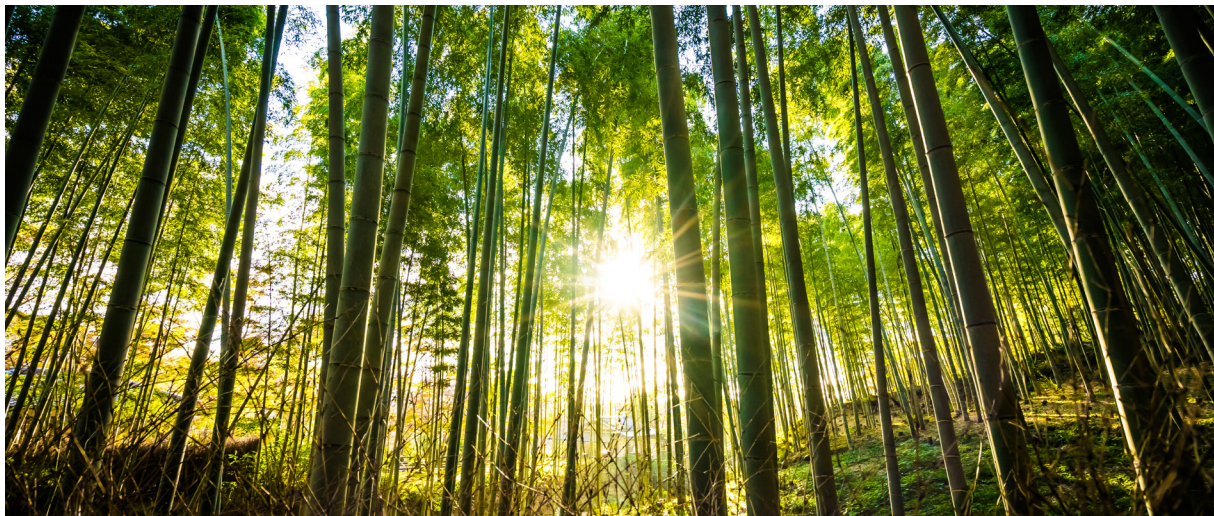
A3. Example of the application of the methodological sequence for students of the culinary training programme

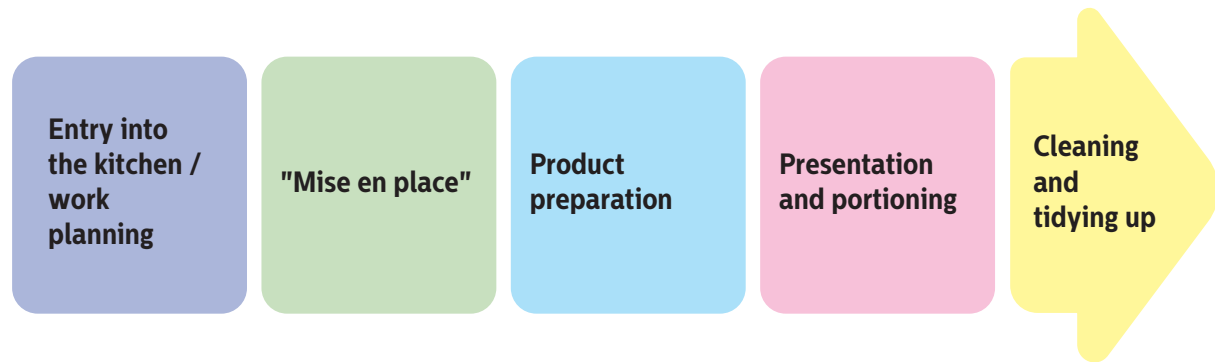**Which OSH skills should young people develop?**

OSH skills to be developed by students of the culinary training programme

Managing risks to the occupational safety and health	1. Identifying risk factors in the different work processes and spaces, and their possible consequences for safety and health.	• Identifying the risks to safety and health for each work process. • Identifying the possible consequences of an accident according to the risk. • Identifying the worker's rights and duties in the field of OSH.
	2. Taking preventive measures to avoid risks to OSH.	• Using the tools, equipment, clothing and machines in safe conditions. • Wearing required protective equipment. • Carrying out the activities complying with established safety and health regulations and procedures. • Keeping the conditions of hygiene and safety in the work space. • Warning/correcting own actions or someone else's actions to prevent an accident.
	3. Promoting safe and healthy work among team members.	• Paying attention to and promoting OSH among colleagues. • Making suggestions for improvement to their manager or the organization where they work.
	4. Timely intervening in risk or accident situations to themselves and others at work.	• Having information to act in case of an accident (locate first aid kit, perform first aid and steps to take before the competent authorities). • Acting in a timely and appropriate manner in case of an accident.

It is worth noting that the OSH skills identified are those related to the protection of workers, the team of colleagues and the working environment. The set of skills relating to food handling or the hygiene practices that are specific to the culinary profession are not covered here.

Risk and preventive measures according to the work process

Five processes that are carried out sequentially and replicated for the various techniques and recipes used in the programme can be identified in culinary studies:

Entry into the kitchen / work planning	"Mise en place"	Product preparation	Presentation and portioning	Cleaning and tidying up

The analysis of the risks, preventive measures and common errors for each work process is the starting point for identifying the contents, learning situations and activities to be carried out.

Summary table

Work process: Entry into the kitchen / work planning			
Risk factors	**Preventive measures**	**Common errors and accidents**	**Safety standard or procedure**
Falls Temperature changes	**In this stage, all tasks are focused on prevention:** ● **Remove rings or earrings. Tie back hair.** ● **Wear appropriate clothing and shoes:** Wearing clothing with long, loose fitting sleeves, which can inadvertently contact a flame or catch on a hot container, is not recommended. ● Wear personal protective equipment: 1. Head and face protection (hat or cap). 2. Respiratory protection (fabric mouth mask). 3. Hand and arm protection (gloves). 4. Foot protection (closed leather shoes with slip-resistant rubber soles). 5. Body protection (waterproof apron, cold room jacket, cotton pants with pockets, short-sleeved shirt with collar). ● **Check the facilities**: before starting work in the kitchen, all cooking and storage equipment, the electrical system (each stove on a separate outlet, do not use one outlet for more than one appliance), and the water and gas connections should be checked. ● **Before entering the cooling chamber, anticipate what materials you will need** in order to avoid remaining for extended periods of time (should not remain for more than 10 minutes).	● Poor personal hygiene. ● Not removing rings. ● Wearing inappropriate clothing may cause accidents in the following work stages.	Occupational safety and hygiene rules Decree No. 406/988 of 3 June 1988, Art. 1. Hand protection, Art. 14; foot protection, Art. 15 and 19; Working clothes: Arts. 24, 26 and 27 Art. 24. Clothing that is appropriate for each task you are performing in good condition and clean. If there is a possible risk of pull-in, wearing loose-fitting clothing and other clothes such as ties, scarves, bracelets, necklaces, rings, etc. is forbidden. Art. 49. Before beginning work, operators shall check all elements subject to stress and shall report any anomaly they may find to their supervisor.

"Mise en place"			
Risk factors	**Preventive measures**	**Common errors and accidents**	**Safety standard or procedure**
1. Fall from the same level or to a different level (using stairs, stools, etc.) 2. Falling objects during handling, striking against objects 3. Overexertion/ load lifting 4. Cut	**To prevent falls of people or objects:** • It is essential to **keep workplaces clean**, cleaning up spills as soon as they occur. • Do not enter rooms if the lights are off. • Do not leave boxes, carts, etc. in walking areas or evacuation areas (exits). **To prevent falls to a different level:** • Do not use chairs or similar equipment to access cabinets, shelves or pantries. • Always use ladders to get supplies and check to ensure it is in good condition. • Face the ladder when climbing up and down, always holding on to it with both hands. • Avoid going up or down the ladder with heavy objects or full hands. • Avoid transporting or handling heavy loads using a ladder if the weight and size of the load can compromise your safety. • Every time you need to get a heavy object from a high place, seek assistance from a coworker. **To prevent overexertion:** • As far as possible, eliminate the need to handle heavy items (use rolling stands to move gas cylinders, break down very heavy packages of food). • Before lifting a load make sure the hands, the load and handles are not slippery (wear appropriate gloves). • Handle loads correctly and when handling heavier items resort to several people. • Mind the body posture when lifting loads: put your feet around the load, with your body over it (if this is not feasible, try to get your body as close as possible). Bend your legs when lifting. Keep your back straight. Pull the load as close as possible to your body. Lift and carry the load with straight downward turned arms. Avoid keeping the load above your shoulders or below your knees. **To prevent cuts:** • Never carry knives with the tip forward, always handle knives with the tip pointed down. Do not become distracted while using sharp utensils.	• Use ladders incorrectly to access shelves or the upper parts of pantries, with the consequences for workers being: fractures, injuries, head trauma and loss of consciousness. • Injuries from falls/objects broken during handling, striking against objects. • Improperly lifting heavy loads. • Cuts (e.g., when preparing an ingredient by cutting a piece or package).	Decree 423/007 of 12 November 2007 – Maximum loads. Establishes that the weight of sacks of flour, sugar, rice and those containing produce may not exceed 25 kg, unless mechanical means are available for carrying them.

Product preparation			
Risk factors	**Preventive measures**	**Common errors and accidents**	**Safety standard or procedure**
1. Handling fire or hot substances.	**General:** • Concentration, pay full attention/be alert. • Avoid distractions: no music (except soft ambient music), no cell phones. • Tell coworkers if you are going to handle something that may put others at risk (for example, moving with a hot pot or baking sheet, someone may bump into the oven door when it is open). Similarly, suggest coworkers to warn about their movements if they do not do it at their own initiative. **Prevention of burns:** • Do not allow children in the preparation area. Do not keep matches or lighters within the reach of children. • Always place pans on the burner that is further away from you. Do not leave pans or containers with hot oil in accessible locations. • When grabbing hot containers, use a dry kitchen towel or dry fabric gloves to protect your hands. • To avoid burns from steam, keep your face away when opening pots with hot foods. The lid can be used as a shield. • Only fill containers up to three quarters of capacity. • Transfers of hot liquids and the addition of the components of the different dishes shall be carried out as slowly as possible. • Do not bring objects that can burn easily (paper, plastic, fabric, etc.) close to the flames. • Do not take fire from one place to another. • Avoid water splashes in pans and pots containing oil, by removing excess water from foods and avoid heating oil to high temperatures. • Place food in the oil very slowly and using tongs. • Prevent possible explosions in gas ovens (always make sure to turn off the burner or oven when it is not being used). • Inform when handling a hot load, ensuring everyone takes precautions. • To avoid burns from steam, turn your face away before opening pots and pans with hot liquids.	• Distractions with the cell phone and/or music with headphones. • Not warn coworkers or not be warned by coworkers when moving hot objects. • Burns	Each appliance has instructions with specifications that must be followed when using it. Art. 145. Workers shall receive precise instructions on the correct use of the tools they need to use in order to prevent accidents, and in no case may they use them for purposes other than those intended. Hand tools shall be tempered, conditioned and repaired only by properly qualified people. Art. 150. The design and weight characteristics must be appropriate for the cutting operations to be carried out and knife handles must have ferrules or grips to prevent the hand from slipping. Chapter V Ergonomic Risks. Arts. 48, 49, 50, 51, 52, 53, 55. Decree 62/83 of 1 March 1983 - Food Handling

Product preparation			
Risk factors	**Preventive measures**	**Common errors and accidents**	**Safety standard or procedure**
2. Thermal risk.	**Prevention of thermal risks:** • Wear light, flexible clothing and stay well hydrated.		
3. Overexertion/ load lifting. Ergonomic problems.	**Prevention of ergonomic risks:** • Lift loads following the procedure indicated above (product preparation). Do not work with your torso bent. • When using knives or other kitchen utensils, keep wrists in a neutral position, bending them as little as possible.		
4. Falls.	**Prevention of falls:** • Do not run in the kitchen. • Do not step on wet surfaces. • Place foods out of the traffic area. • Report any damage seen in the floor and request repairs. • Keep workplaces tidy and clean, cleaning up spills as soon as they occur. • Keep exits and traffic areas free of obstacles. • Wear flat, slip-resistant shoes.	• Falls from stairs. • Falls on the same level (may cause fractures, blows, sprains, strains, etc.): stepping on objects, tripping on materials from the work process, wet floors or damage to the floor, bumping into coworkers who share the work space can cause said falls, or falls due to the fact that floors may be covered in slippery substances (fat or food scraps) or wet. • Cuts.	
5. Cut (with sharp utensils or machines).	**Prevention of cuts:** • Never carry knives with the tip forward, always handle knives with the tip pointed down. • Do not become distracted while using sharp utensils or any kind of pointed objects (knives, screwdrivers, scissors, peelers). • Keep knives properly sharpened. • Do not use them to point or make sudden movements which may harm someone. • Store knives with the sharp edges and tips covered or pointed down. • Do not carry them in pockets. • Do not use those with splintered handles, or those whose bland and handle are not securely attached. • Never become distracted while handling automated equipment (slicers, grinders, mixers, etc.). Always disconnect machines when they are not being used, and even during cleaning sessions. • Never try to catch a falling knife (step back and let it fall). • When opening a can hold the sides firmly. Once open, handle the can with caution, since the edges are as sharp as a knife.		

Product preparation			
Risk factors	**Preventive measures**	**Common errors and accidents**	**Safety standard or procedure**
6. Fires.	**Prevention of fires:** • The proper way to turn on a burner is as follows: The ignition source (match, lighter, etc.) is brought close to the burner and then the gas valve is opened. • Check to see if the flame in the appliances is blue. If the flame is of a different colour (yellow or orange), it is not working properly and is producing abnormal amounts of carbon monoxide. A professional must be called immediately. • Always keep the space well ventilated. • Avoid heating the space with the oven or stove burners. • In case of a gas escape: do not use electric switches, do not light lighters or matches, close the shut-off valve and ventilate the area. Immediately inform the maintenance service. • In case of fire in a gas installation, the supply must be cut off. If there is an incipient fire which has not spread more than 1m both horizontally and vertically, it is safe to perform manual extinguishing actions. When fire exceeds these dimensions, we are in the presence of a fire and it is not safe to perform manual extinguishing actions.	• Not shutting the gas off completely. • Boiling liquids can overflow the containers, which may put out the burner flame and cause a gas escape. • Gas explosions or fire.	

Presentation and portioning			
Risk factors	**Preventive measures**	**Common errors and accidents**	**Safety standard or procedure**
Handling of sharp objects and hot objects.	Prevention of burns, falls and cuts as in the preparation stage.	• Possible cuts when portioning preparations. • Burns when removing preparations from burners or the oven (in the forearm when using large baking sheets). • Improper posture.	Food security standards. See: Practical guide for the application of Sanitation Standard Operating Procedures of the Municipality of Montevideo (IMM).

Cleaning and tidying up			
Risk factors	**Preventive measures**	**Common errors and accidents**	**Safety standard or procedure**
Risks resulting from the use of chemicals (they may case injuries from contact burns, splashes, splashes to the eyes, inhalation of harmful, corrosive and irritant fumes to the person handling	**Manipulation of chemical products:** ● Before using any detergent or disinfectant, read the directions for use carefully and follow the safety recommendations included in the product label. ● Avoid using cleaning products with chemicals (they end up being contaminants and are harmful for consumers and the person preparing foods; and they are not allowed in some preparations, such as chocolate). ● Avoid splashing of substances, especially to the eyes, if splashing occurs, wash with abundant water without rubbing. ● Waste must be collected in appropriate containers that prevent possible spills and emanations. ● Containers of cleaning products must be kept well closed and stored in places where they do not get mistaken for cooking ingredients. ● They must be kept in their original containers, when possible. Adequately label cleaning materials and avoid using container that may lead to confusion. Never transfer cleaning products to containers intended for food. **Tidying up and cleaning:** ● If shelves are used, place the heaviest materials in the lower sections. ● Emergency exits, walkways, extinguishers, doors and stairs must have signs, be well-lit and clear from materials such as boxes, supplies, equipment, machines which may obstruct the path and make it difficult to use in case of emergency. ● If there are many people working in the kitchen it is convenient to mark freshly cleaned areas with signs. ● Report and request that burned out light tubes or bulbs be replaced. Ensure they are clean in order to avoid blocking the light. ● When cleaning knives or other sharp objects, do not clean directly the sharp edge and place it on a flat surface. Clean one side first and then the other. When cleaning the blade, do not submerge in soapy water, but rather hold it by the handle. ● Keep the fridge and freezer tidy to avoid food spills or scattered food. ● Using a slip-resistant mat on the floor, in front of the sink, next to the stove or cooker, is recommended. ● Clean stove burners taking into account that the combustion of gases can produce dangerous levels of carbon monoxide if burners are dirty, incorrectly installed or in poor condition. ● Remove grease build-up from hoods and ducts to prevent fires. ● Clean the machines in accordance with the specifications of the manufacturer. Inspect the required maintenance or service of the machines, as specified. Check the installation of gas or other fuels periodically, and check if fire prevention equipment is operating properly. ● When cleaning machines, check that they are disconnected from the power supply before beginning to avoid accidental starts. Disconnect electrical or gas appliances when you leave the workplace.	Chemical poisoning. Using cleaning products with chemicals can be as bad or as toxic as not washing. There is a lot of ignorance, which is harmful to consumers and cooks. Mislabelling of bottles with products.	Art. 61: Detergents shall be preferably used as cleaning or degreasing products. When using cleaning agents which are combustible, flammable or harmful to the health of workers is required, safety measures must be taken according to the nature of the product. Art. 99: The first aid kit must include the supplies detailed in the regulations. Prevention of fires and explosions Art. 11: There must be an organized emergency plan in place for any situation of accidental or emergency exposure to chemical, physical, or biological agents, which may affect workers or the public at large, with serious consequences. In order to avoid potential accidental exposures, empty containers of these products must be destroyed or treated to neutralize its effects.

Risks and prevention measures in the set of culinary work processes

Psychosocial hazards are the result of the design and management of work and its social and organizational contexts, all of which can cause psychological or physical harm.

In general, the pace and demands involved in these kinds of services must be taken into account for all culinary work processes. Moreover, on specific occasions, the pressure the demands, deadlines and tasks to be performed place on workers can result in a certain degree of stress.

Work-related stress can cause momentary distraction, errors of judgement, or failure in the performance of normal activities, increasing the risk of workplace accidents. It can contribute to the development of mental disorders (burnout and depression) and other physical problems (cardiovascular diseases and MSDs), as well as negative coping behaviours (alcohol abuse or smoking). Consequently, stress results in a deterioration of well-being and quality of life for workers (ILO, 2016).

Because young people continue to develop into their mid-twenties, mentally, emotionally and socially, their exposure to psychosocial hazards can be especially harmful.[29]

Planning work as much as possible before starting is recommended in order to mitigate these situations.

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[29] ILO (2018).

Awkward postures and/or constrained postures during the course of the working day lead to many musculoskeletal problems.

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Work-related stress can cause momentary distraction, errors of judgement, or failure in the performance of normal activities, increasing the risk of workplace accidents.

Most of the activities carried out in the kitchen involve standing while working. Working in a standing position on a regular basis can cause sore feet, swelling of the legs, varicose veins, general muscular fatigue, low back pain, stiffness in the neck and shoulders. Excessive standing also can later lead to rheumatic diseases.

Whenever possible, the tasks to be performed should be rotated in order to prevent problems.

Awkward postures and/or constrained postures during the course of the working day lead to many musculoskeletal problems.

It is important to have rest periods during the training process, and for participants to understand its relevance and how they should be used.

It is important to have rest periods during the training process, and for participants to understand its relevance and how they should be used. Trainers must explain that rest periods should be used to relax tired muscles and make certain movements, to walk when the workspace limits the change of position, etc. It is also key for young people to know that they must report ailments, discomforts and emerging problems during work, so that working conditions can be improved and corrected.

Even though the actions of apprentices must be continuously monitored by trainers during the learning process and, afterwards, during the exercise of their occupation by supervisors, so that they may, based on their experience and caution, avoid and prevent occupational accidents when possible, it is essential for young people to be aware of the relevance of the care of OSH for them to act constantly avoiding risks.

Awkward postures
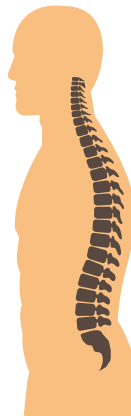
Proper postures

General recommendations. Good practices and lessons learned.

In order to mainstream OSH issues in learning processes this approach needs to be integrated into the organizational life of training institutions, in such a way that apprentices and educators work together to make the training institution a safe and healthy place to work and learn, through:

- education on risks and OSH management, for example, by having students participate in risk prevention and hazard identification;

- the promotion of dignity and respect for all, for example, with campaigns to promote equality at work and against mobbing;

- the concern about the environment, for example, about the responsible use of supplies, recycling and reusing.

The experiences analysed show the good practices and some lessons learned about the different aspects of the design and implementation of vocational training geared toward young people.

The risk prevention and OSH care approach needs to be integrated into the organizational life of training institutions, in such a way that apprentices and educators work together to make the training institution a safe and healthy place to work and learn

With regard to the occupational profile and graduate profile:

The occupational profile is identified from the reality of the world of work, usually in consultation with social partners (employers and workers and their organizations) and it includes skills that are key to the professional performance. Experience shows, however, that actors in the world of work do not always mention OSH skills or environmental care skills spontaneously among the required skills.

OSH skills must be explicitly included in the occupational profile. In this way, OSH skills will be considered in the graduation profile and, consequently, addressed in the curriculum and evaluated.

> *At the training institution reviewed, written evaluations include questions on health, hygiene, safety.*

At the level of curriculum design:

Mainstream OSH objectives and content in the design of the training programme. This implies coordinating what the safety and health specialist teaches with the knowledge imparted by the cooking workshop teachers. This articulation entails the necessary contextualization of concepts regarding the work practices. It also involves, as far as possible, having shared work sessions (where the OSH specialist participates jointly with the cooking teachers), providing ongoing feedback to participants as the work processes take place and the associated risks are revealed.

It is advisable to have two teachers per class simultaneously during practical training sessions in the kitchen, in order to ensure each student is permanently aided and monitored. If there are two teachers, one can always pay attention to OSH aspects (anticipating risks and hazards, monitoring compliance with safety and health standards and measures, warning and teaching students based on successes and errors).

> *At the training institution reviewed, work in the kitchen takes place with two teachers, who observe and provide permanent feedback on the performance of participants, both regarding technical aspects and OSH.*

For young participants, to be interested in learning and developing their OSH, it is advisable to apply active methods that are also attractive, experiential and meaningful: instead of theoretical classes, implementing practical exercises, watching videos, conducting drills, learning visits, testimonials and internships

At methodology level:

For young participants, to be interested in learning and developing their OSH, it is advisable to apply active methods, that are also attractive, experiential and meaningful: instead of theoretical classes, implementing practical exercises, watching videos, conducting drills, learning visits, testimonials and internships.

It is also key to make participants responsible for their own care and that of the team in OSH matters, and to train them in risk detection and the integration of safe and healthy work practices.

For example, activities can be implemented in groups aimed at identifying risks and developing proposals for improvement in real settings, such as:

· going on tours, examining the conditions of the workplace in order to verify that they comply with the relevant regulations, documenting practices and making proposals,

· during performance, conducting a peer review and giving feedback to peers,

· preparing a brief talk or presentation on risks before starting work on a particular process[30],

· designing and making posters to illustrate risks or exemplify incorrect vs. good practices,

· playing (and recording with photos or videos) role-playing games simulating accidents and appropriate interventions (e.g. falls, fires, etc.),

· making videos or presentations to explain and train peers on the use of equipment or safe practices, among others.

Training centres should take occupational risk prevention as a major part of comprehensive students training and, thus, should bear in mind that for this to be possible, trainers must be aware of and properly trained in OSH.

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[30] See the SENATI example on distraction.

The teaching staff

> *"Teachers may know a lot about the product or technique, but they may not be very aware of prevention aspects. Some details in the kitchen… teachers sometimes do not have information about certain things which may not be good for safety in a kitchen." (Headmistress at training institution)*

Working as a team entails considering the need to view learners from a holistic perspective, paying attention to what happens to them. In learning processes, especially regarding OSH, emotional state strongly influences the lack of attention to potential risks. It is essential to timely detect anything that may be interfering with concentration and care practices in participants, which requires a holistic approach.

> *"Teachers work in permanent coordination and if any of them identifies difficulties or situations which may interfere with the learning process of a student, they contact their colleagues so that each of them can address it." (Person in charge at training institution)*

Examples of learning activities according to the type of risk

Risk analysis and preventive measures for each work process

The following can be used for analysing each work process (entry into the kitchen, "mise en place", product preparation, presentation and portioning, and cleaning) by type of risk and errors frequently made in the kitchen:

- Case studies.

- Educational visits to kitchens with guided tours.

- Projects on preventive measures for a restaurant or kitchen.

- Research project on the main kinds of accidents in kitchens which graduates from the training institution have joined (surveys to graduates).

- Research on the accident rates in the sector, according to available data from the BSE.

- Preparation of a project in which participants make suggestions and explain the basis for the OSH regulations of an establishment (cafeteria, restaurant, ship kitchen or whatever they choose).

- Analysis of cooking contest shows or other kinds of shows where they can analyse OSH as a transversal aspect in one episode.

- Preparation of awareness materials on risks, preventive measures (posters, leaflets, videos, PowerPoint presentations, etc.).

Falls

· Analysis and discussion based on videos, photos. Reflection based on observations (events that take place and cause accidents in the workplace, what should they do to avoid said risk, what are the consequences of their actions).

· Interviews to specialist doctors (for example, from the National Insurance Bank, BSE).

Cuts

· Practical lessons on the use of all kinds of knives, sharpening, handling and prevention recommendations for handling.

· Videos.

Overexertion/load lifting

· Role-play.

Handling fire or hot substances

· Observation of photos, videos.

· Practical lessons.

Risks resulting from the use of chemicals

· Simulated purchase of cleaning products.

· Application practices.

Risk of skin injuries for not wearing PPE

· Observation of photos, videos.

Fire

· Practical training on the handling and use of portable fire extinguishers.

· Review of escape routes and exits, as well as signage and access to extinguishers, hydrants, electrical panels, etc.

· Evacuation drills.

First aid training

· For each type of risk, discuss with students the reaction or procedure they should follow in case of accident or emergency. For example, what to do in case of a burn, what healing products to use, etc. or what to do in case of a cut with kitchen equipment. The trainer teaches how to help someone in case of an accident.

· Reading and discussion of information leaflets about the regulatory framework and where to turn to in case of accident.