TRAINER'S HANDBOOK
FOR IPCIC COURSES

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Table of Contents

1. Preliminary remarks and pedagogical assumptions

1.1. The key European skills for permanent learning

The Council of the European Union approved on 22 May 2018 the new Recommendations relating to key competences for lifelong learning, which have the function of stimulating the Member States to implement national education and training policies that are more appropriate to social contexts, contemporary economic and cultural events.

Key competences are expressed as a set of knowledge, skills, and attitudes.

"Knowledge is made up of facts and figures, concepts, ideas and theories which are already established and which provide the basis for understanding a certain sector or topic." "By skill, we mean knowing and being able to execute processes and apply existing knowledge in order to obtain results". "Attitudes describe the disposition and mentality to act or react to ideas, people or situations." The purposes to which the skills must lead are "personal fulfilment and development, employability, social inclusion, a sustainable lifestyle, a fruitful life in peaceful societies, a management of life attentive to health and active citizenship ". The Recommendations outline eight key competences, which are briefly described below.

Literacy competence is «the ability to identify, understand, express, create and interpret concepts, feelings, facts and opinions, in both oral and written form [...]. It implies the ability to communicate and relate effectively ". As mentioned, every competence is composed of knowledge, skills and attitudes. In this case, knowledge is represented by the mastery of reading, writing, vocabulary and functional rules of grammar and language. This produces the possession of communication skill in a contextual function, which translates into an attitude of positive openness to dialogue with otherness.

Multilingual competence "defines the ability to use several languages properly and effectively in order to communicate". As knowledge connected to this competence, the individual must have mastery of the vocabulary and functional rules that characterize these languages. Concerning skills, the subject must take possession of all those linguistic elements, which make it possible to use the languages learned in the various contexts that arise during the life cycle. The attitude that this competence must give rise to is "the appreciation of cultural diversity".

Mathematical competence and competence in science, technology and engineering.

"Mathematical competence is the ability to develop and apply mathematical thinking and understanding to solve a variety of problems in everyday situations." «Science competence refers to the ability to explain the world around us [...]. Skills in technology and engineering are applications of such knowledge to respond [...] to the needs felt by human beings [...]. It involves (also) understanding the changes caused by human activity ".

With regard to the knowledge related to the mathematical field, the individual must know numbers, measures, fundamental operations and mathematical concepts. About skills, he must be able to apply these constructs to everyday home and work life, using mathematical reasoning to be applied also in the digital environment. The attitude that mathematical competence must generate is respect for epistemic truth.

As regards competence in science, technology and engineering, knowledge must focus on the fundamentals, understood as epistemological paradigms, of science, technology and engineering, which allow us to better understand the relationship between man and nature in order to promote sustainable development. The ability connected to this competence is that of knowing how to use the scientific method in the investigation of reality and knowing how to use technological tools and machinery. The attitude is that of greater attention to safety and environmental sustainability.

Digital competence is the ability that allows using digital technologies in different contexts (domestic, work, etc.) As knowledge, digital competence includes computer literacy, media literacy, the creation of digital content with the related principles that govern these processes. Skills are linked to the wise use of digital content, through the development of critical thinking. The attitude is represented by the critical and reflective openness to technologies and digital content.

Personal, social and learning to learn competence "consists in the ability to reflect on oneself, to effectively manage time and information, to work with others [...], to remain resilient and to manage one's own learning and career. It includes the ability to cope with uncertainty and complexity, to learn to learn, to foster one's physical and emotional well-being, to maintain physical and mental health, as well as to be able to lead a health-conscious and future-oriented life, to empathize and manage the conflict in a favourable and inclusive context ".

Knowledge must include the mastery of social grammar, of the rules that regulate good psychophysical functioning, of healthy lifestyles and of one's own way of learning. As skills, individual skills must be implemented, the ability to manage complexity, problem-solving, organizing one's learning, managing stress and uncertainty. With regard to attitudes, competence must lead to "a positive attitude towards one's personal, social and physical well-being and towards learning for life".

Citizenship competence is that which allows you to exercise an active role in the social, political and cultural context in which you live. The knowledge concerns the norms that govern community life in its social, cultural and economic aspects, at the local, national and European level. As a skill, this competence must develop a culture of commitment, understood as the ability to actively take part in one's own development and that of one's community. The attitude to be promoted is constructive responsibility.

Entrepreneurship competence refers to the ability to find new ideas and opportunities in one's life context, using creativity and a spirit of initiative. As knowledge, competence must

lead to a mastery of design procedures. With regard to skills, competence is connected to skills based on creativity, imagination and problem solving. The attitude to be developed is the entrepreneurial one "characterized by a spirit of initiative [...], foresight [...], achievement of objectives".

Cultural awareness and expression competence «involves understanding and respecting how ideas and meanings are creatively expressed and communicated in different cultures and through a range of arts and cultural forms. It presupposes the commitment to understand, develop and express one's ideas ". The knowledge related to this area includes the mastery of the different cultural forms that characterize the different human contexts. Skills include the ability to understand and interpret different cultures in all expressions. The attitude to which this competence must lead is that of openness to all cultural expressions.

The educational and training institutions operating in European national contexts are called to base their action on the development of the key competences identified by the Recommendations of the Council of the European Union. This is a necessary horizon for the formation of individuals capable of living and governing future social, economic and cultural scenarios, which are currently indefinable.

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1.2. The learning process

1.2.1. Learning characteristics

Learning can be defined as a change in behaviour or perception as a result of experience. The change can be physical and manifest (e.g. knowing how to ride a bicycle) or psychological and attitudinal (better motivation, sharper perception, faster mental processes, etc.).

Learning is multifactorial. The learning process can use (even simultaneously and cumulatively) of verbal, conceptual, perceptual, motor, emotional components and ability to solve problems.

Learning is multifactorial in another sense as well. While applying to the subject of the moment the student may go on to learn other useful things. This learning, although often called "accidental", can have a significant influence on the overall development of the student.

1.2.2. The laws of learning

The formulation of a series of "learning laws" valid for any subject is due to the American psychologist Edward L. Thorndike. Although these "laws" are not as absolute as those of physics, they offer an important contribution to understanding the following elements that make up effective teaching:

1. The law of motivation states that if a student is ready to learn and has strong determination, clear goals and well-founded reasons to learn, he will make better progress than if he did not. Motivation implies concentration.

2. The law of exercise states that things repeated more often are better remembered (or better performed). This is the basis of training and practice.

3. The law of effect refers to the emotional reactions of the learner:

- learning is reinforced when it is accompanied by pleasant or satisfying sensations;
- learning weakens when it is associated with unpleasant or frustrating sensations.

4. The law of priority establishes that the things learned first often create a strong and almost indelible impression. This "law" means that bad habits learned early die hard: the teacher must therefore insist on asking for correct performance from the start.

5. The law of intensity states that you learn more from a vivid, dramatic, exciting or engaging experience than from a boring exercise routine. A consequence of this law is that the student learns more from the "real thing" than from a simulation of it.

6. The law of proximity states that the most recently learned things are better remembered. The teacher must take this into account when planning a lesson or a critical discussion.

1.2.3. Perception and understanding

Perception is much more than the reception of stimuli from the five senses. Perception occurs when the subject gives meaning to sensations. Thus, perceptions are the foundation of all learning.

Among the factors that influence a person's perceptive skills are:

- physical constitution and state of health;
- the basic needs of the person;
- objectives and values;
- the concept of self;
- time and opportunity;
- the warning of a danger or a threat.

A person's basic needs are not just food, sleep and reproduction. There is one perhaps even more relevant, and it is the need to maintain, preserve, increase and perpetuate the organization of the self. Consequently, every perception is affected by this essential need.

Fear affects perception as it restricts the perceptive field:

- in the face of danger, the person tends to focus attention on the dangerous object or situation;
- the resulting anxiety further limits receptivity and weakens mental acuity.

Understanding occurs when perceptions are grouped into a meaningful whole, i.e. when "one has the whole picture".

- Evoking understanding is the teacher's greatest responsibility.
- The teacher accelerates the learning process by explaining the relationships between the various elements as they are perceived, thus promoting the development of students' understanding skills.

1.2.4. Forgetfulness and retention

There are three main theories of forgetfulness:

1. the theory of disuse states that we tend to forget what is not used for a long period. The proof lies in the few notions that remain of many of the subjects studied just a few years after finishing school;
2. the theory of interference argues that people forget because of new experiences that overlap the original learning. In other words, new or subsequent events can "displace" what has been previously learned;
3. the theory of repression states that some forgetfulness is due to the submergence of unpleasant ideas or thoughts in the unconscious. What produces anxiety, pain, anguish is "forgotten", even though not intentionally, as a reaction of the unconscious to protect the conscious self.

Retention (memory) is favoured and stimulated by the following factors:

- positive reinforcements, such as appreciation, recognition or other types of rewards. Responses that give pleasant feedback tend to be repeated;
- significant repetitions (applications). Three or four repetitions produce the maximum effect, after which the retention capacity and the learning level decrease rapidly;
- explanations. Something whose reason is known, the mechanism of operation or the purpose for which it serves is more easily remembered of something learned "to parrot";
- demonstrations and exercises. Always keep in mind the old saying: "Tell me about it, and I will forget it; let me see it, and I will understand; let me do it, and I will remember it ";
- frequent occasions to encourage students to ask questions.

1.2.5. The transference

The student can be both facilitated and misled by things previously learned; this process is called "learning transference".

A positive transference occurs when a previously learned skill helps in learning a new one. Example: you have already learned to ride a bicycle when driving a moped.

There is a negative transference when a previously learned skill interferes with learning a new one. Example: switch to walking after having always competed in running. Negative transference is closely related to the theory of interference.

The teacher can foster the habit of positive transference by making sure that the student understands how each learning can be applied to different situations. This is the fundamental justification of the "block" teaching technique, in which the student must be capable of correct and acceptable performance in a task before the teacher introduces the next task.

Introducing the teaching of more articulated and complex operations before the student is well mastered of the basic elements produces poor understanding, poor performance and the habit of looking for "shortcuts" in learning that requires gradualness and application, which are of course the shortest way to failure.

1.2.6. Levels and the learning curve

Learning can be stopped at each of the following levels:

- mechanical learning;
- understanding;
- application;
- correlation.

The lowest level, mechanical learning, is the ability to repeat what has been taught without necessarily having understood or being able to apply what has been learned. Consequently, the attainment of transference is not possible.

At the level of understanding, the student is not only able to repeat what he has been taught, but he is aware of the principles and theories on which it is based.

At the application level, the student not only understands the theory but can also use it to apply what he has learned and execute it correctly.

At the level of correlation, the student can associate the different elements of what he has learned with other learning segments or blocks or experience data and organize them autonomously in their own cultural scheme.

The best way to prepare a student for an assignment is to provide clear examples of it step by step. Students need a clear picture of what they need to do and how they should do it.

Learning typically follows a pattern which, if represented in a graph, is called the "learning curve".

The first part of the curve shows a rapid initial increase. Subsequently, the curve flattens out, levelling off on what is called the learning plateau.

The student can remain on the plateau for a considerable period, after which saturation and fatigue take over and the curve drops sharply. It is therefore essential that the teacher ascertains how long a student or class can stay at the plateau level, because continuing further on the same subject leads to null results and it is advisable to at least move on to a different topic.

1.3. Teaching methods and techniques for active learning

The lesson, in its various meanings, is certainly the most popular way of teaching in the school; this does not mean that it is the most effective method for every discipline and for every learning.

On the contrary, in all disciplines (even in the more theoretical ones) different methods should be activated:

- to develop different and more autonomous learning processes (not only by reception but also by discovery, by action, by problems, etc.)
- to ensure a customizable training offer (the student who does not learn with one method, can learn with another)
- to promote and/or consolidate the interest and motivation of students (in the long run, every method is boring).

Here we will consider the laboratory (operational method), experimental research (investigative method), action research (participatory method) and mastery learning (as an example of individualized methods).

These methods are representative of entire methodological families and each of them activates specific training processes (operation, investigation, participation in research, individualization of paths).

1.3.1. The operative method: the laboratory

Before being an "environment", the laboratory is an "equipped mental space", a mindset, a way of interacting with reality to understand and/or change it. The term laboratory should be understood in an extensive sense, as any space, physical, operational and conceptual, suitably adapted and equipped for carrying out a specific training activity.

From the logistical point of view, the laboratory should be a separate room, purposely built and equipped to produce specialized learning. From a training point of view, the laboratory is characterized by the object of its action, that is, for the activity that takes place there, which involves the operating subject.

With the work in the laboratory, the student dominates the sense of his learning because he produces, because he works concretely, because by "doing" he knows where he wants to go and why.

What are the fundamental elements of the laboratory method? The proposed activity in the laboratory:

- he must lend himself to concrete manipulation (verbal or symbolic linguistic codes are not enough);
- it must involve the crucial operations (the main steps of a procedure must be present);
- it must not have a single solution (it must give the possibility to choose and decide; the laboratory that proposes a single solution is reduced to an application algorithm);
- it must cause a cognitive "displacement" (it must make people discover something new, putting old acquaintances in crisis);
- it must be located at the right distance (the new must neither be too close to the known nor too distant);
- it must involve different levels of interpretation (the plurality of points of view);
- it must possess metaphorical values (it must recall distant and heterogeneous experiences);
- must involve the student's relationship with knowledge (in the laboratory, knowledge is knowledge in action).

1.3.2. The investigative method: experimental research

Research learning can only be activated through teaching by research. Today, basic research operates along two lines: classical experimental research, connected to the hypothetical-deductive method, and action-research, an expression of the participatory method.

It is advisable for students to deepen both types (even contaminating them), even though the first tends to be aimed at the natural sciences and the second at the human sciences.

In its classic form, the investigative (or hypothetical-deductive) method follows the path of experimental research (widely known) with the following phases:

- Identification and definition of the problem.
- Analysis and selection of hypotheses.
- Delimitation of the research field (of the factors that interact with the problem).
- Sampling (selection of representative elements).
- Selection of sources (from which to collect data and information)
- Recording and processing of the collected data.
- Comparison and verification of hypotheses.
- Definition of the general principle.

1.3.3. The participatory method: action research in the classroom

Action-research is carried out especially in the social sphere where research cannot be separated from action; in it, there is no distinction between those who do research and who is the object of the research, between the researcher (external) and the one who acts (internal). In action research, it is not so much the objectivity that worries (an essential methodological element in classical experimental research) as the documented and ordered reconstruction of the action process in its making.

Methodologically, the research-action cycle includes a series of phases:

- Identification of the problems to be solved, the causes of those problems, the contexts and environments in which the problems are located, the resources available and the constraints that force us to make certain choices.
- Formulation of change hypotheses and implementation plans.
- Application of the hypotheses in the objective contexts of the formulated plans (we no longer speak, but we act);
- Evaluation of the changes that have occurred and review of the projects and plans adopted.
- Deepening, institutionalization and widespread diffusion of applications with a positive evaluation.

Why action research with students? Because with action research they understand the complexity of the systems (in which man intervenes), the fluidity of the design hypotheses and in particular:

- the mutiny of the variables (when the human factor intervenes it is quite difficult to isolate and block the variables;
- the partiality of the researcher's point of view (and the consequent need to compare all points of view, the relativity of the individual is no longer a limit, but is transformed into value if all the actors are researchers);
- the need to immerse oneself in the situation studied (by doing research on the situation-problem, the student researches himself; with the research-action, one is not external, detached, but involved, co-responsible);
- taking charge of heuristic research paths (solutions to real problems can only rarely be identified and followed according to algorithmic logic; on the contrary, they require path heuristics, open logic).

1.3.4. The individualized method: mastery learning

Mastery learning is a way of organizing the didactic intervention that is very attentive to individual differences in the rhythms and learning times of the students.

It provides for the following procedures:

- the teacher defines the conceptual and operational skills that students should achieve at the end of the teaching intervention;
- with the analysis of the task establishes the intermediate levels defining the particular objectives in a succession of didactic units able to progressively promote the final skills;
- elaborates the tests able to verify the achievement or not of the objectives of the didactic units identified;
- then prepares the teaching units taking into account as much as possible the initial state of preparation of his students;
- subsequently structure the supplementary and recovery activities to be proposed to those students who have not yet reached intermediate levels of ability in the individual teaching units;
- check that the students do not tackle the next unit if they have not achieved the minimum necessary mastery of the knowledge and skills provided by the previous units.

Mastery learning can be profitably used as an individualized teaching method for training specific technical and/or professional skills, or in the presence of more or less severe learning disabilities.

After examining the methods, let us consider the techniques and, in particular the so-called active techniques.

1.3.5. Active techniques

These techniques reject the passive, dependent and substantially receptive role of the student; on the contrary, they involve the felt and conscious participation of the student, since they contextualize the learning situations in real environments similar to those that the student has experienced in the past (actualization of the experience), which he currently lives (integration here and now of the plurality of contexts) or that will live in the future (prediction and virtuality).

The techniques we will examine are characterized by:

- the "lived" participation of the students (involving the whole personality of the student),
- constant and recursive control (feed-back) on learning and self-assessment,
- training in situation,
- group training.

Let's consider four groups of active techniques:

- simulation techniques, in which we find role playing, for the interpretation and analysis of behaviours and social roles in interpersonal relationships, in basket (mail basket) for decision making in the office environment and action maze (action in the labyrinth) for the development of decision-making and procedural skills.
- techniques of analysis of the situation that make use of real cases: in the case study common and frequent situations are analysed, in the incident, emergencies are faced. With the case study, analytical skills and ways of approaching a problem are developed, in the incident, decision-making and predictive skills are added.
- operational reproduction techniques such as demonstrations and exercises: they aim to refine technical and operational skills by reproducing a procedure. They are complementary and require the breakdown of the procedure into operations and phases to be sequenced and verified at each step.
- cooperative production techniques, including the brainstorming technique (brains in a storm), for the development of creative ideas in groups, and the cooperative learning method, for the integrated development of cognitive, operational and relational skills.

The techniques define the relationship between the learner and the learning situation. With simulation techniques the subject learns immersed in situations; with those of analysis of the situation he learns from situations (reading them); with the techniques of operative reproduction, he learns by operating on situations, and with those of cooperative production he learns to modify (or invent) situations.

Of course, the emotional involvement of students is also variable: it is profound in simulation techniques, with immersion in reality and with the assumption of specific roles, more detached in the analysis of situations and operational reproductions.

1.3.6. The simulation techniques to understand another point of view

Role playing to put yourself in the shoes of others

Role playing (game or interpretation of roles) consists in the simulation of behaviours and attitudes generally adopted in real life; the roles are assumed by two or more students in front of the group of companions – observers. Students must assume the roles assigned by the teacher and behave as they think they would actually behave in the given situation. This technique, therefore, has the objective of acquiring the ability to play a role and to understand in depth what the role requires.

Role playing is not the repetition of a script, but a real recitation per subject. It looks at the behaviours of individuals in interpersonal relationships in specific operational situations to find out how people can react in those circumstances.

The fundamental elements of role playing:

- a scene is set up in which participants must act;
- the participants are at the centre of the action and must spontaneously recite according to the inspiration of the moment;
- the audience assumes particular importance since the group does not act as a simple observer, but tries to examine and understand what is happening on the scene;
- the teacher must maintain the action of the participants and the stage situation, also by soliciting, suggesting, facilitating the action until the moment in which the protagonist students do not act autonomously;
- the teacher can make use of collaborators in charge of encouraging the recitation, even with their acting: they will be able to use techniques such as that of the mirror (in which the attitudes of the subject to the subject himself) or the technique of the double (in which they try to grasp the typical attitudes of the subject by prolonging their expression and making explicit what would remain latent).

In addition to the mirror and double techniques, role playing uses other techniques:

• Self-presentation.

• The monologue (the actor's personal reflections).

• The presentation of collective roles (the same participant plays all the roles provided).

• Inversion of roles: (after having supported one position, try to support the opposite one).

Roleplay has a great catalyst force that emotionally involves both participants and observers. Sometimes these are difficult experiences to live. The teacher is required to respect this awareness without judging whether this is right or pertinent.

Like any sensitization technique used for training purposes, role playing must also be used as such (for training purposes), must have structured sequences and must end with a verification of learning.

From in-basket to e-mail to learn online

The in-basket was initially reserved for students of technical or professional courses for decisions in office work. Today, with the universal spread of e-mail and network communications procedures, the basketball technique is particularly interesting for learning selection procedures and decision-making processes.

In its classic form, students were given some of the documents (letters, notes of commitments, notices of deadlines, etc.) that could normally be found on the work table or in the inbox in any office. With e-mail, mail management is no longer the prerogative of office staff alone, but of all the people who communicate over the network. The functional management of 14elematics communication can only be considered a basic skill (which everyone must possess), highly formative that requires the activation of mental processes

(and not just technical sequences) such as analysis and understanding, the choice of priority, decision-making on the problems faced.

Virtual mazes to learn how to choose

The action maze can be considered the guide that the student uses when going into unknown cognitive environments. This technique too has been extensively revisited with the advent of networks and navigation techniques.

In this case, the search, even though in virtual worlds of knowledge, is not simulated; the student does research and, at each node, must evaluate the importance and the meaning of the new information, making continuous decisions on the paths to take or to discard (the Internet is a real labyrinth). Their decision speed is such that, after just a few knots, it can be complicated to return to the starting point. Alongside decision-making skills, the networked labyrinth technique also requires in-depth self-assessment and orientation skills.

1.3.7. Analysis techniques to understand real situations

The case study: anatomy of complexity

The case study consists of a detailed description of a real situation. With it, we intend to develop in students the analytical skills necessary to systematically deal with a complex situation for which all the fundamental indications are provided.

With the case study, students are presented with a description of a real (and as such complex), frequent or exemplary situation. A case description is a written passage to which documents, tables or diagrams can be associated. Although in the literature there are very long descriptions, it is considered educationally appropriate not to exceed one or two pages.

The situation to be examined can also concern a problematic case, but we must not forget that the goal of this technique is not to solve a problem, but to learn how to deal with problems, to identify them and to position them.

The description is given to the students who, at first, study the case individually and then discuss it in a group, thus multiplying the alternatives of approach to the case itself.

Alongside the development of analytical skills, the case method also presents other important training aspects when used as a group technique. The interaction between students, in fact:

- favours the knowledge of other people, discouraging from issuing simplistic judgments towards them;
- allows to understand how the same problem can be evaluated differently by different people
- it allows to break down easy generalizations, useful only as individual defences;

- raises awareness and forms the interaction and discussion by creating conditions that facilitate a better mutual understanding;
- highlights the difficulties presented by thinking about a real problem and arriving at a possible group solution.

At the beginning of the experiences with the cases, the students are eager to know the answers to the various questions and the solutions adopted in reality. After a while, however, they realize that it is more important to learn the analysis process to arrive at the solution than to "guess" the solution itself.

The incident to learn to decide

The incident can be considered a variant of the case study, although it differs from it both in the object of study and in the didactic technique. Indeed, the object of the accident is a real situation, but it is an emergency, is about to explode, can become a hiccup. Even with the incident, therefore, students must demonstrate analytical skills, and not only identify the strategies of approach, but above all to develop the decision-making skills suitable to favourably overcome the emergency.

Here too, as with the case study, the teacher carefully prepares all the elements connected to the situation, and therefore the planning of the intervention is similar to that of the cases. In the incident, however, the didactic technique varies. The very short written description requires only a few minutes of reading since the material presented to the students is deliberately lacking in many elements.

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2. Indication of desired ranges of knowledge for individual professions

2.1. Desired range of knowledge for each profession

As the world improves, each profession is no longer limited to knowledge related to his direct work. It becomes very important to have knowledge of various work-related areas. Representatives of the construction professions very often carry out their activities independently, therefore it is especially important for them to know the following factors related to their profession: Legal aspects of the profession; Work performance technology; Principles of work organization.

2.1.1. Legal aspects of the profession

Knowledge of the legal aspects is probably the basis of every profession these days. All states have their own legal framework that defines the activities carried out. The law specifies the basic requirements for these activities and how these activities are to be carried out. In many cases, the basic legal requirements of different professions are the same or very similar and only later differ due to the specifics of each profession. First of all, we should discuss those aspects that are common to all professions.

2.1.2. Legal aspects governing the performance of activities

Legal aspects governing the performance of activities. These are the legal requirements that define the preparation and documentation required to start your business. These aspects are not related to the technology of the execution of the works. The main legal requirements for starting a business are usually the following:

2.1.3. Validation of ongoing activities

This can be done in a number of different ways. The person who will carry out his activity must first decide whether he will do it independently or become an employee. The latter method is usually the simplest, as the employee does not need to prepare any documents. However, it is also very important to know your rights and responsibilities as an employee in this place. It is also very important to properly examine all documents before approving them.

Otherwise, when a person chooses to carry out an activity himself, he is faced with a much larger amount of documents, which often have to be prepared by himself or a specialist in the field. Also in this case, it would be possible to distinguish different ways of legalization of activities: To establish one's own company in whose name and activities will be carried out or to carry out activities independently (With a business certificate, Individual activity certificate or in another way established by law).

Starting your own business becomes unattractive for young employees because it requires a considerable amount of authorized capital. In addition, he becomes the head of the

company, who is responsible for all his future employees, the performance of work, compliance with legal requirements. For these reasons, especially in construction, young people tend to choose to be self-employed. These days, when most services have already moved to cyberspace, doing so is straightforward. All you have to do is register your activity with a state institution that is engaged in the administration of these activities. Also, in this case, things become much simpler, as it is specified what additional documents are needed to do so.

Summarizing all the information, a person should first assess his/her legal knowledge and decide which course of action would be the easiest for him/her.

2.1.4. Knowledge and documentation of occupational safety requirements for the profession

After starting your business in one of the ways already discussed, another very important aspect is the knowledge of occupational safety requirements. Every employee must know and comply with these requirements.

Of course, working as an employee makes it a little easier again, as especially larger companies have specialists responsible for the implementation, control and training of occupational safety requirements. In carrying out their activities independently, ensuring all these requirements rests on the employee's own shoulders. It does not matter whether the employee is self-employed or employed – the safety requirements are completely the same.

Different countries often have different requirements, but there is always a public body that prepares, administers and monitors compliance with these requirements. In order for all employees to comply with the established requirements, public authorities usually prepare safety and health instructions for different professions (For example Tiler's Safety and Health Instruction, Plumber's Safety and Health Instruction, Fitter's Safety and Health Instruction). These instructions are available to anyone who wants them (However, in some cases you have to pay for them). Large companies can also afford to draw up their own safety and health instructions and coordinate them with the responsible public authority and apply them in their activities. However, even in this case, all the work safety requirements provided by law must be applied - they cannot be relaxed, but can be made stricter.

It should be borne in mind that the purpose of all these documents is to acquaint employees with the requirements and, if they are self-employed, to be familiar with them. It is recommended that such an introduction be recorded by the employee's signature.

2.1.5. Health check-up

A health check is an integral part of every person's life. This is also very important in work activities. Every profession has different health risk factors, so the health check procedure varies from profession to profession.

This process is usually defined by the public authority responsible for it, indicating the factors that may be hazardous to human health in the course of that particular job. Such a

medical examination shall be carried out in health care establishments entitled to do so. After the inspection, the health care institution can confirm that the employee can work in this job, can work with some restriction or in general his state of health does not allow him to work the desired job.

Employer health checks are the responsibility of the employer (in the case of self-employment, the employee himself). It is very important to comply with the established requirements, which usually require inspections to be carried out before the employee is employed, and at the intervals prescribed by law (eg. every year, every two years, etc.).

More importantly, after receiving a recommendation from a medical institution to work with certain restriction - to follow that recommendation, because without doing so we may further harm our health. The employer must also refuse to allow an employee who has not been examined for health or whose health condition prevents him or her from performing the prescribed work. This also applies to a self-employed person.

2.1.6. Accounting for ongoing activities

Every company or person carrying out an activity keeps accounts. It does not matter whether an accountant will be hired to work for the company or whether the accounting work will be entrusted to a company providing accounting services, or whether the person will keep the accounting himself. The most important thing is to understand the importance of accounting and entrust this work to professionals.

It can be said that accounting is an integral part of every company or every business. It is important to understand that only the right work ensures the smooth operation of the entire company and affects the success of the business. Improperly conducted accounting can cause a lot of trouble. These can be dissatisfied employees who are late in calculating salaries. It can also be a fine for improperly paid taxes. There may even be legal consequences. It is also possible that improperly maintained accounting will not lead to the prosperity of the business, but will contribute to its collapse. Sometimes it is difficult for managers to understand that accounting is so important. They often think it's just calculations and nothing more matters to them. However, it is not just about calculating salaries or making declarations. With proper accounting, a professional accountant can monitor ongoing financial processes and provide timely warning of impending recession. In this case, the manager will be able to prepare for a change in strategy, such as reorganization. However, if the accountant does not have enough competence or simply does not care much about the future of the company, then the company's activities may be in serious danger.

Understanding the importance of accounting for a company or individual also requires understanding that choosing the right accountant is very important. This specialist must have not only theoretical knowledge but also practical knowledge. In addition, he must be constantly interested in innovation, because the laws in the countries are changing so fast

that without knowing the norms of the laws currently in force, one can get into serious trouble with state institutions.

What to choose? There are a lot of accountants looking for work right now, so finding the right one shouldn't be difficult. Nevertheless, when we start to get interested in specialists in this field, we see that there are a lot of companies that provide accounting services. Is it safe for them to entrust their company's accounting? It is important to mention here that you just need to make sure that the activities are carried out officially and that they are staffed by experienced professionals. It is also possible to contact their customers to find out if everything is really going smoothly. In most cases, this is a better solution than hiring an accountant. Nevertheless, everything needs to be assessed well, because sometimes, for example, in large companies it is not possible without an accountant.

2.1.7. Specific aspects of the professions

Each profession has certain specific elements, so the main aspects that need to be addressed are briefly presented.

- Working with hazardous chemicals - The tiler, fitter and plumber are constantly working with different materials. It is very important to know the legal requirements that define the safe use of these materials, their impact on health and the environment, and the proper disposal of unused materials.
- Working at height - This aspect is usually very important for the plumber and fitter, as only in rare cases do tiles have to be glued at high heights. When working at heights, it is very important to know the legal requirements governing the use of lifting equipment (their installation, maintenance, etc.). It is important to comply with these requirements and if they are not complied with, refuse to perform the work.
- Legislation defining the quality of work - As each profession performs completely different tasks, they are also subject to different quality requirements. These requirements are usually defined in the legislation governing the activity. It is very important to know what requirements are set for each operation performed and what deviations of the final work result are allowed. It is important to follow these requirements, otherwise you may need to redo the work you have already done.

Technology for carrying out works

In virtually any construction profession, job performance technology is very important. For this purpose, technological cards for the performance of works are prepared. This is the document on which the work is based. It describes the sequence of work, the materials and tools used, the applicable safety requirements and the measures intended to implement them, as well as the quality requirements and their control methods.

2.1.8. Tile installation technology

The first point is the features of the substrate: is the substrate suitable for gluing tiles? That is, is the smoothness sufficient, or is the foundation properly dry, if the foundation is framed, will future bends not be boundary? Often this is completely ignored, the base is compared with the same tile adhesive, glued on non-dried, just-set concrete, and so on. All this leads to the formation of weak layers and potentially bounce of the tiles. It is also very important to know that the residual moisture of the substrate when gluing tiles can be: when gluing tiles on anhydrite (gypsum) floors - 0.5 percent. (unheated floor) and 0.3 percent. (heated), gluing on cement substrates - 2 percent.

The second point is the choice of tile gluing method. There are three ways to glue tiles:

1. Tile adhesive is applied only on the substrate. It is appropriate because at least 70 percent. the surface area to be glued is covered with tile adhesive, this is minimally required by the technical instructions for tile adhesive. However, a rare installer knows that tiles can only be glued in this way in places where they are not exposed to heavy physical loads or the effects of climate (cold, humidity).
2. When the tiles are exposed to loads and fluctuations in ambient humidity and temperature, the tile adhesive must be applied both on the substrate and on the tiles themselves. This ensures 100% coverage without leaving cavities. In this case, the tile coating becomes more resistant to physical impact.
3. The third method, where the glue is applied only on the tile, is rarely used. This is how tiles of different thickness are glued or when repair work is carried out by replacing individual tiles.

Priming the base. It is very important to choose the right primer correctly, just read the technical sheets of the tile adhesive carefully and follow the instructions. Experimenting at this point often fails and the consequences are unpredictable.

Installation of base waterproofing. When levelling or priming the substrate, waterproofing must be provided, it is necessary in damp rooms, especially for insulating surfaces directly exposed to water. In addition, some types of waterproofing prevent the base cracks from transferring to the finishing materials.

Choosing the right tile adhesive and putty. Tile adhesives should be chosen not only in terms of price and popularity (although this is important). The professional needs to know exactly what type of tile he will be gluing (especially the absorbency of the tile) and on what basis this will be done. Joint sealants are also very important for the installation of quality coatings. And when choosing them, you should first look not at the colour, but at the technological properties. The seam must be tightly adhered to the edges of the tile, must be durable and possibly have additional properties when the tiles are glued in specific places.

2.1.9. Plumbing installation technology

Whether we install a plumbing or sewage system, we probably won't get by without cutting pipes. This is usually the first step in the technology of installing these systems.

- Pipes are cut using a suitable knife, jigsaw or other tool to cut a specific pipe. Cut perpendicular to the pipe axis. Holders can be used to make cutting easier. After cutting the pipe, the chips formed after cutting must be removed from its edges.
- The second step is connecting the pipes. When connecting sewage pipes, it is recommended:

  1. to remove dirt from the ends of connecting pipes and sealing elements;
  2. grease the ends of the pipes;
  3. check the position and condition of the sealing elements;
  4. insert the end of the pipe into the coupling.

The pipes of water supply systems are usually connected with dedicated parts, soldered or welded together. When connecting pipes with fittings, it is very important to choose the right fittings and follow the manufacturer's instructions and requirements for their installation.

Pipe fastening. Both sewage and water pipes must be fastened in such a way that no stresses are created and that it is possible to compensate for expansion. General purpose pipe holders are used to fasten the pipes.

Proper placement of pipe holders is very important. When installing the sewage and water supply system, it must be borne in mind that the pipes expand due to the effects of high temperatures, so that their free movement must be ensured sufficiently. A vertically mounted pipe with one connection must be fastened at two points on each floor of the building: a stationary fastening under the floor and a movable fastening in the middle of the floor of the building.

Transitions through overlays. Transitions must be airtight and provide adequate sound insulation. When laying pipes in ready-mixed concrete, at the passages through ceilings, the pipes must be protected with protective pipes or wrapped with thermal insulation materials.

Ensuring fire safety requirements. The new generation of fire resistant edgings are much smaller in size. This provides greater flexibility in installation. Refractory edgings were developed for use in plastic pipe transitions through walls and ceilings. The Snap-on closure makes it possible to install the fire rim later. Refractory edgings can be installed in the traditional way - in a masonry wall or later, fastened with studs.

2.1.10. Technology of fitter works

The main work performed by the fitter is the installation of partitions and ceilings. At first glance, these are completely different works, but they also have many common technological features.

Partitions:

The frame of drywall constructions can be installed from wooden beams or metal profiles. Metal is used more often due to its stability and durability as well as easier installation. Metal profiles are an extremely common construction material in modern interior decoration of buildings. The carcass must be strong and stable. The unstable carcass can cause cracks that are completely undesirable in the final finish.

The first step in installing partitions is a certificate of its location. Mark the outline of the future partition on a clean floor, indicating where the openings will be.

After marking the partitions, the installation of profiles continues. The following metal profiles are used for the installation of partitions: wall, ceiling, profiles for sound insulation partitions, reinforced profiles are used for the installation of door openings, etc. The number of profiles depends on the height and length of the frame, the step of the mounting profiles, the purpose of the frame (wall, partition or ceiling), single or double frame, the number of openings, which panels will be used for cladding. The type of profiles and the amounts of additional fasteners and other materials depend on these circumstances. It is important to know that the profiles must be of suitable thickness of metal so that they do not bend during cutting, drilling, fastening, so that they can be firmly adhered to sheet metal screws and other fastening parts. U-profiles are installed on the floor and ceiling first. It is very important to check the verticality between these two profiles. Vertical partition profiles are then attached to the already installed profiles. Depending on the requirements under the profiles, suitable sealing gaskets or mastic must be used. The struts in the sleepers must stand free, without restraint. It is recommended to leave a gap of 5-10 mm at the top between the strut profile and the strut.

Deformation joint installation. Because different materials react differently to changes in humidity and temperature to prevent stresses and cracks at the joints of different materials, so-called deformation or slip joints are installed. It is risky to install rigid seams in such places. Deformation joints are joints between gypsum plasterboard and other materials, as well as joints located in possible places of tension or compression of plasterboard structures. The structural deformation joints of the building must be repeated in the newly installed metal frame construction. When installing long partitions, deformation temperature joints are installed every 15 m.

Fixing of gypsum boards. Gypsum boards are attached to the metal frame with self-tapping screws. The length of the self-tapping screws is selected depending on the number of layers of gypsum board to be attached and the thickness of the board. After installing the panels, it is necessary to cover the joints of the panels with gypsum joint putty. After the first layer of joint putty has dried, install a second layer of drywall. When installing a multi-layer panel

construction, the seams of the different layer panels must not overlap on both sides of the partition. After installing the second layer of gypsum boards, it is necessary to fill the joints of the boards with gypsum joint putty. Self-tapping heads are also covered. After these works, the partition is ready for further work.

Ceilings:

Estimate how many inches below the ceiling you will lower the new ceiling. They can be equipped not only with luminaires, but also with engineering communications (ventilation ducts, water supply, electrical installation routes, etc.) under the floor slab. In this case, the level of the new drywall ceiling may be 20 or more centimeters below the ceiling. In other cases, when only luminaires are planned to be installed in the ceiling, the plasterboard ceiling can be lowered by 7 cm. The type of suspension used will depend on the lowering height.

Measure the distances and cut the perimeter UD profiles to the required lengths. These profiles indicate the level of future lips but do not perform a holding function.

After installing the perimeter profile, mark the attachment points of the hangers in the ceiling plane. It is recommended to choose rigid suspensions for the ceiling, so the ceiling will be more stable and less cracked. Screw or glue the upper parts of the hangers in the marked places. The first suspension from the wall must not be installed further than 25 cm. Insert the lower part of the suspension into the CD profile, measure the height and connect the lower and upper parts of the suspension with the appropriate elements.

After installing the main profiles, install the lower mounting profiles. Insert the CD mounting profiles at least 2 cm into the perimeter UD profiles. Depending on the main and installation CD profiles of the system, use connecting parts for the connection.

Panel mounting. When attaching gypsum boards to the frame, cross-sectional installation of boards is preferred. After installing the frame, a layer of wool is laid over the supporting profile. The profile frame to which the panels are attached must be sufficiently stable and smooth. The quality of the ceiling, the final finish and good sound insulation are greatly influenced by the plastering of plasterboard joints.

2.1.11. Principles of work organization

The construction process consists of many stages: from the formation of investments to the selection of technologies and organizational methods for different types of buildings. Many people work at different stages, dealing with complex and varied issues. All parts of this process are very important, so a poorly performed part of this complex process can have a negative impact on other stages. Therefore, all organizers and executors of the construction process must coordinate their actions and work in agreement that the final result - the construction object - will be built quickly and well.

The first stage from which the organization of any work begins is the analysis of the existing documentation (in this case the project). The analysis of the project identifies the basic

requirements for the performance of works. At this stage, the future quantities of works and their cost, the required resources, the planned work schedule are calculated.

After signing the contract with the client, the second stage begins. At this stage, the required quantities of specific materials and details are assessed in great detail. All these materials are also ordered according to the information when they will be delivered to the planned long-term works. It is very important to calculate the required amount of materials accurately (If you order too much - you may have to throw them away and thus incur losses; If you order too little - the whole work plan may collapse).

The need for the necessary mechanisms, promotions or other tools is also planned at this stage. Tools and materials must be on the construction site at the same time to avoid time breaks.

The work area is tidied up before starting any work. If there are any defects that prevent you from starting work, the customer must be informed. It is not recommended to start work until the obstacles or observed deficiencies have been removed.

Ideally, it would be best not to have any other work in the same work area, but very often part of the construction process has to be done in parallel. In this case, it is important to plan your work properly, find out the plans of other people performing the work and plan further work accordingly.

No less important stage of any construction work is the timely completion of technical, financial and other documents. This must be done very responsibly, as neglect in this situation can have dire consequences.

Once the work is done, one very important step must be kept in mind, which is unfortunately often missed. Both at the end of each working day and at the end of the work, the workplace must be tidied up. All waste generated during the process must be disposed of in accordance with legal requirements.

2.1.12. Premises for applying professional ethics

People's behavior at work in the performance of their direct duties and in communication with colleagues forms an opinion about us. Appropriate behavior would include diligence, honesty, ingenuity, communicativeness, which would facilitate communication with the company manager or colleagues at work. Everyone would recognize that we spend more of our time at work compared to the time we spend at home with family or friends. Therefore, a workplace in a company or organization is sometimes called a second home, it is like a separate community and how, other communities function then, how members are hardworking, tolerant of each other. Everyone who spends so much time among colleagues must learn to control their emotions, never lose their sense of duty, responsibility, and should be guided by the morals of all morals: treat others the way you would like to be treated.

We often face a variety of situations where we have to think before we say what to say, how to behave, what to write, or how to dress. People who follow a code of ethics achieve a lot. This knowledge is passed down from generation to generation, it should be instinctive, nurtured with the help of parents.

Each of us wants to work in a calm atmosphere so that we can rely on a colleague, and we must also be trustworthy, strive for improvement, respect our colleagues, because we are bound by morality, whether we sympathize with them or feel antipathy to them. After all, we know that a colleague, speaking rudely and all the more so with language errors or using unacceptable expressions, negligently in the performance of his direct duties, being late in service, being speechless and ignoring his behavior and appearance, is unlikely to be promoted.

Tact in our communication with the manager and with colleagues has a really big impact. By tactfully giving up something or tactfully warning a colleague, we will not overwhelm or hurt him. Regardless of the situation in the institution or organization, each of us must behave properly and follow professional etiquette, all of which only raises the image of the institution.

Is it possible to teach a student in a vocational ethics school? Are the premises of the educational institution suitable for this? There is certainly no single answer to these questions, but the prevailing view is that teaching can be done in this way and no matter where it is done, and what matters is how it will be done.

In an educational institution, it is possible to model various real work situations, as well as to apply a methodology where the teacher becomes like a company manager and the learners become employees.

Of course, the teacher will also have to put a lot of effort into getting involved in such activities. it can be said that to be a good leader in part you need some talent, but in general you can also be a good leader to learn. After all, moral norms are introduced to each of us as a child, later with experience, diligence, benevolence, and in many ways, we gain new skills and experience. From the manager's personal ability largely depends on how communication with employees will begin. Managers should earn the respect of employees. One of the main functions of a manager, or in other words, the components of a job, is communication. Various meetings are held in institutions and organizations, during which the results of the work, their shortcomings and perspectives are briefly discussed. During these meetings, the supervisor sets out his / her thoughts on the work done, identifies shortcomings and the quality of the work, sets deadlines for the work to be done, but in order for the work to be done well and qualitatively, the supervisor should:

- set realistic deadlines;
- always praise those who perform tasks well or strive for improvement;
- judge everyone by their merits and not appropriate foreign glory;
- criticism should only be taken if necessary and justified.

In the meantime, the instructions of the manager should be:

- enforceable;
- understandable;
- reasonable;
- controllable.

In order to create and maintain an ethical environment in the workplace, the following basic requirements should be introduced:

1. First and foremost, there must be ethical leadership itself. If this is not the case, people will quickly notice hypocrisy and become frustrated. This leads to mistrust and cynicism. Good behavior must be shown by managers, and the same ethical principles must be followed by everyone in the management chain. Most collaborators will take a sample from their line manager. If the manager behaves honestly, then the employee will also try to adhere to management ethics.

2. Companies usually develop policies that guide employees (co-workers) on how to behave and act in certain situations. Collaborators must be familiar with key company policies, especially those that fall within their area of responsibility.

3. The information provided to co-workers must consistently emphasize the importance of ethics, as well as other goals and objectives of the organization, such as profit, production, and costs. Managers often require co-workers (employees) to behave culturally and ethically, but do not explain what ethical behavior can bring.

4. If a company has clear ethical requirements, it must feel committed to verifying compliance with those requirements. If systems are not in place to monitor compliance with ethical norms, then employees (co-workers) will probably ignore those methodologies, cynically mocking the compromises of company executives with ethics.

5. Collaborators need to feel safe when seeking cultural and ethical advice or reporting misconduct.

6. The company must set goals and objectives for its employees. Typically, these challenges relate to sales, profitability, cost levels, productivity, and production. Goals need to be bold, encouraging employees to work well, but within the limit, so as not to force them to misbehave to achieve the impossible.

2.2. Essence of OHS aspects in the professions of plumber, drywall installer and tiler

2.2.1. Global trends in occupational safety and health: state of play

Accidents at work and occupational diseases have a major impact on individuals and their families, not only in economic terms, but also in terms of physical and emotional well-being, both in the short and long term. In addition, these factors can have serious consequences for businesses, as they affect their productivity, disrupt production processes, weaken their competitiveness and reputation in the supply chain and, more broadly, affect the economy as a whole and society as a whole.

Although the importance of improving the safety and health of workers is increasingly recognized, it is still difficult to describe the actual situation in this area worldwide. The quality of the systematic collection and analysis of reliable and comparable data varies depending on both geographical location and time course, which means that comparing trends and data is a challenging task. Moreover, even in countries with the oldest and most well-established data collection systems, data are often unduly reduced, especially for non-fatal accidents at work and work-related illnesses. It is essential that countries put in place effective OSH data collection systems to improve the collection, accounting and analysis of reliable OSH data.

However, recent data and assessments show a huge scale of the problem. It is estimated that 1,000 people die every day in the world from accidents at work and another 6,500 from work-related illnesses. According to available data, the number of work-related deaths increased from 2.33 million deaths in 2014. to 2.78 million deaths in 2017.

In addition, according to the latest estimates from the World Health Organization (WHO), occupational diseases account for up to 2.7% of all deaths and disabilities in the world (WHO, 2018).

Estimates suggest that work-related mortality and morbidity are unevenly distributed worldwide. About two-thirds (65%) of the world's work-related mortality is in Asia, followed by Africa (11.8%), Europe (11.7%), the Americas (10.9%) and Oceania (0.6%).

A safe and healthy future for work: challenges and opportunities

Options for work-related deaths, injuries, and illnesses are constantly evolving around the world. These changes can be gradual or revolutionary, but have both positive and negative effects on the safety, health and well-being of workers. This section provides a brief overview of some of the key changes that are leading to changes in the world of work, including occupational safety and health.

This chapter discusses four key transformations: technology, demography, sustainable development, including climate change, and changes in work organization. This review discusses the implications of such changes for the safety and health of future workers, as well as the potential challenges and opportunities.

2.2.2. Technology

Technological development affects all aspects of work - who does the work, how and where the work is done, what work is done, the way work is organized and the conditions under which it is performed, as well as the safety and health of workers. These changes and developments are accelerating; they have a significant impact on working conditions and the safety and health of workers and are expected to continue to do so in the future.

One of the most important aspects of occupational safety and health is that technological advances have, in some cases, taken over the dirty, dangerous and degrading work previously done by humans. This has an impact on the safety and well-being of workers, as job insecurity and unemployment or underemployment can affect workers' psychosocial health. Advanced technologies and portable smart devices can also provide new opportunities in safety and health. For example, smart portable electronic devices for monitoring employee fatigue, falls, and air quality. The development of automation and robotics can benefit the safety and health of workers. Robotics and artificial intelligence can free workers from repetitive and stressful tasks that increase the risk or threat to mental health of musculoskeletal disorders. For example, active exoskeletons can be used to modify normal physical and ergonomic human movement, for example, by enabling them to lift heavy weights.

2.2.3. Demography

The ongoing changes in the global workforce are linked to the age, gender and current challenges of workers, such as migration. In order to develop effective policies and strategies for all workers now and in the future, it is important to take into account the consequences of demographic change on the safety and health of workers.

In some parts of the world, the population is getting younger and in others. These factors put pressure on labor markets and social security systems, but also provide new opportunities for a fully integrated, active, secure and healthy society.

Young workers suffer significantly more occupational injuries than older workers. According to the latest European data, the incidence of non-fatal injuries among young workers aged 18 to 24 is more than 40%. higher than older workers. Young people are at greater risk due to a number of different factors, such as lower levels of physical, psychosocial and emotional maturity; education; work skills and work experience. Young workers also lack the bargaining power of experienced workers, making them more likely to accept dangerous working conditions and tasks or similar conditions related to unsafe work.

As the population shrinks, the global workforce will age. Many of today's workers can expect to work much longer, and employers are waiting for an increasingly older workforce. Many of today's employees can expect to work much later, and employers expect ever older employees. Some functional abilities, namely physical and cognitive, may begin to decline in old age due to natural aging processes. For example, older workers are more likely to experience slips, bumps, and falls.

Gender inequalities persist in the labor market in both developed and developing countries around the world. In 2018, the employment of women was 26.0 percent lower than that of men. Women are less likely to find work; and working women are more likely to work in non-standard working conditions. Concentration puts women in certain occupations at specific risk of injury and illness. Due to organizational features such as repetitive work operations leading to muscle tension and fatigue, the frequency of breaks and reduced autonomy and reduced access to learning, women may be at specific risk of developing acute and chronic occupational diseases. For future health policy to be effective for both women and men, it must take into account the changing links between safety, health and well-being and gender roles.

Another important factor is labor migrants. Labor migrants are usually healthy individuals at the beginning of the migration process. However, due to the complexity and diversity of circumstances at different stages of the migration cycle, they can become particularly vulnerable in terms of physical and mental health. Most of them are employed in agriculture, construction or in homes with low compliance with labor and other protection requirements. Such work is intensive, temporary or seasonal and leads to much higher occupational risks

2.2.4. Sustainable development and OSH

The work environment is not a closed system isolated from the natural environment. The risk of OSH, which leads to a deterioration of the working environment, is one of the main causes of the deterioration of the natural environment and vice versa. As the workplace is a source of risk generation, it should be subject to primary controls and environmental and occupational safety coordination measures. In the long run, man-made climate change is a key driver in transforming the world of work. As the environment changes and degrades, efforts to ensure environmental sustainability will inevitably have consequences for safety and health at work. Climate change poses a threat to the environment and to the safety and health of workers now and in the future. Nevertheless, the effects of climate change on OSH have received little political or public attention.

2.2.5. Changes in the organization of work

The changing world of work is also characterized by the abandonment of permanent formal employment, especially in developed countries where permanent employment has been considered a standard employment arrangement. As discussed in this chapter, many changes related to technology, demography, and climate change have in turn affected the organization of work. This is particularly important to ensure the safety and health of workers.

About a third of the global workforce (36.1 percent) currently works overtime, which is defined as regular work more than 48 hours a week. Overtime is often the result of low pay, and the number of workers in such conditions is disproportionately high in developing countries. While men are more likely to work overtime, this does not mean that women

spend more time on housework and childcare. Overtime leads to chronic fatigue, which in turn can lead to serious health problems such as cardiovascular disease and gastrointestinal disorders, as well as deteriorating mental health, including anxiety, depression, and sleep disorders.

Although high and volatile working hours can affect the safety and health performance of workers, people with non-standard forms of employment are at even greater risk of adverse effects on safety and health. There are at least four types of risk associated with these forms of work organization: the risk of injuries and accidents, the psychosocial risk and the threat of harassment, the effects and dangers of poorer working conditions, and fatigue problems. In addition to the risk of injuries and accidents, workers with a non-standard form of employment are exposed to psychosocial risks. Forced temporary or part-time workers may experience stress due to a lack of employment guarantees.

2.2.6. Forecasting new OSH risks

Given new technologies, changing demographics, climate change and the various patterns of employment and work organization that shape the world of work, it is now more important than ever to anticipate emerging threats to workers' safety and health. Risk forecasting is an important first step towards effective risk management and the development of a preventive OSH culture in an ever-changing world.

In recent years, forecasting processes have taken place, especially in Europe, to identify and prioritize research and innovation in order to respond effectively to change. New trends in work organization, with employees increasingly working self-employed or off-premises, require a review of current OSH management, laws, policies and programs.

Welfare is another concept that applies to all aspects of working life. It includes safe and healthy working environment conditions, how employees feel in their work environment, work environment climate and work organization. Employee well-being is an important factor in the long-term effectiveness of an organization.

2.2.7. Development of OSH competencies

There is a growing need to integrate OSH into universal general education before entering the world of work and to continue learning throughout working life. There are some signs of growing awareness of this need among OSH policy makers, but some steps need to be taken before this becomes a reality in society.

The integration of OSH into general education and vocational training programs can help to develop safer and healthier future generations. OSH training and education at all levels is an effective way to raise awareness, develop OSH knowledge and skills among global workers, employers and especially young workers.

2.2.8. Why is occupational safety important?

Why occupational safety is important - there is more than one answer to this question. This is important for every employee in the industry because all employees want to work in a safe and secure environment. Health and safety is a key factor in promoting the health of both workers and employers in all industries. Taking care of employee safety is the duty and moral responsibility of the company.

Anyone who leaves their home in the morning and goes to work must return home in good health. Have you ever imagined that your loved one may not return home if job safety is not ensured. Or will you get a call informing him / her that he / she is in the hospital due to a certain event, an accident at work? These thoughts can even cause nightmares. This is the only reason why it is important to create a safe work environment.

These days, ensuring the health and safety of workers is important to the well-being of both workers and employers, as the loss of people is immeasurable and intolerable. Such losses or injuries can cause significant losses to families, the company. All industries have risks to job security, but management should take the time to reflect on and strategize the things that need to be done to ensure that their employees are safe enough at all times.

Management may take all practicable and legal means to ensure occupational safety, its training and knowledge of employees on how to maintain safety at work. Ensuring employee safety at work also increases productivity.

2.2.9. The main reasons why occupational safety is important

Familiarity with the work environment - there are a lot of employees who simply do not pay attention to the work environment, which can possibly be dangerous. However, it is important to monitor yours and your colleagues 'work environment in which you work. Once you learn about the specific hazards that can occur in your workplace, this will help you reduce the risks and allow you to take precautions.

Reduce stress in the workplace - most employees are tired and unwell due to their overemployment, which includes long working hours, work pressure and conflicts with colleagues or the head of the organization. And all of this can lead to illness or depression in employees. In addition, it not only affects professional life, but also creates inconvenience in the personal. Thus, it is advisable to take care of the work environment, ensure breaks, safety and a good mood at work. In addition, it will be easier to plan things when the work environment is safe and secure.

Use tools properly - take appropriate precautions when using machines or any other tool during work. Never try to speed up the work process as this is a major factor in accidents. The biggest safety risk is to use scaffolding as a ladder or one tool instead of another for a specific job, so it is always required to use certain tools for a specific purpose.

Know where the emergency exit is - in an emergency, you need quick access to the exits. It is also advisable to always switch off the various tools after they have been used, if this ensures work safety.

Notify the supervisor if the environment becomes unsafe - it is very important that you keep the supervisor informed if you suspect that the work environment has become unsafe. They should have a legal obligation to ensure that their employees work in a safe environment. And in the event that employees do not work in safe conditions, it is the responsibility of the manager to listen and understand their condition and create a safe working environment for employees.

Use mechanical assistance - if you want to transport or lift heavy equipment, you should use a conveyor belt or a forklift. There are many dangers if you try to lift an item that weighs a lot. This can harm your health. Therefore, always use appropriate equipment or facilities to avoid health injuries.

Be warned - there are many employees who simply don't pay attention if the environment becomes unsafe and thinks it won't cause much trouble. In most cases, this is one of many mistakes that can have many unpleasant consequences. Even if you think that if you notice something in the work environment, it is "nothing like this" for you, warn other employees or the work supervisor.

Wear proper safety clothing - it is very important that you wear appropriate protective equipment when working. In addition, the equipment can be of any shape: ear plugs, headphones, plastic caps, gloves, masks, and any other equipment needed for work. These measures prevent workers from accidents at work.

2.3. Soft skills needed in construction

2.3.1. Labour market expectations in the construction industry

The pandemic was rather gentle with the construction industry and the implemented projects proceeded without major turbulence. On the labour market, however, less activity of job candidates is noticeable. This is due to the fear of changing at an uncertain time. Workers who were difficult to recruit before the pandemic remain difficult to recruit. An example would be specialists in electrical and sanitary installations - it is customary for each job offer to receive over a hundred applications, and in the case of these recruitments, it is sometimes a two-digit number at most. In the past, much more offers on the market concerned work in building construction. Currently, recruitments to the road, rail and renewable energy sectors, i.e. renewable energy sources, have an increasing share. When looking for a job, it is worth being open to work in various sectors of the industry. It is true that the profession of a carpenter, foreman or engineer define common denominators, but in each sector the nature of work may require employees to behave differently. Employers, apart from verifying professional knowledge, attach great importance to other aspects.

Before starting your job search, you should answer a few questions:

- Who you are and what can you do well?
- What are your strengths? What makes you stand out? Why is it worth working with you?
- What would you like to do? What are you open to? What's your goal?

Self-awareness will help both the candidate for the job as well as facilitate the selection of the appropriate position by the employer. Other elements verified by employers are shown in tables 2.1 - 2.6.

Table 2.1. Risk of departure

scale	**RISK OF DEPARTURE**
1	Does not take steps to look for another job. The employee believes that he or she works well in the current place.
2	The encouraged person shows interest in the external labor market - he reacts to job offers that go directly to him.
3	Takes action to get to know the current job offers on the market. They are considering attending recruitment meetings and changing jobs.
4	Intensively looks for another job - browses offers, contacts intermediaries, etc. In the event of receiving a job offer that meets the employee's expectations, they would use the opportunity and change the employer.

Table 2.2. Employee's value to the organization

scale	**EMPLOYEE'S VALUE TO THE ORGANIZATION** **Implementation of key tasks from the point of view of the company's operations and the degree of difficulty in identifying a successor.**
1	The employee is at the stage of learning tasks or does not have sufficient knowledge to perform tasks independently.
2	An employee performs tasks that are replaceable by another person in the organization.
3	An employee performs specific tasks or has particularly rare competences that are crucial for the organization. However, another person can be identified who can temporarily replace him.
4	An employee performs specific tasks or has particularly rare competences that are crucial for the organization. At the moment, there is no other person in the organization who could replace him.

Table 2.3. Knowledge of a foreign language

scale	**KNOWLEDGE OF A FOREIGN LANGUAGE**
1 (A1)	Understands and can sometimes use colloquial expressions and very simple statements regarding specific needs of everyday life. Can have a simple conversation, provided that the other party is speaking slowly, clearly and is ready to help.
2 (B1)	Understands the importance of the main themes of the message contained in clear, standard statements that relate to known matters and events typical for work; Can create simple, coherent oral or written statements on topics that are known or of interest; Can describe experiences, events and intentions, briefly justifying or explaining opinions and plans;
3 (B2)	Understands the importance of the main themes of the message contained in texts on concrete and abstract topics, including understanding of discussions on technical topics in the field of her specialization; Can - in a wide range of topics - formulate clear and detailed oral and written statements, as well as explain his position on the issues under discussion, considering the advantages and disadvantages of various solutions;
4 (C2)	Can use specialist and technical terminology; Can express his thoughts fluently, spontaneously and precisely, subtly differentiating shades of meaning even in more complex statements; Can summarize information from various written or spoken sources, reproducing the theses and explanations contained in them in a consistent way

Table 2.4. Mobility / readiness to relocation

scale	**MOBILITY / READINESS TO RELOCATION**
1	It is related to the current place of work and residence; It does not take into account the option of changing the place of work
2	Is ready to work on away projects that last no longer than 6 months, provided that there are regular options to return to the indicated place of residence (e.g. every weekend)
3	He is willing to work on away projects lasting more than 6 months
4	It is fully open to work both at home and abroad on a permanent basis

Table 2.5. Potential

scale	**POTENTIAL** **Vigorously and independently initiate activities and seize possibilities that offer opportunities for reaping benefits. Proposing and implementing innovations and taking risks in conditions.**
1	In problematic situations, does not propose own solutions; Does not notice and does not admit to the mistakes made; Does not see any similarities between tasks / projects (does not transfer experience); Carries out tasks in a standard manner, No innovation implementation is undertaken;
2	Presents own ideas for solving problems, but is rarely able to convince other people to them; He notices his mistakes, but not always draws appropriate conclusions on this basis; With the help of others, he indicates similarities between tasks / projects Encouraged by others, it carries out tasks in a non-standard and innovative manner;
3	Has ideas for solving problems and convinces others to them; Admits mistakes and draws conclusions from them; Indicates the similarities between tasks / projects (uses - transfers experiences); Carries out tasks in a non-standard and innovative manner;
4	Creates original and innovative ideas for solving problems and convinces others to them; Analyzes both own and other people's mistakes. On this basis, he draws conclusions for his work. He shares his insights with others. Explains to others the similarities between tasks / projects, indicating which elements can be used in current activities; Inspires and encourages other employees to carry out their tasks in a manner

Table 2.6. Readiness to promotion / readiness to other functions

scale	**READINESS TO PROMOTION / READINESS TO OTHER FUNCTIONS**
1	Not interested in changing his position
2	3 years and above
3	1-2 years
4	Right now - until a year

Four reasons for competency development

It is worth remembering that you are not the only candidate applying for the position, so you must do your best to stand out from the crowd. It is worth considering how to convince your future employer that previous experience and professional achievements may translate into real benefits for the future employer.

Depending on the experience and position for which you are applying, the self-presentation may contain any of the following information: **competences, skills and experience related to the position you are applying for, education, major professional successes, training directly related to the job, achievements and awards, career goals**.

The job search process may take time. Therefore, patience and determination are important. How quickly a Participant is able to obtain a job offer depends on many factors. However, in order to increase your own chances of completing the search with success, it is worth approaching the job search as an important project, which consists of individual stages, and each of them requires a slightly different type of activity. It is also worth adopting a flexible attitude and being open to various suggestions.

Balance of own predispositions and potential:

- Analysis of professional opportunities (determination of predispositions and professional potential, identification of strengths, determination of key skills and the most important successes).
- Determining the preferred job position, determination of motivation, definition of goals and professional aspirations. Using additional tools that can support the determination of the career path, e.g. the free MBTI tool - 16personalities.com (free personality test), free professional predisposition tests, etc.

Below we present examples of methods and sources of acquiring candidates by employers:

- national paid portals with work offers
- free portals with work offers
- local portals: operating individually in each construction site / department / company
- social networks: facebook, linkedin, instagram, youtube
- career offices of universities
- career tab on the company's website
- leaflets tossed into mailboxes
- advertisements in the local press
- radio
- posters / banners
- job fairs

2.3.2. Soft skills - What are competencies?

Competences are defined as the general predispositions of a given person, i.e. all the skills and features that allow them to carry out the designated professional tasks. Possessing a specific competence is associated with the use of certain resources of knowledge to efficiently solve the problems before us. This knowledge may concern the technical aspects of performing various activities (e.g. operating computer programs) as well as various aspects of interpersonal functioning.

Table 2.7. Knowledge / skills / attitude

KNOWLEDGE	SKILLS	ATTITUDE
•what needs to be done in a given situation to achieve a positive effect; what a given situation requires of us (e.g. knowing that motivating employees is one of the manager's tasks)	•or how to do it in order to achieve a positive effect (e.g. the ability to use appropriate techniques to motivate an employee)	•i.e. readiness to take actions aimed at achieving a positive effect (e.g. I know that the employee should be motivated and I can apply appropriate techniques, and for this I have the motivation to do so)

Sample list of soft skills:

- ability to work under time pressure
- resistance to stress
- cooperation
- interpersonal communication
- troubleshooting
- motivating employees
- employee management
- creativity
- flexibility
- initiative and proactivity
- ability to work in a group
- goal-oriented
- influence;
- negotiation skills
- business orientation
- delegation of tasks and effective enforcement
- positive attitude towards people
- ease in establishing relationships with the client
- the ability to adapt to changes
- empathy
- honesty

- responsibility for the entrusted task
- planning and organization of work

Competencies in organizations are established for a maximum of 8 competences for managerial positions and for a maximum of 5 competences for specialist positions.

Below are examples of soft and hard competences expected in Erbud:

- **Hard competences:**

  - Knowledge and professional / technical skills necessary at the workplace
  - Knowledge of programs and computer systems used at work
  - Knowledge of current regulations / instructions and other necessary at work (including OHS)
  - Knowledge of foreign languages required at the workplace
  - Project management (if required by the position)

- **Soft competencies for non-managerial positions:**

  - Goal orientation
  - Communication
  - Initiative and proactivity
  - Flexibility / ability to adapt to changes
  - The quality of cooperation with business partners

- **Soft skills required for managerial positions:**

  - Communication
  - Business orientation
  - Goal orientation
  - Collaboration
  - Initiative and proactivity
  - Flexibility / ability to adapt to changes
  - Team management
  - Delegation and enforcement

Methods of assessing competences and qualifications:

- **Assessment Center**

Method of verifying the competences of both internal and external candidates selected in the diagnosis process. Assessment Center consists in carrying out a series of tasks (both individual and group) in order to assess the competences of candidates.

Task example:

The Brick Tower quest (construction quest)

Type of task: group with a division of roles (6 people)

Situation description: You are the manager of a 2-person team. Your task is to build the highest possible tower from wooden blocks. Your employees work blindfolded ...

Objectives of the activity: Your goal is to build the highest possible tower, following the following working rules:

- The team leader must not touch the blocks during construction,
- The team leader only gives orders and information,
- Employees must be blindfolded,
- After completion, the tower must stand for at least 3 minutes.

Resources to use: Set of wooden blocks, card, pen.

Time: 20 minutes: 10 minutes getting acquainted with the manual and division of roles; 10 min. for implementation.

- **Case study**

Description of a specific problem situation in our area.

Example of a case study task:

You are recruiting in the province West Pomeranian Voivodeship for the position of carpenter. So far, your tasks have not brought any results. Think about what this situation could result from and indicate which 3 new actions you can recommend.

So far it has been done:

03/03/2019 - placing an advertisement on work offers portal

05/03/2019 - providing information to employees that we are looking for 2 additional people

- **Professional knowledge tests**

Verifying knowledge of e.g. construction law regulations.

Example of a professional knowledge test:

What elements should a complete detailed installation design contain?

or

Name the 3 basic types of polypropylene pipes?

- **Language tests**

Oral or written, allowing to determine the level of skills.

Example of an English language proficiency test:

Oral: What professional or personal success could you boast of?

Written: - a test to be solved using the paper / pencil method or sent on-line.

- **Analytical tests**

They allow you to assess the level of knowledge and the method of reaching a solution.

Analytical Test Example:

Based on the data in table 2.8, describe the employment structure in our company. All personal data below is fictional.

Table 2.8. Company personnel data

Employee number	First name	Family name	Sex	Citizenship	Date of birth	Residence	Education	Date of employment
34/HR	Jerzy	Abramowski	M	Polish	10.03.1963	Warsaw	Higher	21.04.2016
35/HR	Janina	Skolimowska	K	Polish	28.07.1964	Kielce	Secondary	27.01.2012
36/HR	Andrzej	Bracki	M	Polish	04.07.1977	Kielce	Postgraduate	31.05.2012
37/HR	Anna	Adamska	K	Polish	06.03.1996	Katowice	Secondary	24.04.2014
16/HR	Karolina	Sztramska	K	Polish	09.09.1966	Katowice	Higher	24.09.2013
56/HR	Włodzimierz	Karolewski	M	Polish	24.03.1987	Katowice	Vocational	02.05.2016
10/HR	Zuzanna	Baran	K	Polish	28.03.1963	Cracow	Bachelor's	06.02.2014
12/HR	Jerzy	Motyka	M	Polish	09.02.1987	Cracow	Bachelor's	24.10.2015
13/HR	Andrzej	Bazydło	M	Polish	18.09.1987	Cracow	Secondary	06.05.2011
20/HR	Mariusz	Liebert	M	Polish	15.06.1978	Cracow	Higher	22.03.2016

- **Technical tests**

They check knowledge of computer programs (Excel, Power Point, ZW CAD, Norma PRO) *Example in Excel:*

Create a pivot table and prepare a chart showing the level of sales. Enter the total sum of sales for product X.

- **Simulation tasks**

We participate together with the candidate (e.g. a scene with an employee).

Task example:

You work as a manager of sanitary works and currently participate in the meeting with subcontractors and the investor. At some point, the investor accuses you that the works are not carried out in accordance with the planned work project. Have a conversation with the investor.

- **Psychological tests**

Authorized tests sold by psychological entities such as the Psychological Test Employee or companies specializing in this type of activity.

Test examples:

- Bochum Inventory of Personality Determinants of Work
- Consensio - Intensio
- Werk - management style test
- Inductive thinking test
- Hogan
- Ostendi Talent Hunter
-

- **Competency tasks**

They check how you have behaved or how you will behave in a specific situation. They are aimed at showing the expected competences and then their evaluation by HR.

An example of a competency task for specialist positions

ORGANIZATIONAL IMPROVEMENT IN ITS DEPARTMENT

Type of exercise: Individual task

Description of the situation:

Please indicate what organizational improvement in your area / department / position is worth implementing. It can be both a completely new, creative solution, as well as one that has already worked. If you choose the "old" solution, additionally indicate what, in your opinion, could have been done differently. Please, make your proposal result from a thorough knowledge of the functioning of your area. Let it be improvements that will actually improve the quality of the department's work.

Present the idea with a piece of paper and a pen.

Then think about what steps should be included in the project for it to be successful.

Time: 10 minutes individual work + 3 minutes the presentation

- **Competency interviews (questions)**

Table 2.9a. Example of competency questions

COMPETENCE QUESTIONS FOR SPECIALIST JOBS				
Competence / Level	**1**	**2**	**3**	**4**
Description of the level of competence	The employee does not provide examples and is not able to imagine the described situations.	The employee cites examples of behaviors in which he used the support of his superiors or colleagues.	The employee easily cites examples of situations in which he independently performed tasks and made decisions.	An employee cites situations in which he independently performs tasks and supports his colleagues with his behavior.
Competence: Communication				
Describe an example of a situation where you had to communicate the new rules to your colleagues. How did you do it?				
Please describe the situation in which you noticed that the interlocutor had difficulties in establishing contact with you. What actions have you taken?				
Competence: Cooperation				
What tasks did you perform on your own and in the team?				
In what situations did you cooperate with employees from other departments of the company? Was anything difficult for you?				

Table 2.9b. Example of competency questions

Competence: Business orientation				
Please tell me about an innovative project / solution that you managed to implement in your company.				
How do you expand your professional knowledge?				
Competence: Problem solving				
Please describe the most difficult situation from your professional experience. How did you deal with it?				
Please give an example of a situation where, thanks to your proposal, the problem was solved.				
Competence: Goal orientation				
How do you prepare for the implementation of a new task or project? What steps can you specify?				
Please remember a situation in which the implementation of the task entrusted to you was at risk. What happened? What actions have you taken?				

2.3.3. How to develop soft skills?

Kolb's learning cycle or Experiential Learning Model.

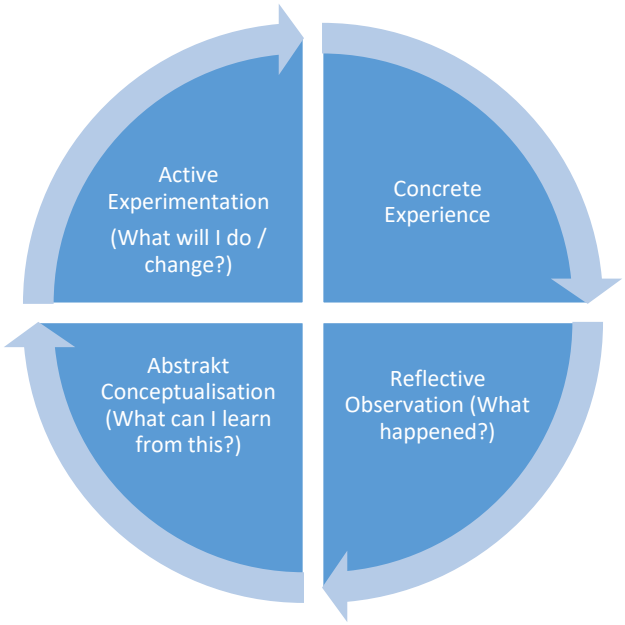

Fig. 2.1. Stages of acquiring competences

It all starts with Experience (The full name of this phase is Concrete Experience). Something is happening. I take part in something. I observe something, some data reaches my senses. For example, I give a subordinate an important task, but he does not fulfill it, even though I told him when to complete the task.

If the learning process continues, the second phase is reflection (i.e. Reflective Observation). I pay attention to what has happened or is happening. I process the data that I have observed and compare it with my other experiences. Finally, I put them into words. In our example - I am telling myself or someone about what happened, I say: I am disappointed. I had the impression that he was aware that I needed this data in time. She realizes, however, that this was not the first such situation. Recently he has acted the same: first yes, of course, boss, I'll do it on time, and then… nothing done.

The next phase is conceptualization (Abstract Conceptualization). I am combining what I have perceived as a whole. I create concepts and theories with the help of abstract thinking. My mind produces theories based on what I perceive. In other words, I draw conclusions. At some point I soak up and ask myself: Okay, but what's the conclusion?

The last point is experimenting (Active Experimentation). Using the general conclusions I have come to try to put them into practice. I ask myself: What can I do differently? How can I use it in practice?

Examples of competency development methods:

- **Self-education, self-improvement**

The employee independently develops a given skill or competence. Acquires the necessary knowledge in a manner and at a time that is convenient for them. He tries to use the acquired knowledge in practice, and then analyzes what method of action brings the best results. When necessary, it modifies the method of operation so that its effectiveness increases.

- **Working with your manager**

The employee agrees with the supervisor on the goal to be achieved. Together, they determine what actions should be taken to achieve the employee's goal. The supervisor mentors the employee in a situation when he needs support, help, prompts. They periodically summarize the progress. Both the supervisor and the employee can initiate the dates of meetings, methods of operation, purpose and methods of work.

- **New task / new project**

The employee or the supervisor proposes a new task / new project to be carried out by the employee. The task / project differs significantly from the previously performed tasks in terms of independence, scope, responsibility, etc. The supervisor periodically monitors the progress and provides feedback aimed at the correct implementation of the task.

- **Consultation with an in-house expert in a given field**

The employee's search for information from a specialist / expert in a given field; working directly with him or offering support in completing the task. The superior periodically monitors the progress and provides feedback aimed at the correct implementation of the task.

- **Mentoring**

Covering the employee with the care / support of a specialist / internal expert in a given field. A mentor is a person who working in an organization, with reliable experience and willing to share knowledge. Both parties - the employee and the mentor agree on a way for the employee to develop their competencies. These can be: periodic meetings based on questions and answers; working together on a task, etc. The mentor shares knowledge, suggests, suggests, shares examples based on previous experience, but does not perform the task for the employee. Provides feedback. A mentor can be a person in a parallel position, a supervisor, a specialist in a given field, etc. The supervisor periodically monitors the progress and gives feedback to the employee, especially when he notices significant progress (or no progress at all).

- **Coaching**

Covering the employee with the care / support of a specialist / external expert, mainly specializing in the development of soft skills. A coach is a person working outside the organization with solid experience in running the coaching process. Three parties - the employee and / coach / immediate manager set the expected goals and the way in which the employee will develop his competence.

- **Literature - textbook, audiobook, article, video, auxiliary material**

Publicly available materials that an employee should use when preparing for a task, during implementation or when looking for ideas for work.

- **Specialized industry portals**

Valuable portals, websites, forums, thematic groups on-line, which should be used by an employee when preparing for a task, during implementation or when looking for ideas for optimization. The superior periodically monitors the progress and provides feedback aimed at the correct implementation of the task.

- **Individual work with an employee of the HR department (for managerial positions)**

Covering an employee with HRBP care / support - concerns "soft" competences. Both parties - the employee and HRBP determine the method by which the employee will develop the selected competence, and then prepare an action plan. HRBP shares knowledge, suggests, suggests, shares examples based on previous experience, but does not perform the task for the employee. Provides feedback. The supervisor periodically monitors the progress and provides the employee with feedback, especially when he notices significant progress (or no progress at all).

- **Training, external course**

Training and courses organized by external training companies. Training can be open if you participate together with other people from the market or closed if it is carried out only for a specific group of employees in the company. Such an approach to development is recommended in cases where the pace of acquiring knowledge is of key importance or the knowledge and skills acquired in other ways are insufficient (e.g. they make it impossible to obtain qualifications). Training is a quickly given "knowledge pill", however, for development, the practical use of the knowledge acquired during the training is of key importance.

- **Studies, postgraduate studies**

Similar to training and courses.

- **Internships and apprenticeships**

The student carries out compulsory school / student internships with the indicated employer. This is the time during which the employee has the opportunity to get to know the company, and also to perform real tasks characteristic for a given position for the first time. The apprentice / trainee performs tasks under the supervision of a tutor. Internships can be both free and paid.

- **Volunteering**

Additional work beyond the current scope of professional work. Volunteering is free of charge, performed after working hours. As part of volunteering, we help people or institutions, e.g. public. Such action shows our sensitivity and willingness to help others.

- **E-learning**

On-line training. Most often, access to materials is purchased, which we play at any time for us. After completing the e-learning, the supervisor verifies whether the employee has acquired appropriate knowledge.

Measuring the effectiveness of the development of soft skills:

- Questionnaires verifying the state of knowledge before starting education and after its completion
- External tests
- Based on the annual employee appraisal made by the supervisor

2.3.4. Developing yourself

The process of self-improvement is more than just gaining dry textbook knowledge. It is observing the world around us, learning from the experiences / behaviors of other people, and then introducing them into your own life. Observing your own progress and finding new solutions thanks to your own efforts helps to consolidate the changes.

What can I do myself to meet market expectations:

- consciously manage your own skills,
- follow the requirements of labor market and methods of navigating through offers,
- establish your own job search strategy,
- rethink your future career path,
- prepare application documents adequate to the position you are looking for,
- look at your own self-presentation skills,
- be willing to participate in job interviews in order to experience the interview situation with the employer.

The SWOT analysis may turn out to be a very popular and extremely valuable tool for self-analysis. Thanks to this technique, we will see both positive and negative features, and we will verify which factors we have a real influence on (they depend on me), and which will depend on external situations.

SWOT analysis principles:

The SWOT analysis consists in dividing the collected information into four groups (four categories of strategic factors):

S (Strengths) - everything that is an advantage, advantage, advantage,

W (Weaknesses) - everything that constitutes a weakness, a barrier, a defect,

O (Opportunities) - everything that creates a chance for a favorable change,

T (Threats) - anything that creates the danger of an unfavorable change.

Worksheet for SWOT analysis

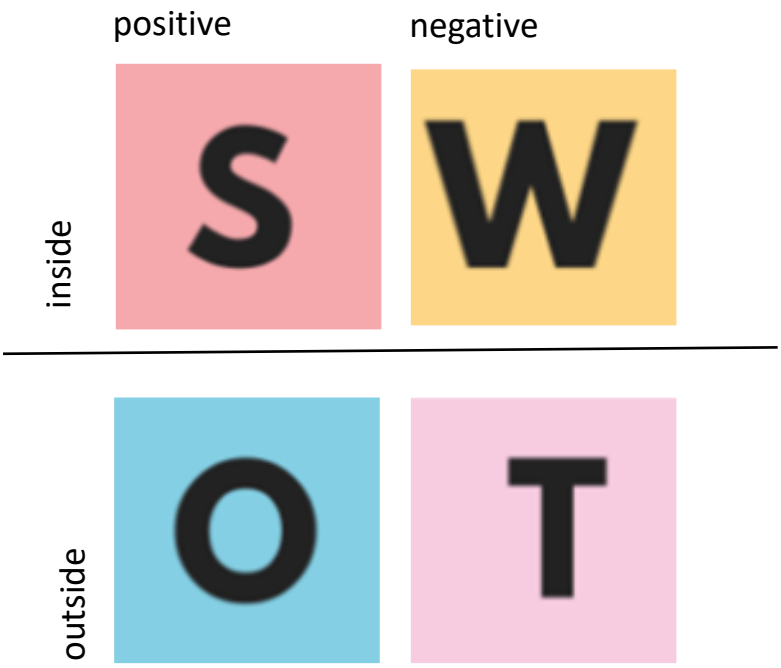

Fig. 2.2. Worksheet for SWOT analysis

3. Using control questions in the education process

3.1. Advantages of using control questions

The use of control questions is popular with teachers, lecturers and trainers. Depending on the moment of their application, they provide appropriate benefits.

The use of control questions regarding the previously discussed content of the material before starting to discuss new content enables:

- consolidation of previously obtained information;
- stimulating the brain and getting the audience focused;
- reminding of information that will be part of the cause-effect chain, discussed in current classes;
- giving feedback to the teacher which content needs to be repeated before starting the next batch of material.

The use of control questions during classes enables:

- consolidation of the discussed information;
- distracting listeners only from listening, stimulating to act, and as a result, improving the concentration of listeners;
- providing the teacher with feedback on which content requires additional discussion.

The use of control questions at the end of the class enables:

- repeating and arranging the presented information;
- highlighting the most important content discussed;
- providing the teacher with feedback that the content has not been absorbed by the audience.

3.2. Sample control questions

Developing control questions, contrary to appearances, is not an easy task. The questions are primarily intended to help, not to create pressure. They should be perceived more as a pleasant addition, the purpose of which is to diversify the learning process, as well as to collect feedback, useful during subsequent classes. The questions cannot be too easy, sometimes they will require encyclopaedic knowledge, and other times rational analysis and drawing conclusions that will allow you to come to the correct answer. Below are some examples of questions that trainers can use when providing content on a particular profession. Correct answers are marked in bold.

3.2.1. Sample control questions for the profession of drywall fitter

1. Vocational training is compulsory in the following cases:
   a. Establishing a new employment relationship or, in the case of deliveries, commencement of use.
   b. Employment of employees for internships.
   c. Transfers or changes in responsibilities.
   d. All other answers are correct.
2. The noise during assembly works causes damage:
   a. Significant.
   b. Slight.
   c. Moderate.
   d. Acceptable
3. Slips and falls to the floor, during the assembly works, receive the final grade in the risk factors assessment procedure:
   a. Serious.
   b. Not serious.
   c. Acceptable.
   d. Unacceptable.
4. Scaffolding barriers should be located at a height of at least:
   a. 100 cm.
   b. 90 cm.
   c. 80 cm.
   d. 70 cm.
5. Pure gypsum can be recycled in:
   a. 100%
   b. 95%
   c. 90%
   d. 85%
6. In terms of soundproofing, gypsum:
   a. Does not exhibit sound damping and absorbing properties.
   b. Has very poor sound damping and absorbing properties.

c. Has good sound damping and absorbing properties.

d. It resonates, thus leading to an increase in sounds.

7. Gypsum, thanks to its structure:

a. Worsens thermal insulation.

b. Improves thermal insulation.

c. It is indifferent to thermal insulation.

d. Depending on the thickness of the layer, it may improve or deteriorate the insulation properties

8. The high coefficient of light radiation of plaster contributes to:

a. Improvement of thermal insulation of room partitions.

b. Decrease in thermal insulation of the room's partitions.

c. Increase the brightness of the room.

d. Decreasing the brightness of the room

9. A standard plasterboard, suitable for applying plaster or decoration, is board type:

a. R.

b. I.

c. F.

d. A.

10. A plasterboard with improved mechanical strength, showing about 50% greater bending strength than other sheets, is a board type:

a. R.

b. I.

c. F.

d. A.

11. A gypsum board with mineral fibres and / or other additives in the gypsum core, which allows for better behaviour of the board in case of fire, is a board of type:

a. R.

b. I.

c. F.

d. A

12. A plasterboard with increased surface hardness is a board of type:
    a. R.
    b. I.
    c. F.
    d. A
13. The most common plasterboard thicknesses are:
    a. 12 and 15,2 mm.
    b. 12,5 and 15 mm.
    c. 6 and 25 mm.
    d. 15,2 and 25 mm.
14. In partition walls, as thermal insulation, we are unlikely to meet:
    a. Mineral wool.
    b. Glass fiber.
    c. Expanded polystyrene.
    d. All answers are false.
15. The CW profile is installed in the frame wall structure:
    a. Vertically.
    b. Horizontally.
    c. At 45 degrees angle.
    d. At 15 degrees angle.
16. The weight of a skeleton partition wall (also referred to as "light") may be lighter than an alternative solution in masonry technology:
    a. Up to 5 times.
    b. Up to 8 times.
    c. Up to 10 times.
    d. Up to 12 times.
17. The UW profile is installed in the frame wall structure:
    a. Vertically.
    b. Horizontally.
    c. At a 45 degree angle.
    d. At a 15 degree angle.

18. In dropped ceilings, plasterboards are usually installed with a thickness of:
    a. 12 and 15,2 mm.
    b. 12,5 and 15 mm.
    c. 6 and 25 mm.
    d. 15,2 and 25 mm.
19. The panel joints in the dropped ceiling must be shifted by at least:
    a. 200 mm.
    b. 300 mm.
    c. 400 mm.
    d. 500 mm.
20. Expansion joints should be used in dropped ceilings every:
    a. 11 m.
    b. 12 m.
    c. 13 m.
    d. 14.
21. The correct execution of the skeleton wall plumb is carried out at a height of :
    a. 1,5 m
    b. 2,0 m.
    c. 2,5 m.
    d. 3,0 m.
22. In short, the harmony of the basic spheres of human activity, professional and non-professional, is shortly:
    a. WLB.
    b. WBL.
    c. BLM.
    d. MLB.
23. If a studded wall exhibits the following properties: fine-grained finishes, matt and fine coatings / paints, finishes with a particle size <1mm, a quality level wall is:
    a. No. 1.
    b. No. 2.
    c. No. 3.
    d. No. 4.

24. If a plasterboard wall does not meet the requirements for decorative finishes, a quality level wall is:
    a. No. 1.
    b. No. 2.
    c. No. 3.
    d. No. 4.
25. The horizontality of the frame elements is determined with the use of a batten with a length of at least:
    a. 2,2 m.
    b. 2,0 m.
    c. 1,8 m.
    d. 2,4 m.
26. In the grouting process, the laid joint needs:
    a. About 15 minutes.
    b. About 30 minutes.
    c. About 45 minutes.
    d. About 60 minutes.
27. The social responsibility of a CSR organization **does not** apply to the relationship:
    a. Organization - Clients.
    b. Organization - State.
    c. Organization - Natural Environment.
    d. State - Natural Environment.
28. The metal or plastic strip to protect the edges of plasterboards or to shape them is:
    a. Side strip.
    b. Faceplate.
    c. Edge strip.
    d. Profile strip.
29. In the corners of the rooms, there are used dedicated profiles resembling a letter:
    a. C.
    b. U.
    c. T.
    d. L.

30. KPOS is the designation of the edge of the drywall, which is:

    a. Thin.

    b. Simple.

    c. Semicircular.

    d. Rounded.

3.2.2. Sample control questions for the profession of tiler

1. Tissue charring occurs with a degree burn:
   a. I.
   b. II.
   c. III.
   d. IV.
2. Loss of consciousness, heart failure and respiratory failure occur with degree electric shock:
   a. I.
   b. II.
   c. III.
   d. IV.
3. According to Lithuanian legislation, construction waste is divided into:
   a. Three types.
   b. Four types.
   c. Five kinds.
   d. Six kinds.
4. The history of ceramic tiles goes back more than:
   a. Two thousand years.
   b. Three thousand years.
   c. Four thousand years.
   d. Five thousand years.
5. Ceramic tiles can be manufactured in the process of:
   a. Extruding or dry pressing.
   b. Extruding or wet pressing.
   c. Vibrating or dry pressing.
   d. Vibrating or wet pressing.

6. Stone tiles show very low water absorption, which should not exceed:
   a. 0,2%.
   b. 0,3%.
   c. 0,4%.
   d. 0,5%.
7. Rock produced at the bottom of warm seas from corals and shells is:
   a. Slate.
   b. Limestone.
   c. Clinker.
   d. Basalt.
8. The area of a single mosaic tile does not exceed:
   a. 60 cm^2.
   b. 70 cm^2.
   c. 80 cm^2.
   d. 90 cm^2.
9. If the surface of the tiles is free from defects and all tiles in the package have exactly the same dimensions, they are tiles of class:
   a. First.
   b. Second.
   c. Third.
   d. Fourth.
10. Ceramic floor tiles, manufactured in accordance with European and international standards, are divided into
    a. 5 groups according to abrasion resistance.
    b. 6 groups according to abrasion resistance.
    c. 7 groups according to resistance to abrasion.
    d. 8 groups according to abrasion resistance.

11. In the event of heavy traffic, there should be used tiles with abrasion resistance, which is marked with the symbols:
    a. PEI-I and PEI-II.
    b. PEI-II and PEI-III.
    c. PEI-III and PEI-IV.
    d. PEI-IV and PEI-V.
12. The Mohs scale is used when determining:
    a. Material densities.
    b. The weight of the material.
    c. Material hardness.
    d. Compressive strength of the material.
13. For rooms that have direct contact with the external environment, where doormats are not used, there should not be used tiles with abrasion resistance, which is marked with the symbols:
    a. PEI-I and PEI-II.
    b. PEI-II and PEI-III.
    c. PEI-III and PEI-IV.
    d. PEI-IV and PEI-V.
14. Only indoor tiles will be used, the water absorption of which exceeds:
    a. 2 %.
    b. 3 %.
    c. 4 %.
    d. 5 %.
15. In terms of frost resistance, tiles used vertically outdoors must have at least:
    a. 50 cycles of frost resistance.
    b. 100 cycles of frost resistance.
    c. 150 cycles of frost resistance.
    d. 200 cycles of frost resistance.

16. In terms of frost resistance, tiles used outdoors in level must have at least:
    a. 50 cycles of frost resistance.
    b. 100 cycles of frost resistance.
    c. 150 cycles of frost resistance.
    d. 200 cycles of frost resistance.
17. The groups of anti-slip tiles used in wet rooms are:
    a. A,B.
    b. A,B,C.
    c. A,B,C,D.
    d. A,B,C,D,E.
18. If the stains cannot be removed from the tile, it is, in terms of stain resistance, a tile of the following class:
    a. First.
    b. Second.
    c. Third.
    d. Fourth.
19. The tiles showing the highest chemical resistance are tiles of the class:
    a. AAA.
    b. **AA**.
    c. A.
    d. A+.
20. Quick-setting adhesive mortar is marked with the symbol:
    a. F.
    b. T.
    c. E.
    d. S.
21. Adhesive mortar with increased deformability is marked with the symbol:
    a. F.
    b. T.
    c. E.
    d. S.

22. Dispersion adhesive mortar is marked with the symbol:
    a. D.
    b. R.
    c. C.
    d. E.
23. Wax that gives a matte finish will be used for cleaning and maintenance primarily:
    a. Clinker tiles.
    b. Terracotta tiles.
    c. Marble tiles.
    d. Ceramic tiles.
24. The permissible deviations from the vertical of the finished surface at a length of 1 meter for mirror, glossy tiles are:
    a. Up to 1 mm.
    b. Up to 1,5 mm.
    c. Up to 2 mm.
    d. Up to 2,5 mm.
25. The permissible vertical and horizontal deviations of the connections between polished, flattened, rough or grooved tiles are:
    a. Up to 1 mm.
    b. Up to 2 mm.
    c. Up to 3 mm.
    d. Up to 4 mm.
26. The permissible deviations of the roughness of the finished surfaces, measured with a 2-meter long patch for ceramic tiles, are:
    a. Up to 3 mm on the outside and up to 2 mm on the inside.
    b. Up to 2 mm on the outside and up to 3 mm on the inside.
    c. Up to 4 mm on the outside and up to 3 mm on the inside.
    d. Up to 3 mm on the outside and up to 4 mm on the inside.

27. The permissible deviation in the width of the joints for stone tiled surfaces is:
    a. Up to 2 mm.
    b. Up to 3 mm.
    c. Up to 4 mm.
    d. Up to 5 mm.
28. Large tiles are tiles whose side lengths are most often within the range:
    a. 40-100 cm.
    b. 50-110 cm.
    c. 60-120 cm.
    d. 70-130 cm.
29. The target color of the joints between the tiles will appear:
    a. On the date of the arrangement.
    b. The next day.
    c. After 2-3 days.
    d. After a week.
30. The recommended gradient needed for water to run off from horizontal surfaces is within the range:
    a. 1-4 %.
    b. 2-4%.
    c. 2-5%.
    d. 3-5%.

3.2.3. Sample control questions for the plumber profession

1. There are no such polypropylene pipes as:
   a. Homogeneous.
   b. Stabilized with aluminum foil.
   c. Fiberglass stabilized.
   d. Steel fiber stabilized
2. The SDR dimensional classification of polypropylene pipes is based on:
   a. Outer diameter of the pipe divided by the thickness of the pipe wall.
   b. The inside diameter of the pipe divided by the thickness of the pipe wall.
   c. Outer diameter of the pipe divided by the inner diameter of the pipe.
   d. The inside diameter of the pipe divided by the outside diameter of the pipe.
3. The S dimensional classification of polypropylene pipes is based on:
   a. Outer diameter of the pipe less the wall thickness and divided by the thickness of the pipe wall.
   b. The inside diameter of the pipe less the wall thickness and divided by twice the thickness of the pipe wall.
   c. The pipe outside diameter less the wall thickness and divided by twice the pipe wall thickness.
   d. Pipe outside diameter less twice the wall thickness and divided by twice the pipe wall thickness.
4. The most frequently used method of welding polypropylene elements is the technology:
   a. Short circuit welding.
   b. Socket welding.
   c. Ultrasonic welding.
   d. Friction welding.
5. The strength of pipes connected by welding is:
   a. Greater than the strength of the pipe itself.
   b. Similar to the strength of the pipe itself.
   c. Less than the strength of the pipe itself.
   d. Definitely lower than the strength of the pipe itself.

6. When preparing polypropylene pipes for welding, they should be cut with a saw:
   a. At 45 degrees to the pipe axis.
   b. At 30 degrees to the pipe axis.
   c. At 90 degrees to the pipe axis.
   d. At 60 degrees to the pipe axis.
7. When storing polypropylene pipelines, the distance between the horizontal ground beams should not exceed:
   a. 0,5 m.
   b. 0,75 m.
   c. 1,00 m.
   d. 1,25 m.
8. If you want to insert the pipe into the fitting, in order to facilitate insertion of the pipe, it is allowed to use:
   a. Oil.
   b. Grease.
   c. Fat.
   d. Soap solution.
9. Elements made of carbon steel may be combined with elements made of:
   a. Stainless steel.
   b. Aluminium
   c. Copper
   d. Bronze.
10. The following pipes are not included in the TECEflex system:
   a. Multilayered.
   b. Double-layer.
   c. Sanitary.
   d. Heating.
11. The connections of the TECElogo system can be disconnected:
   a. Anytime.
   b. Up to 24 hours after call.
   c. Up to 72 hours after call.
   d. The connection is permanent and cannot be disconnected.

12. In skirting installations running on top of walls, only:
    a. Double layer pipe.
    b. Sanitary pipe.
    c. Heat pipe.
    d. Multilayer pipe.
13. The thermal resistance of pipes and fittings made of PVC in a continuous flow may reach:
    a. Up to 65 °C.
    b. Up to 75 °C.
    c. Up to 85 °C.
    d. Up to 95 °C.
14. The thermal resistance of pipes and fittings made of PVC in a continuous flow may reach:
    a. Up to 65 °C.
    b. Up to 75 °C**.**
    c. Up to 85 °C.
    d. Up to 95 °C.
15. The main disadvantage of PVC sewer pipes is:
    a. Low thermal resistance.
    b. Low chemical resistance.
    c. Low mechanical resistance.
    d. Low attenuation of sound pressure (noise).
16. Sewage pipes made of polypropylene may be installed if the value of the ambient temperature is at least:
    a. -10 °C.
    b. -5 °C.
    c. 0 °C.
    d. 5 °C.

17. In the gravity sanitary sewage system, it is unacceptable to use at the knee levels and tee outlets with an angle greater than or equal to:
    a. 45 °.
    b. 60 °.
    c. 75 °.
    d. 90 °.
18. HDPE is:
    a. High-density polyethylene.
    b. High-density polypropylene.
    c. Low-density polyethylene.
    d. Low density polypropylene
19. The survey is:
    a. A list specifying the type and number of individual elements of a given scope of work, prepared prior to their performance.
    b. A list specifying the type, quantity and cost of individual elements of a given scope of work, created after their completion.
    c. A list specifying the type and number of individual elements of a given scope of work, created after their completion.
    d. A list specifying the type, quantity and cost of individual elements of a given scope of works, prepared prior to their execution.
20. Multilayer pipes made of PE-X or PE-RT polyethylene are the most common in the field of:
    a. Sewerage and water installations.
    b. Water and heating installations.
    c. Heating and sewage installations.
    d. Sewerage installations only

21. SML is:
    a. A system of sewage pipes made of polyethylene, intended for the discharge of domestic and rain sewage.
    b. A system of sewage pipes made of polypropylene, intended for the discharge of domestic and rainwater.
    c. A system of sewage pipes made of copper, intended for the discharge of domestic sewage and rainwater.
    d. A system of sewage pipes made of cast iron, intended for the discharge of domestic and rain sewage.
22. Water closures (siphons) protect against:
    a. Gas leaking from the sewage system.
    b. Noise.
    c. Sewage overflow.
    d. System heats up.
23. The bill of quantities is:
    a. A list specifying the type, quantity and cost of individual elements of a given scope of work, created after their completion.
    b. A list specifying the type and number of individual elements of a given scope of work, created after their completion.
    c. A list specifying the type, quantity and cost of individual elements of a given scope of works, prepared prior to their execution.
    d. A list specifying the type and number of individual elements of a given scope of work, prepared prior to their execution.
24. KML is:
    a. A system of sewage pipes made of copper designed to discharge sewage with increased aggressiveness.
    b. A system of sewage pipes made of cast iron intended for the discharge of sewage with increased aggressiveness.
    c. A system of sewage pipes made of polyethylene intended for the discharge of sewage with increased aggressiveness.
    d. A system of sewage pipes made of polypropylene designed to discharge sewage with increased aggressiveness.

25. Nominal pressure is the minimum pressure declared by the manufacturer, quoted for water at temperature:
    a. 20 °C.
    b. 30 °C.
    c. 40 °C.
    d. 50 °C.
26. DTR is:
    a. Technical and operational data.
    b. Technological and operational documentation.
    c. Technical and operational documentation.
    d. Technological and operational data.
27. Pipes should be led both in the floor and flush-mounted with light arches, the so-called "wave" with the pipe allowance in relation to the straight line amounting to:
    a. 5 %.
    b. 10 %.
    c. 15 %.
    d. 20 %.
28. The temperature of the drinking water at the outlet of the installation must not exceed:
    a. 25 °C.
    b. 35 °C.
    c. 45 °C.
    d. 55 °C.
29. The standard for clamping systems is a guarantee of at least:
    a. 2 years.
    b. 5 years.
    c. 10 years.
    d. 20 years.

30. In the field of water and heating installations, the most common pipes are multi-layer pipes made of kinds of polyethylene:
    a. **PE-X or PE-RT.**
    b. PE-X or PE-RW.
    c. PE-Y or PE-RT.
    d. PE-X or PE-PT.

4. Practical use of selected teaching methods

4.1. Interaction- and game-based learning

4.1.1. Theoretical introduction

Game-based learning has the potential to transform students' perception of learning across all levels of education and training systems. Growth of the gaming industry has ushered in a widespread acceptance of the use of games in other sectors. The availability of first games — such as *Tennis for Two* (1959) and *Spacewar* (1962) — was largely limited due to the fact that they required a computer, which is why they were most often played by researchers at universities. These pioneering applications along with arcades, computers and consoles had in turn popularised digital games and shifted our expectations and interactions in the digital landscape thus impacting our way of communicating and learning.

While computer and traditional games alike have become the subject of academic research, they have also been discovered by the education sector as a new tool that can foster education and training. Currently, games are being implemented in a variety of educational and training settings with the intention of motivating students, attracting their attention, and helping them build lasting and meaningful records of their learning processes.

Games are largely present in non-formal learning environments because formal education actors still often deem them as frivolous and argue that their potential to support learning is untested. However, when asked to evaluate their children's games, 85% of parents said that they believed that they provided entertainment and contributed to learning of their young ones. Studies show that many teachers would like to incorporate games into their lessons yet they are rarely equipped with necessary materials like reviews, instructions or recommended titles to do so.

In addition to providing entertainment and developing one's imagination, games help develop communication and interaction skills — all whilst having fun! Furthermore, they can aid in learning critical thinking since players must create links between real and virtual worlds. Moreover, games can be used to promote healthy principles such as cooperation and partnership. Finally, rules which must be obeyed by a player in the game constitute an opportunity for him/her to understand principles of honesty, truthfulness, respect and solidarity.

The game-based learning sector can offer a motivating and interdisciplinary environment to improve students' collaboration skills in addition to helping them learn new concepts and synthesise information. Games are also praised for their potential to teach business leadership skills among others by exercising them in a safe environment [1].

In light of the above-mentioned potential, the use of games seems to be a logical choice for educating plumbers, drywall fitters and tilers. Below, authors of this handbook propose two types of games, but naturally, it is possible to create many individual solutions. The Internet

offers many ready-made solutions that can be adapted to one's needs by modifying or combining them.

4.1.2. Trimino

Trimino is a jigsaw puzzle game (a variation on dominoes) in which the players aim to arrange triangles in such a way that their sides form pairs and the whole structure creates one of three shapes: a triangle, a star or a hexagon. There are quite a few triangle generators for Trimino available on the Internet. One example can be found in the link below:

http://schule.paul-matthies.de/Trimino.php

The website is in German, but if viewed by Google Chrome web browser it is possible to enable real-time translation and use the generator without much hassle.

Then, all that is left to do is to choose whether you want to play the variant with 9, 12 or 30 pairs. Next, you need to enter the number into the platform and generate a file for printing and cutting. Figures 1-3 show three simple versions of *Trimino* for different professions, but authors encourage players to create their own variations.

Trimino is recommended for use during workshops. Gameplay can be carried out according to one of the following scenarios:

1. Simple game
   Trainees are divided into teams consisting of several people. Each team receives its own set of game pieces and works to assemble them together.
2. Competition game
   Pre-game phase is similar to that of the previous variant. The difference stems from the fact that the first team to solve the puzzle wins.
3. Co-op game
   Participants receive sets of game elements, but unbeknownst to them, they sets have been tampered with - some are missing pieces while others have duplicated elements. After some time, the teams come to the conclusion that they need to start working with other subgroups to succeed. The fun ends once all teams have finished arranging their puzzles.
4. Communication game
   In addition to emphasising the substantive basis, this variant helps players to hone their communication skills. Each participant receives one or more elements that he/she cannot show to others. This participant can describe the content of this element to others in order to decide what should be placed on the table. At least three agreed upon elements should be placed on the table in one move.
5. Creating *Trimino* by trainees
   Within teams, trainees are tasked with assembling pairs before locating them on elements, cutting them out and delivering to the other team. This variant of the game helps develop analytical skills and spatial planning [2].

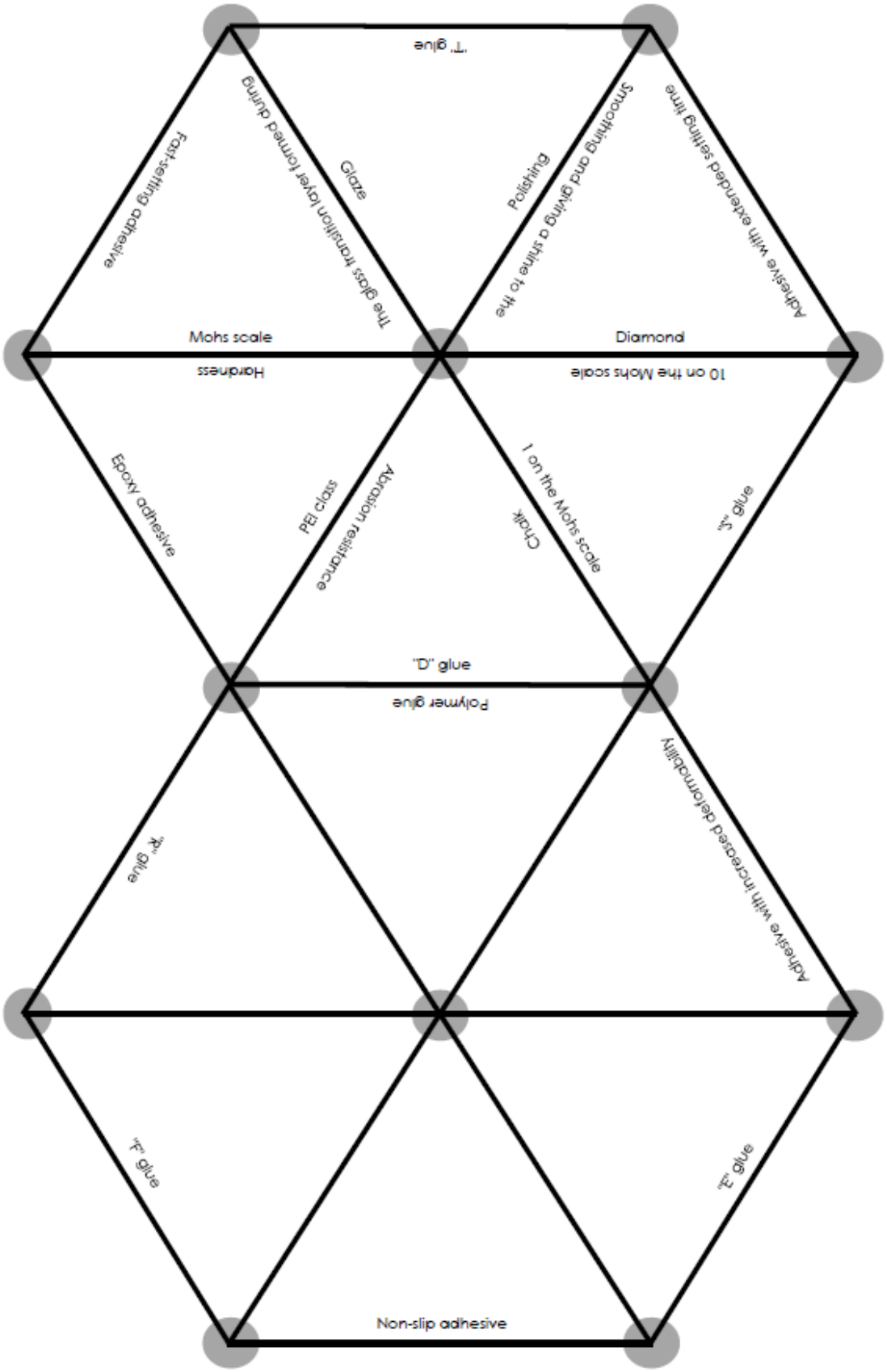

Fig. 4. 1. Variant of Trimino created for twelve pairs learning the profession of a tiler [own elaboration].

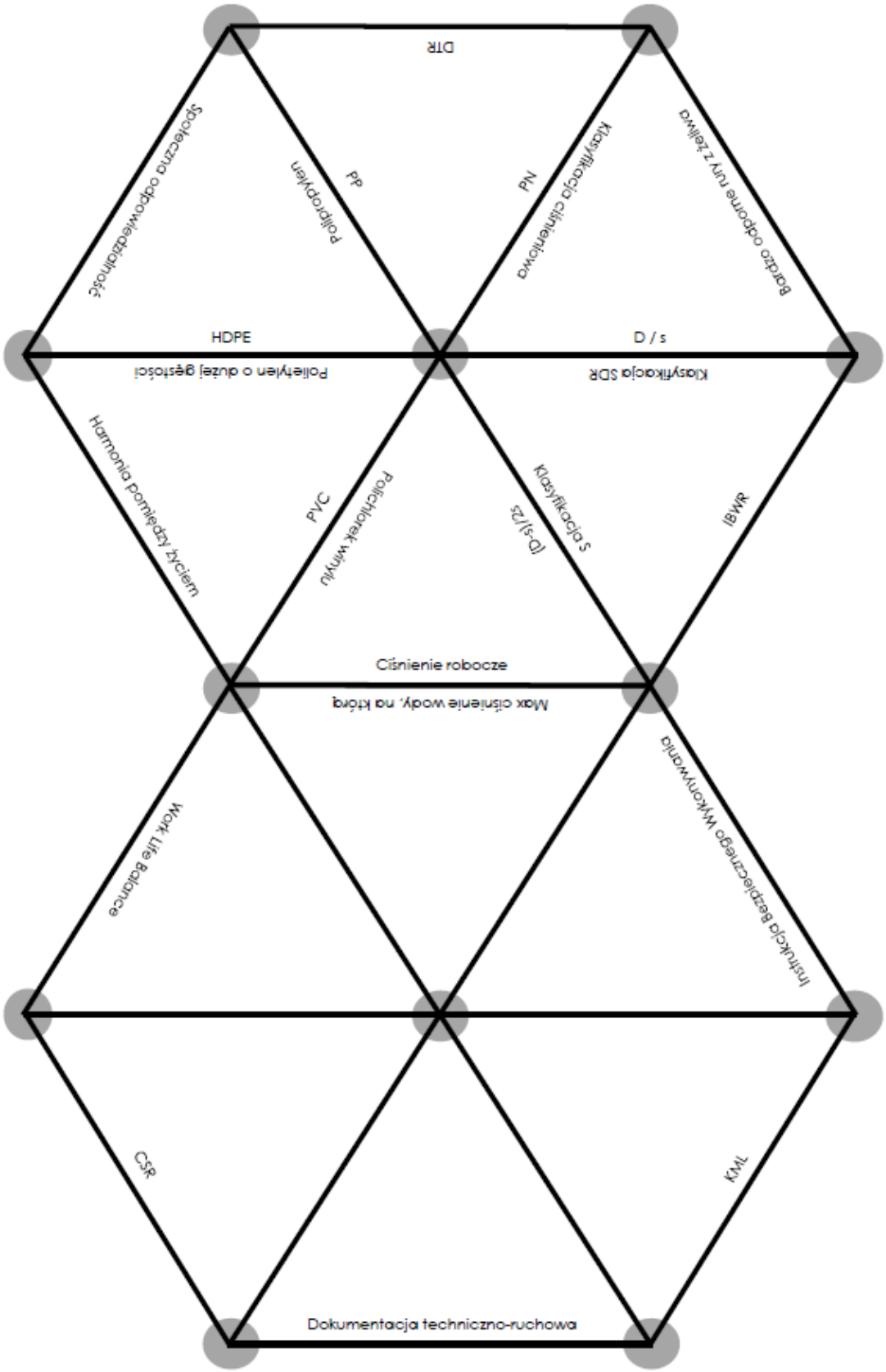

Fig. 4.2. Variant of Trimino created for twelve pairs learning the plumber profession [own elaboration].

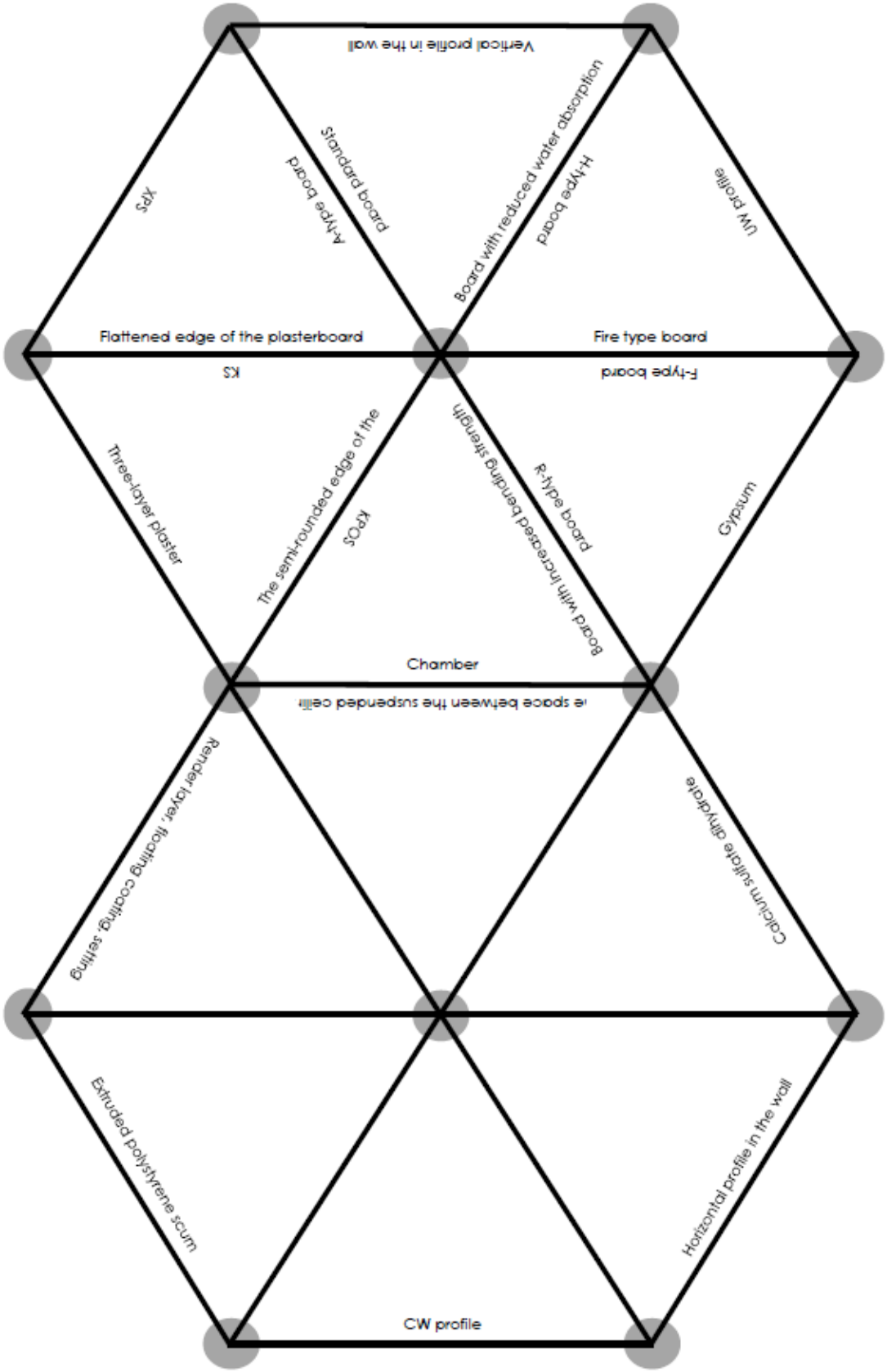

Fig. 4.3. Variant of Trimino created for twelve pairs learning the drywall fitter profession [own elaboration].

4.1.3. Role-playing games

Role-playing games (RPGs) were invented in the United States in the early 1970s. What were the beginnings of this video game genre like? Gary Gygax, together with David Arneson, developed the game *Dungeons and Dragons* which is based on *Chainmail*, a battle game set in the medieval times. Gygax's company, Tactical Study, released *D&D* in 1974. A few years later, the game *Advanced Dungeons and Dragons* was released which further developed the original idea and was later followed by other systems.

In RPGs, all the fun takes place in the imagination of the players. It can be compared to kids pretend games of war or policemen and thieves. Players embody the imaginary characters and - according to previously established rules - make decisions that will ultimately lead them to a predetermined goal of the game. That which distinguishes an RPG from a child's make-believe game is the presence of an additional participant in the game: the game master. The game master's task is to supervise and stimulate the course of the game. Simply put, the game play follows this sequence: the game master describes the situation, the participant gives his course of actions, and then the game master informs him of the achieved results. The person conducting the game usually has a prepared scenario, i.e. a framework of the game covering the main events, plots and characters that appear during the game. Nevertheless, there is no need to stick to the above-mentioned plan. It can be modified on an *ad hoc* basis to provide all participants with the comfort of play and an element of surprise, which additionally enriches the gameplay [3].

There are quite a lot of free game scenarios accessible online, which can be adapted to learn essential skills and knowledge needed to engage in the occupation of a plumber, a tiler or a drywall fitter. Below, we present the core of an original scenario for a drywall fitter trainee, which can be developed and used during workshops.

ADVENTURE CONTEXT: Construction boom in a select European Union country. Each player is an owner of a finishing company that provides a range of services (plumbing, tiling or drywall installation).

LOCATION: A large estate complex, consisting of several multi-level multigenerational homes.

EVERYDAY LIFE: The developer uses his own resources to construct the shell and core of each of the objects. He commissions the remained of the work to subcontractors. The construction site is supervised by the staff from the general contractor. The supervision is done by both professional engineers and those who lack the necessary qualifications.

CHARACTERS: The game master develops the profiles of construction supervision representatives, developer's staff, the architect and blue-collar workers for each team. The criteria of each character that need to be taken into account include: experience, age, personality type (introvert/extrovert), level of morality and tendency to use drugs.

ADVENTURE BUILDING: The construction site is populated by players who compete for new contracts to finish other apartments. Players manage the work of their employees, build relationships with the developer's staff as well as the general contractor and architect. They aim to execute their job properly, thanks to which they earn a good reputation in the industry and capitalise on the outcome. The reputation helps them build relationships and obtain future orders.

SUCCESS RATIO: At the end of the game, players count credit points and sum earnings. The player with the highest score wins.

The presented above approach:

- Motivates the trainee by providing an attractive psychological background for teaching. This is especially helpful for less emotionally mature participants who are better positioned to identify with games rather than with education;
- Simulates real-life situations. They can imitate experience and provide many of the skills available in a practical context, even if creating such a context in real-life would be dangerous or complicated;
- Facilitates the operationalization of certain theoretical structures, for example mathematical algorithms, thanks to intuitive means of strategy derived from games [4].

4.2. Learning by teaching others

4.2.1. Theoretical introduction

According to many experts, learning by teaching others is the most engaging and therefore the most effective teaching methods. This fact is confirmed by the so-called "learning pyramid" which - similarly to Abraham Maslow's pyramid of needs - shows the most hierarchy of the most effective methods of study [Figure no. 4].

4.2.2. Everyone learns everything

All course participants prepare themselves based on a given batch of material. The preparation may be cursory, but most importantly it must covers the entirety of the material. Moreover, everyone prepares several questions. During the meeting, each participant reads their own question and then tries to answer it. Other participants take turns adding to this statement until everyone believes that the prepared answer is comprehensive.

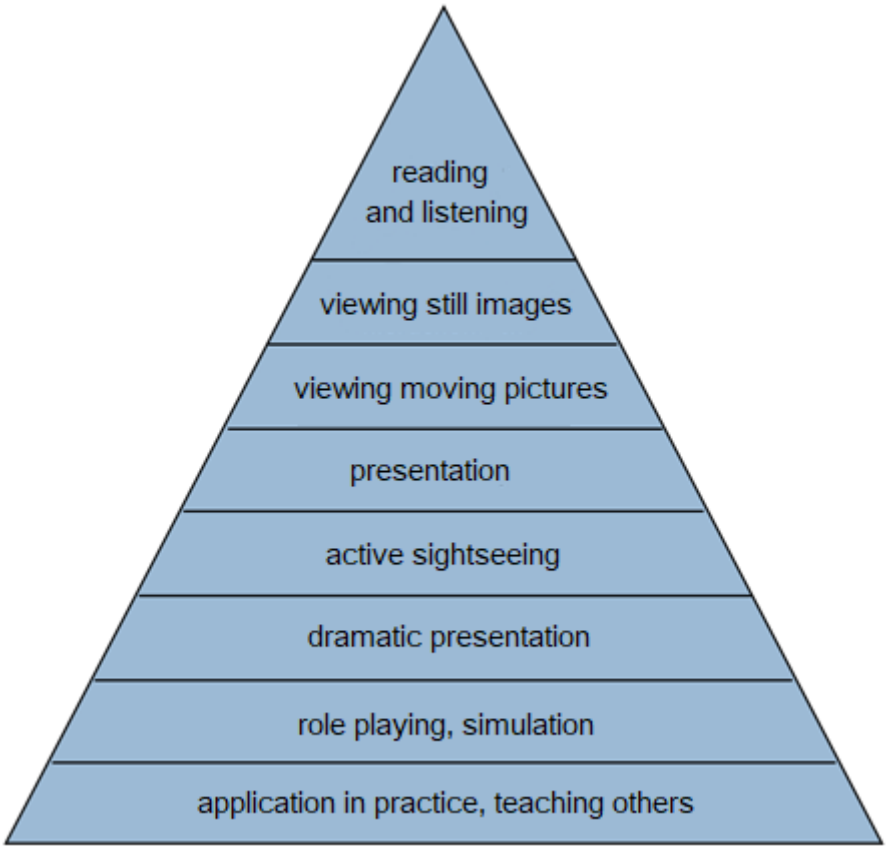

Fig. 4.4. Learning pyramid [5].

4.2.3. Everyone learns one and shares it with others

The material is divided among the trainees in the pre-meeting stage. Each of them must study their part of the material very carefully. During the workshop, individual listeners turn into speakers to discuss the material and answer questions posed from the rest of the group. To add an interesting twist to this approach, participants can send questions to each other before the meeting pertaining to foreign subjects. During the meeting itself, participants discuss the problems presented to them as thoroughly as possible.

The Puzzle Method is another type of approach which deserves attention. When following this method, participants are divided into so-called base teams. In each team, participants are given different topics to discuss and to work on individually. Then, expert groups are created. In each expert group, there are those who discuss a set of certain issues, so that they can cover them in great detail. The last step consists of going back to base groups where individual team members present their topics. The method is shown in Figure 5 [6].

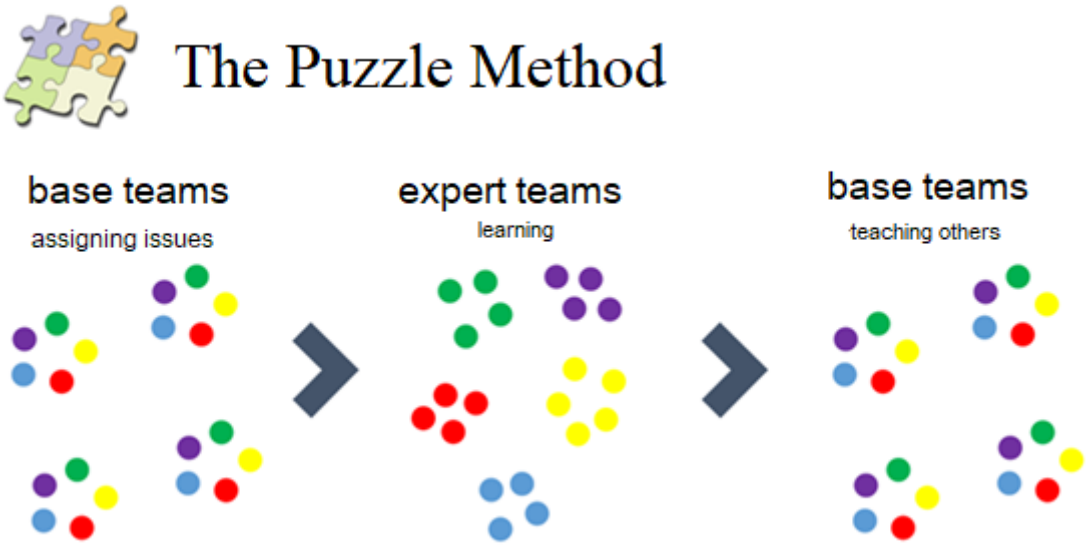

Fig. 4.5. The Puzzle Method concept expressed visually [6].

4.3. Learning-by-doing

4.3.1. Theoretical introduction

Learning-by-doing was one of the biggest changes to education, which we owe to John Dewey, who took up the education system in order to realign it with the socio-economic changes of the late 19th century. His work led to the creation of principles of pragmatic education. Dewey argued that schools educated students in a routinely fashion which resulted in them becoming passive and losing their natural curiosity. Moreover, he also disagreed with some concepts of progressivism, believing that the focus should not be solely put on a student's present. Therefore, in "work schools" attention was paid to the individual abilities and predispositions of the student, trying to support them with the help of didactic methods and content. Dewey's main goal was to introduce activities that stimulate thinking, acting and movement - in particular dealing with problem scenarios created by teachers and the environment. An essential element of this approach was the cooperation of pupils and, most importantly, the idea of creating a cohesive society.

Principles of learning-by-doing:

1. The student needs time to understand the new method.
2. One must trust in the need to recognise and understand through learning.
3. The facilitator must be patient.
4. The curiosity of students must be stimulated.
5. It is advisable to promote activity and not to punish passivity.

6. Every success should be properly appreciated.
7. Group analysis should cover the various solutions and experiences related to performing the task.

This method is based on experiencing every possible element of work and education and relating the acquired knowledge to the reality outside of the course. Students must feel that their commitment and drive to solve a problem leads either to success or to a change in their quality of life. The role of the tutor is limited to observing, supporting, creating problem scenarios and motivating students. Above all, this approach requires the teacher to possess a high degree of creativity.

Advantages of the method:

- quick and visible results;
- increases students' responsibility;
- increases participation, activity level and the natural curiosity of students;
- classes take on an unconventional form and thus can be fascinating;
- improves the mood and mutual understanding in a group.

Disadvantages of the method:

- initial organisational problems;
- high-level requirements of teacher's soft skills;
- having to invest additional time to answer the individual needs of learners [7].

4.3.2. Ideas and tips

Instead of having theoretical discussions about material preparation, equipment or a workstation, one can provide students with a list of essentials so they can research them at home on the Internet, to learn about their features and get to know the opinions of other users. Upon their return to class, students discuss the solutions amongst themselves. Their focus is on identifying strengths and weaknesses of each variant.

In the case of construction careers, practical workshops are crucial because they allow the trainee to actually assemble the hydraulic system, lay tiles or construct a partition wall. It is very important to properly prep the teaching staff in order to fully develop interpersonal features which are essential to each method such as:

- patience;
- forbearance;
- creativity;
- ability to motivate others.

Presented below in synthetic form is a list of tips that will surely increase the effectiveness of students' learning process:

1. **Being taken seriously.** Even if a student repeatedly asks the same question or the question itself stands out from the current learning level, one should in calm and patient manner explain the issue that is causing confusion.
2. **Honesty**. If a certain question lies beyond the scope of the teacher's knowledge, one should honestly acknowledge this fact and come prepared to thoroughly discuss the issue at the next meeting.
3. **An invitation to the world of science**. One should try to make students not only remember what to do, but to discuss the entire chain of cause-and-effect with them thoroughly, so that as many processes and action-reaction relationships as possible remain in their memory.
4. **Verification of teacher's knowledge**. Before class, the teacher should check whether new material, technological or organizational solutions have appeared. This prevents him/her from falling into a routine, and ensures that students have access to the latest developments in the field of technology.
5. **Experiencing the issue directly**. It is important to ensure that students are able to physically perform certain activities related to construction works.
6. **Broad context**. It is worth discussing issues in a much broader context than just the construction works at hand. For example, shedding light on the historical purpose of buildings in general.
7. **Maintaining the correct order of events in the classroom: first evoking emotions, then having students ask questions, and finally providing them with an explanation**. By employing this sequence of events, it is possible to maximise the interest of students, and thus gain their attention and focus.
8. **A great story**. Telling a great story makes it easier for students to awaken their imagination and imagine the places or situations being described.
9. **Repeatable experiences**. It is important to integrate tasks that the student can repeat in class, and if possible - both in class and at home.
10. **Scientific concepts and specialised vocabulary**. New terms should be incorporated into each class, preferably in such a way that it is impossible to understand the entire statement without understanding the term. Thanks to this, students will feel the need to ask about individual terms, and when this occurs, the teacher should answer them in the simplest words possible.
11. **Ambiance**. Turning off the lights and discussing material by flashlights builds an ambiance and allows one to focus on what that the teacher wants to discuss at a given moment (similarly to attracting attention by performer artists in the circus, where all the lights are pointing to them while the rest of the room remains in the shadows).

12. **Maintaining the right proportions: speak the least, show more, and let the students act the most**. With many manual tasks, speech is simply distracting. Demonstrating the task in silence makes it easier to focus and capture even the smallest details that build the craftsmanship of a professional.
13. **Have fun**. Classes should allow for students and teachers alike to have fun. Therefore, it is very important that the teacher selects the tasks that enable him/her to use their natural talents and interests.
14. **Preparation for classes**. It is good idea to do a short rehearsal before class, with all the props in place and a well-prepared space for conducting class.
15. **Solidification through discussion**. After the end of the class, one should discuss with students what they liked, what interested them and what gave them the greatest joy. For the teacher, this exercise will give tips for future activities, and for the students it will help solidify acquired knowledge [8].

4.4. Discussion groups

4.4.1. Theoretical introduction

Despite the fact that a discussion is primarily understood as a way to exchange views by at least two entities with different positions on a given topic, a discussion moderated by the teacher has also found its way as a teaching method. It is good idea to institute a framework for group discussions as part of the aforementioned moderation.

4.4.2. Recommendations for instituting a framework for conducting a group discussion

1. One should listen carefully to the positions of other participants present in the discussion.
2. You are not allowed to shout over, interrupt or interfere others.
3. Keep your emotions in check. Even if a controversial statement is made, stay calm.
4. Everyone should express their views freely. Even if a better solution is presented, it may be possible to improve it by other points of view.
5. Speak to the point. If a problem has been posed, the focus should be on its constructive solution, not on interlacing statements with unnecessary digressions or anecdotes. Engaging in overdrawn discussions can make the rest of the group bored or irritated.
6. One should use the appropriate voice timbre and gesturing to attract and hold the attention of the audience.
7. The position should be presented as precisely as possible, without overgeneralising.
8. One should criticise ideas or parts of them, but never the interlocutors. In addition, criticism should be as constructive as possible, bearing in mind that the purpose of the discussion is to arrive at the best solution to a problem, not to force your own opinion.

9. One should not refer to stereotypes or information that cannot be confirmed.
10. The positions of other discussion participants should be respected.
11. It is a good practice to use examples that will illustrate particular ideas [9].

4.4.3. Discussion groups in the 21st century

In the 21st century, newsgroups have largely moved to the Internet. Depending on the technology used, they can take one of four forms:

- e-mail discussion groups;
- groups functioning in the Usenet hierarchy (Usenet is short for *User Network* - "a global newsgroup system that can be accessed over the Internet. It consists of thousands of subject groups arranged in a hierarchical structure. Users send messages similar to e-mails to Usenet servers , and the servers that make up the P2P network automatically exchange them with each other. Sometimes messages are called *posts* whereas *a post* is a message placed on Usenet. "[10]);
- discussion groups accessible through websites —also called discussion forums;
- Internet discussion groups — available only within the institution's or company's local network [10].

The biggest advantage of online newsgroups is that you can use them at any time. Just log in and present your own position or comment on someone else's. All participants can follow the discussion around the clock. After discussing the issues online, it is possible to meet face-to-face and to proceed straight to the summary of the discussion and its conclusions.

4.4.4. Types of discussions to be conducted during the workshop

During the workshops, you can use one of eight forms of conducting an educational discussion:

- **Discussion related to the lecture** — this is a type of discussion related to the lecture aimed at a) clarifying learners' doubts about the theses, b) understanding phrases contained in the lecture and c) obtaining feedback from learners regarding their comprehension of the content;
- **Roundtable discussion** — discussion consisting of a free exchange of views between participants of a meeting, conference, course, lesson and speakers presenting a selected problem or issue, as well as between the participants themselves. A characteristic feature of a roundtable discussion is informality and freedom of expression of all participants (regardless of their position). Participants exchange their views and experiences and provide each other with explanations, which are then corrected and

supplemented by the person conducting the discussion. Thus, multiple feedback takes place here;

- **Multi-way discussion** i.e., a discussion in small groups, where the subject of the discussion may be the same issue or a separate problem constituting a part of a whole. In the first phase of the discussion, work is carried out in groups under the guidance of a leader. In the second phase, the classes are plenary and during them the results of group discussions are presented and a solution is chosen;

- **Brainstorming** i.e., a teaching method which enables students to quickly accumulate many competing or complementary hypotheses to solve a problem to which a given methodological unit or its fragment is devoted. One can submit even the most daring or absurd ideas and solutions, no matter how unusual, risky or unrealistic. The form in which they are presented is not important because wasting even a moment of reflection on linguistic correctness can diminish ingenuity. These ideas cannot be evaluated or commented on, and the authors do not assume any duties or responsibilities related to them. The whole structure of the brainstorming session is designed to break the link between the phase of idea production and that of idea evaluation. This method is described in literature under many names: "idea exchange", "deferred evaluation session", "conference or factory of good ideas", "idea fair", "deferred evaluation session";

- **Panel discussion** — also known as "panel" or "observed discussion"; a characteristic feature of this discussion is the existence of two groups: the discussing (experts - panel) and the listening (audience — learning). In the first phase of the discussion, experts introduce their views and then the discussion moves to panel members. In the second phase of the discussion, any person in the audience can speak;

- **Metaplan** - i.e., a method of graphically recording the course of a discussion; this method makes it possible to make a diagnosis (assessment) of a specific situation and indicates the possibilities of solving a specific problem. The poster is a graphic image of the discussion. Instead of speaking, the participants of the discussion write down their thoughts on sheets of paper of a specific shape and colour in a short form of sentence equivalents. Then they pin them to a sheet of paper placed on the board;

- **Bulleted discussion** — students discuss in groups of 6-8 people, while others (students and the teacher) listen. The discussion lasts from 8 to 20 minutes, depending on the topic and age of the students. Discussion participants use a discussion plan so as not to deviate too much from the topic. Every time the student participates in the discussion, he/she receives positive or negative points, which are entered onto a previously prepared scoring card. The teacher awards positive points for: taking a position on the issue discussed, presenting information based on facts or obtained by the student through research, commenting on the topic, involving another student in the discussion. Negative points can be obtained for: interrupting, disturbing, monopolising discussions, personal attacks, making irrelevant comments. The most serious trespass is that one student monopolises the discussion making it impossible for others to join the discussion

and thus lose an opportunity to score a positive point. With negative points, the teacher can maintain the discipline and attention of the listening participants. It is a method that can be treated as an alternative to the traditional questioning of students on the topic recently covered in the lesson. Its additional advantage is that the student gets used to conducting discussions in a cultural manner, without offending anyone, not to monopolise the discussion, and to control the situation in which they participate all the time;

- **"Idea rug"** is one of the discussion techniques, as a result of which participants create posters on which they post proposed solutions to a problem discussed on cards. After the reporting of solutions is finished, they are scored by all discussion participants who can award 1, 2 or 3 points. They assign points at their own discretion. The solution with the highest point count is considered to be the best one.

4.5. Demonstration

4.5.1. Theoretical introduction

Demonstration, especially in professions requiring high manual dexterity, is one of the preferred forms of education. It is also a compulsory introduction to undertaking practical tasks by students. Among the different types of demonstrations, one can distinguish:

- **Demonstration with explanation** — a method of practical teaching, consisting of demonstrating activities, their sequence and correct execution. In the case of complex activities, the demonstration should include a demonstration of the subsequent phases. The show's subject can also be machines and devices, their structure and principle of operation, individual assemblies, subassemblies and parts, tools, tables, charts, etc. The verbal commentary accompanying the show is an explanation (explanation). It follows that the explanation indicates "meaning" and "meaning", it explains certain relations and relationships, it shows the structure. This means that the demonstration method with explanation can rather be used in the initial phase of practical activities;
- **Demonstration with instruction** - Spoken commentary supporting the show is a kind of verbal instruction, also known as a briefing[12].

4.5.2. Course of classes

The course of activities conducted using the demonstration method should take place in two phases:

Phase I: Making students aware of learning goals:

- defining tasks to be performed
- students reading through instructions for exercises
- teacher carrying out a demonstration

- making everyone aware of the risks associated with the performed activities
- defining criteria for evaluating the performed tasks

Phase II: A series of questions posed by students:

- providing supplementary answers by the teacher
- preparation of stations for the exercise [13].

4.6. Audiovisual aids

4.6.1. Theoretical introduction

Audiovisual aids — also referred to, depending on the context, as *audiovisual media*, *audiovisual technical means*, etc.; auditory-visual (operating with image and sound) methods of conveying content using technical devices that enable them to be implemented. They are used very widely in many areas of life — to provide information (especially in didactics), in entertainment, in advertising and in art. They are of particular importance for the teaching process and are analysed in the broadest sense in terms of pedagogy. The term also covers the technical devices themselves used to transmit information [14].

4.6.2. Audiovisual media

Audiovisual media understood as methods of content delivery include films, TV broadcasts, radio broadcasts, and slides. Audiovisual means understood in this way are used especially as teaching (multimedia teaching aids), educational and training aids. In didactics, they are treated as a supplement to traditional forms of teaching in the form of lectures. Apart from teaching, such methods are more often referred to as "audiovisual materials" (i.e., broadly understood texts, documents containing video or sound). This concept should be distinguished from the concept of "mass media," which is defined in the context of social communication (e.g., television, radio, Internet, press, cinema) [14].

4.6.3. Audiovisual technical means

The basic technical devices used in the technique of transmitting information are, for example, microphones, cameras, TV sets, radio receivers, computers, tape recorders, VCRs, loudspeakers, camcorders, amplifiers, mixers, monitors. Thus, they can be all kinds of mediums used for producing, processing, transmitting and receiving signals — especially devices and materials used for reproducing images and sounds (separately or simultaneously).

There are three main groups of audiovisual technical means for reproducing image or sound:

- Visual means
- Auditory means
- Audiovisual means in the strict sense.

The following can be distinguished among visual means:

- Visual means as devices for the reproduction of still images on the screen, e.g., a slide projector, an episcope with images on a non-transparent material, a script projector
- Visual means as devices for reproducing moving images on a screen, e.g., a movie projector (silent films)
- Visual means as devices for reproducing images on boards, e.g., light boards, graphic boards, magnetic boards, flannel boards and assembly boards

The following can be distinguished among auditory means:

- Apparatus for playing recordings, e.g., on CDs and tapes (adapters, tape recorders, CD players)
- Apparatus for receiving radio broadcasts
- Audio equipment including speakers, microphones, amplifiers

The following can be distinguished as audiovisual means in the strict sense:

- Apparatus for the reproduction of sound films;
- Sets for the reproduction of sound-based still images, e.g. a slide projector with a tape recorder for simultaneous playback of tapes (of the lecture recording or other auditory layer accompanying the displayed image);
- Apparatus for transmitting and receiving television broadcasts [14].

4.6.4. Audiovisual material developed under the IPCIC project

The IPCIC project developed three professional film packages for the following occupations:

- plumber
- tiler
- drywall fitter

These materials present the basics of each occupation in an accessible way and discuss the extremely important aspects of health and safety. The films can be downloaded for free from the project website (https://www.ipcic.il.pw.edu.pl).

4.7. Reading

4.7.1. Theoretical introduction

Reading is a mandatory requirement, which acts as a supplement to all other learning methods. Reading makes it possible to acquire knowledge also after classes. Moreover, the reader can decide for themselves which parts of the material require more time from him/her to be properly absorbed. It is important that in the first place the teacher encourages reading, secondly, shows how to do it quickly and effectively, and thirdly, instruct how to draw conclusions and remember as much as possible from the material read. If the student wants to read quickly and effectively, he or she should follow these steps:

1. Set a reading goal.
2. Review the book before reading.
3. Prepare specific questions to the set goals.
4. Follow reading recommendations.
5. Take notes after each reading session [15].

4.7.2. Set a reading goal

According to the Pareto principle 80% of the most important information in a book is contained in 20% of the text. If the student does not set a goal, his or her distracted attention may focus on content that is not the most important in the text.

When picking up a book, the student should always set a reading goal. For example, one may answer the following questions:

"Why do I want to read the material?"

"What do I want to learn from this material?"

"What will I know when I finish reading this material?

"What is most important to me?"

These can be goals such as:

"I want to learn about the most important principles of how the brain works."

"I want to find the best chocolate cake recipe."

"I want to find information for an article/work on ..."

"I want to relax."

"I want to get an in-depth understanding of the hero's psyche."

The goal must be clear and specific. The student should focus on it as much as possible, setting their brain to search for information that is needed to achieve the goal. If there is something less important in the text, he/she may read faster in order to get an idea of what the passage is about. Of course, sometimes you can read an entire book with equal attention — it all depends on your goal [15].

4.7.3. Book review

A book review should be done to get an idea of its content structure. Before the student starts reading, he/she must create a mental frame which then subsequently can be filled with detailed information. First, one should get to know the table of contents, including the layout of chapters, their titles and subheadings. By familiarising oneself with them, he/she will know what issues will be discussed in the text.

Next, the student should review the entire book by spending about 5-10 minutes on this step. The student can flip through the pages and check the layout of the text, read the headings, the information written on the margins, emboldened text, pictures, etc. This is the another step in building the book's frame in one's mind. By doing so, the student can find out whether the book really contains the content that is of interest to him/her as well as where it is and whether it will be easy to extract.

The review is complete when the student knows whether his previously set goals will be achieved. Sometimes it will be necessary to reformulate them or look for another literature item. Therefore, the book review is a very important step in reading. When a student has set goals and is in possession of a book or other material that will be used to achieve them, he or she moves to the final stage of reading prep — setting questions [15].

4.7.4. Preparation of specific questions to set goals

Before starting reading, the student should posses not only a list of goals, but also a list of specific questions for the text. For example, if the student's goal is to collect materials on a specific topic, he or she may write down questions about the specific content that the student wants to include in the work. Thanks to this exercise, the student will be able to focus only on those fragments of the text that carry the answer to the question. Once the student possesses a list of questions, he/she can proceed to the most important stage — reading itself [15].

4.7.5. Reading recommendations

The student has to understand that reading is not merely the "decoding of graphic characters," but that it is essentially complex "work with a text". The student should remember that he/she reads in order to answer the previously arranged questions and thus achieve set goals. Also, one should pay attention to the state they are in while reading, the pace and manner of reading. It is also important to mark the most important passages in the text.

For learning to be effective, it is necessary to use both cerebral hemispheres simultaneously. The left side of the brain is responsible for the technical perception of the text during reading, its analysis and logical understanding. The right side of the brain is responsible for creative processing, holistic view (synthesis) and memorisation. To stimulate the brain to work, it is best to perform exercises that synchronise both hemispheres, such as the Dennison Exercises:

- **Lazy eight**: Best if performed in a standing position. Extend the slightly bent right arm in front of you. The hand is curled into a fist with the thumb extended. The exercise consists in drawing an infinity sign in the air, or "a lying figure eight". Starting from the inside (at the level of the nose), slowly point your hand to the right side, carefully observing your thumb — you cannot take your eyes off it for a moment. When drawing the figure eight, one should try to stimulate the extreme points of the field of view — the sign should therefore be large enough to be clearly felt. You need to make a few moves with the right hand, then with the left hand, and finally with both hands, lacing them together. A fantastic (and by no means disturbing) symptom of this exercise is eye pain — if it occurs, it means that the eyes are working harder than usual, so everything is going according to plan. If you feel any pain, stop exercising for a moment, close your eyes, and relax. Repeat the exercise (a few movements at a time) for a total daily time of about 5 minutes.

  This exercise can also be performed on paper, e.g., during a boring lecture. The gesture immediately stimulates, brightens the mind and helps concentrate. It also widens our field of view, which is helpful when learning to read quickly.
- **Alternating exercises:** Stand freely, bend your elbows, then start to move your legs in place, as if you were walking, but lift your knees high so that your right leg meets left elbow and vice versa. Perform the exercise slowly and carefully, also engaging your eyesight: when the left knee touches the right elbow, look to the left and vice versa. As with lazy eights, we can take numerous breaks, but the total time of exercise during the day should not be less than 5 minutes.

- **Dennison's position:** Sit comfortably, clasp your hands in the following way: pull them out in front of you and put the outer sides of your hands together, then cross your wrists and clasp your fingers together. Then drag the clasped hands down and place them on the chest, stretch your legs in front of you and cross them. The eyes should be looking slightly upward while the tongue should be against the roof of the mouth. You should stay in this position for 5 minutes. It has an activating effect, brightens and refreshes the mind, supports thinking, and relaxes the body.

Any other alternating movements, involving the left and right sides of the body at the same time, crossing the lines of the centre, stimulate action, increase concentration, and also create new nerve connections between the hemispheres in the brain.

The right hemisphere is responsible for the state of the student, i.e. the emotions that accompany one while reading. Since reading (decoding graphic signs and analysing them) is the domain of the left hemisphere, this activity itself will be stimulating. Therefore, extra

attention should be paid to the activation of the right hemisphere — if it is not done consciously, the student will likely encounter a problem when trying to focus attention on reading and remembering the content.

To properly stimulate the right hemisphere, it is good idea to try the following methods:

- think positively about reading and learning, smile, imagine the goals achieved and your own satisfaction with the results;
- find a proper place to read — sit comfortably, in a place where you feel good; remember to maintain cleanliness of this space;
- turn on nice music — it really works great for the right hemisphere;
- imagine what is read by transforming the text into images, shapes, colours and employing memorisation techniques;
- become emotionally involved in the reading process — set a specific time limit to complete a task, set a reward for good result, etc.

When it comes to speed and the reading method, it all depends on the type of text you are reading, subject matter, font size, content layout, paragraph size, headline density, bolds, underlines, line lengths and many, many other subtle elements.

However, there are a few rules to make read any text faster, such as:

- **Adjust the reading speed to the text:** do not be afraid to read simple texts very quickly, mainly consisting of familiar words and simple sentence structure. With more difficult texts, the pace must be slower, but you should try to read as quickly as possible. Too slow reading leads to distraction and poorer understanding.
- **Read with a pointer**: it can be a pen, finger, or anything else that can be traced over the text while reading. Thanks to the indicator, the appropriate pace is maintained, and the attention is focused on the right part of the text. It also prevents regression i.e. moving your eyes back to fragments of text that have already read. The mere use of the pointer speeds up your reading by 20-30%.
- **Include more than one word**: first, without any special exercises used to widen the field of view, try to grasp two words at once in a single glance. The average student will be able to do this without any problems, and thus reduce the number of eye stops on the text by half, which will significantly increase the reading speed.
- **Reduce or eliminate vocalisation (that is, speaking the content of the text you are reading mentally or aloud):** it is difficult because it requires cutting away from what was essentially understood by the student as reading itself for many years. Meanwhile, the student can read with the sense of sight alone which is much more effective. To eliminate vocalisation you have to occupy your inner dialogue with someone else e.g. mentally sing a song, repeat a poem, etc. At first, when we stop vocalising, we may

notice a significant drop in understanding of the text we are reading. However, this is only a transitional stage during which our brain has to switch to a different mode of operation. Then as you steadily complete the exercises, you will begin to fully understand the text again, and your reading pace will gradually increase.

When reading, it is very important to highlight important parts of the text i.e.,keywords. They can be single words, groups of words or sentences that contain the main ideas of a given paragraph or chapter. The underlined words are intended to call attention as passwords to access the information behind them. Here are some rules and tips on how and what to highlight:

Things that should be highlighted:

- important terms, concepts — without definition, or selected words by definition;
- names, dates, events — without description, or individual words from the description;
- points, rules, functions woven into the text — without definition or with just a single word from the definition;
- characteristics, features — single words or small groups of words;
- any keywords that are important to understand the essence of a given fragment of the text;
- summary/key sentences containing the main idea of a paragraph, chapter.

Things that should not be highlighted:

- sentences formed around the keyword — the keyword will get lost in them;
- excerpts that do not contain key words or sentences;
- words without which the student is able to understand the passage — these only distract;
- too many words or fragments — they should stand out and not constitute a background for white gaps.

Moreover, one should:

- insert drawings and characters such as exclamation marks, question marks, symbols, etc. in the test;
- underline with different colours — in this way the student separates and highlights various threads of the text; it will also be easier for him/her to make notes later.

If there is a situation where you do not know what to highlight, because everything seems important, then try doing the opposite — cross out as many words as possible, without which you can still understand the essence of the text. This can be done gently with a pencil, and then followed by underlining the text that was left as important. End with removing the

crossed out deletions. This method shows that you can always find more and less important passages in the text.

It should be remembered that the less one highlights, the better he/she remembers the substance of the text because more attention is paid to the right words [15].

4.7.6. Taking notes

Notes are a very important final stage of working with text. Thanks to them, knowledge gained during reading is consolidated and thus, excellent revision material is created. Proper notes should be as small as possible and contain as much content as possible — they must be concise and synthesise the entire text.

Here are some rules for making good notes:

- never include whole sentences in notes, unless they are key sentences for the text, expressing its essence or summarising it;
- the material in the notes should be hand-picked and thus contain only relevant keywords and their very brief description (few words at the most);
- write in bullets, differentiate font size, insert pictures;
- use mind maps, where the most important keywords are placed in the centre, and the further from the centre, the more detailed the information;
- a hierarchical notation is recommended — the main keywords on the left in capital letters, and their details bulleted in the next line, shifted slightly to the right, with smaller letters.

Please note that the notes should not contain all the information found in the text. They are only meant to be a keyword to access what was remembered while reading. So, instead of taking notes that are too detailed and therefore not legible, trust yourself and your mind. When creating notes while working with a book, you should remember (using memorisation techniques) what information is hidden under a given keyword. Then, during the revision of the notes themselves, the student should try to recall the overview of the topic. If one cannot remember a piece of information, he/she should look inside the book to remember it [15].

4.8. Lecture

4.8.1. Theoretical introduction

A lecture is a form of knowledge transfer in the education process, but it is also a show. A well-prepared lecture is one that reaches the recipient and provides them with the largest amount of the most accurate information. Thanks to this, the lecturer is also remembered positively. Below are some recommendations for preparing an interesting lecture.

4.8.2. Lecture topic

First of all, the topic of the lecture is important. To prepare a lecture, you should think what the lecturer should say to the audience and what will be talked about. Find a focal point — a subject to relate to, and then choose a topic. In the mind, a sketch is constructed and first, one should organise thoughts and make notes. It can be in the form of a mind map or a drawing. Thinking with pictures in the form of drawings helps organise thoughts and plan the content of the lecture. It allows one to create an outline of a statement or form the basis of a presentation. It is best to write down each thought so that one does not affect others that are directly or indirectly related to the notions of attention, time, change, and so on. Afterwards, gathering material becomes a very important next step of the process. Then, one must review the collected materials, supplement what is needed and make a selection from the rest.

It is important to think about the topic and not the lecture, because the lecture's framework will restrict the lecturer too much. Besides, imagining the lecture itself can be quite stressful. Coupled with stage fright, it is bound to make the entire undertaking fail [16].

4.8.3. Putting written thoughts together

The next step consists of putting written thoughts together including a beginning, a climax, and an end. For each element, you should consider whether you need to mention it for the sake of continuity and logical course of expression. Sometimes it is worth mentioning something from a related topic — especially if it is important. However, one should not jump around but rather stick to one stream of thought. Then, the ideas written on cards should be expanded upon with additional information related to the topic of the lecture [16].

4.8.4. Choosing what's important

At this stage, it is good to mark what will attract attention and what will be interesting for the audience. Essentially important information should be provided, but in order to attract the attention of the audience and make the lecture remembered, one can weave in some historical context, a joke or an anecdote into the lecture — preferably one that is associated with the previous or the following topic. You can prepare aids that everyone will see, touch, experience and even taste. Currently, the multimedia technology is rapidly developing, therefore you can prepare a multimedia presentations (e.g. in PowerPoint, Prezi or other similar programs). One can show not only written words, but also pictures, films and animations. It greatly enriches the message. Another form of material that is to be completed by the listener is a drawing pad. It allows one to learn how to use visual thinking and helps to remember content.

You must also correct the material that is recorded. At this stage, it is advisable to search for research into previously structured insights that are specific to a given topic, using facts, data and graphs. Consider how much information your prospective listener is able to assimilate, then make selections, and throw away the less important information. Then consider how to present certain facts on slides. The slides should remind about what the

tutor wants to convey during the lecture. Preparing a presentation allows one to show what cannot be relayed with words — pictures, drawings and diagrams. Moreover, it is easier for the audience to follow the course of the lecture. Sometimes, it is difficult to pay attention simply by listening because the attention of students during class is easily distracted. Presentation slides can help them concentrate. Moreover, a well-prepared presentation sets a pace for the lecture and gives it a clear structure. This way of communication is better suited to modern listeners, because they are familiar with various multimedia [16].

4.8.5. Training

The final stage of preparing a lecture consists of practicing your speech or writing it down. One can be aided with technology and use a voice recorder to record one's own speech. Afterwards, he/she can listen to the speech and switch between presentation and viewing notes.

Some, wishing to relieve stress before the lecture, appear several hours or days before the lecture is scheduled to take place to ensure that technical requirements are met — especially if the lecture is to be presented in the form of a presentation. When performing in a given place for the first time, it is worth asking another person where to stand when starting the presentation or more specifically, what is the space in which one can move so as not to obscure the content being shown on the screen [16].

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5. Online teaching as an alternative form of teaching

Last year made the whole world live differently. Educational institutions are not an exception. Most of them had to reorient to distance learning due to the fact that contact training became impossible. For most of them, this has become a real challenge, as such methods have not been applied before, the teaching material has not been adapted to such a teaching method. This required significant financial and human resources.

In the light of the proposals made by the European Commission, a number of relevant areas can be identified that should be reviewed by training providers to ensure appropriate distance learning:

- organization of education;
- teaching, learning and assessment practices;
- infrastructure;
- virtual learning environment/tools;
- digital curriculum;
- professional development;
- quality assurance;
- well-being of staff and students;
- cooperation and networking.

5.1. Organization of education

Before organizing distance education, school leaders need to assess the opportunities for teachers, students, their parents (if necessary, the age of the students) and other participants in the education to work remotely, and decide which technologies will create a distance learning environment. When conducting distance learning, it is recommended to have a digital technology administrator, to provide opportunities for the improvement of teachers' digital competencies, to plan a help and consultation system, to provide a quality assurance process, to ensure the proper functioning of the system. After considering all the important aspects, before starting distance learning, it is necessary to choose the way of organizing distance learning: distance learning only, blended or hybrid learning. Blended learning takes place when contact and distance learning methods are consistently combined, hybrid learning - when part of the students learn in the classroom and the other part participates in the lesson remotely.

5.2. Teaching, learning and assessment practices

Many traditional learning methods can be transferred to the virtual space. Methods such as lecture, discussion, debate, case study, repetition and consolidation, educational games, experimentation, search for new resources, exploration, practice exercises, tasks that require creative thinking, and so on. can be applied remotely. By combining several

methods, it is possible to organize independent work, collaborative learning, experiential learning.

Distance assessment is the assessment of illustrations or evidence of students' abilities and achievements provided by digital technology. The training organization must decide how learners will be assessed through distance learning and clearly describe the assessment process in advance.

5.3. Infrastructure

When choosing distance learning, the training provider must pay attention to the infrastructure already available and in use. It is helpful to know how each teacher or support professional is prepared to work remotely at home or in an organization, what ICT equipment he or she has, or what technical support he or she needs. It is also worth finding out how much the school can help students with ICT equipment. Mobile equipment is most suitable for organizing distance education: laptops, tablets; smartphones can also be used, but working on them for extended periods of time is difficult and unsafe from a health point of view due to the small screen.

A permanent Internet connection must be installed in the educational institution and at home to ensure distance learning. Wired internet is always recommended. If you do not have access to wired or fiber-optic Internet, it is suggested to look at the possibilities of mobile Internet. Modern 4G internet is suitable for use in virtual learning environments, for viewing video lessons. At home, the internet connection must be provided by the students themselves and their parents, and if necessary and possible, the training provider can help with this. Server equipment should not be relevant for training providers, it is currently best to use cloud services, which are often free for educational organizations.

5.4. Virtual learning environment/tools

For organization, using distance learning it is important to transfer the functions of educational organization to a virtual environment. The most commonly mentioned functions of the training provider are: preparation and presentation of learning materials, presentation of tasks, preparation and presentation of surveys and tests, monitoring of students' progress and assessment, student and trainer personal space, synchronous and asynchronous communication and collaboration, and others.

In the global educational technology market, a variety of tools are available for each training provider to choose from. These integrated tools are linked by a virtual learning environment (VLE), although such environments do not meet all the needs of an organization.

Training providers are also offered certain specialized niche tools, such as: tools for creating training materials (for example, Formative, Kahoot, Keynote, Quizizz, Quizlet, Socrative, etc.), for organizing video chats (for example, ZOOM, MS Teams, Google Meet, Skype, etc.), to manage the group of learners, to motivate students, to practice them, to evaluate, to self-evaluate, etc.

It is quite difficult for training providers to choose tools due to their diversity and the extensive marketing of these tools by market participants. There are cases where heads of organizations allow trainers to choose the tools themselves (especially free ones), thus creating unnecessary diversity in schools. Training providers are invited to agree and make joint decisions. In principle, it is possible to build on the existing practice of most trainers of the training provider, the available technological environment, specialists, etc.

5.5. Digital curriculum

When organizing distance learning, digital content (digital learning objects, digital teaching aids, digital textbooks) is necessary for the implementation of the subject curriculum defined in the learning programs. Some of the learning content can be provided to students in a standard paper format and some in digital environments. By distance learning, the trainer can store and manage digital content in virtual learning environments.

In most countries, publishers of educational tools have developed most digital content in line with curricula. It's a shame, but often this content is paid for and only available through publishing environments and tools. Some of the training content can be used from the results of existing projects, which are known to be free of charge. However, this content needs to be carefully reviewed to make it consistent with the curriculum.

Part of the curriculum can be used from existing projects When implementing curricula, it is recommended to use freely available open digital curriculum, accessible through various remote platforms. We also recommend digital content in various languages on the European Learning Resource Portals. These measures are attractive and of high quality, but do not always correspond to the national context.

Digital content is also created by teachers and students themselves, using a variety of digital tools. This creates a great deal of digital content useful for distance learning, accessible through websites, blogs and social networks administered by subject associations and educator leaders. The quality of such content is not always good, but by sharing experiences and learning objects created, teachers and students can provide excellent support to colleagues, which makes an important contribution to the development of a sharing culture.

It should be noted that some of the regular content that is digitized and adapted for distance learning is protected by copyright. Digitization and remote access may be considered an infringement unless the consent of the author is obtained or the specific content is used exclusively for teaching and research purposes, as provided for in the laws of the States on Copyright and Related Rights. Using some which digital means, it is important to take into account GDPR requirements.

5.6. Professional development

In order to work remotely, using information and communication technologies, the digital competence of teachers is being updated. The content of this competence covers the

following areas: information management, communication, digital content development, security, digital learning and digital literacy.

The educator's digital competence can be assessed through training, taking into account his or her ability to develop or evaluate digital teaching aids, practical activities or using tests adapted for this purpose.

The teacher can also assess his/her digital competence himself / herself using an openly accessible tool translated into various EU languages, for example:

https://ec.europa.eu/jrc/en/digcompedu/self-assessment

or the MENTEP project tool:

http://mentep-sat-runner.eun.org/

Trainer competence development functions are performed by in-service training institutions and universities.

5.7. Quality assurance

To ensure quality, the requirements established in the documents regulating education, which establish the criteria for the organization of distance learning, may be applied. Self-assessment of the extent to which an organization is digital as an educational institution can be done through school self-assessment (e.g., the SELFIE tool); whether a subject is adapted for distance learning can be determined using didactic, organizational, technological, content design and other tools developed by researchers.

5.8. Well-being of staff and students

It must be agreed within the training provider's organization when and how psychological and social pedagogical assistance will be provided remotely to students and their parents (If applicable due to the age of the learners) due to difficulties encountered; the information must be publicly and conveniently accessible. When working remotely, it is important to continue the implementation of prevention programs.

As education moves to the digital environment, the extent of electronic bullying among learners is likely to increase further. As e-bullying is one of the main threats to the Internet with severe consequences, the training provider's staff must pay particular attention to improving staff competencies in the field of bullying prevention.

Collaborating with family and the student's parents is especially important when working remotely. They should discuss how learning tasks will be allocated, how theoretical and other materials or information needed for education will be provided, when and how the learner can ask the trainer for help and explanations on how much time students need to spend on tasks, how their workload is regulated, how feedback is provided to students and

their parents (if applicable due to the age of the learners), how assessments are recorded, and etc.

Distance learning also depends to a large extent on the age of the students and the content of the subjects taught, so this must be taken into account when implementing curricula.

5.9. Cooperation and networking

Collaborative environments in the learning process must benefit both the learner and the teacher. Their purpose is not just to communicate with each other. The opportunities offered by collaborative environments for distance or blended learning must allow for the joint search for solutions in response to different learning situations. Communication is essentially synchronous (e.g., via video or audio conferencing) and asynchronous (via email, messages, or other means).

5.10. Education and upbringing of students with special educational needs remote assistance

Every learner may face cognitive, physical, emotional or geographical difficulties. The trainer must ensure that the student in difficulty is included in the educational process and create suitable conditions for him/her to study.

Ensuring inclusive education does not limit trainers' choice of teaching methods. When working with and getting to know different students better, educators should take additional measures to ensure that students are involved in learning.

5.11. Assessment in distance learning

Assessment is an integrated and constantly planned part of an individual subject and the whole learning process. Assessment includes educational and summative assessments, and increasingly advanced digital tools and tools allow information to be gathered about learners 'abilities.

Distance assessment is the presentation of evidence to assess students' achievement, managed using digital technologies (software, social networks, digital tools).

Different ways of assessing students' distance learning include:

- continuous registration (the learner must be registered and the user identified) in a virtual learning environment chosen by the training provider;
- the opportunity for students to ask questions and share their work (according to distance learning procedures or agreements established at the training provider organization);
- providing information to students on how they can assess their own skills development through specific learning activities (for example, using examples, demonstration videos, self-assessment criteria descriptions or peer review);

- consideration and agreement on how to adapt formative assessment methods and ways of gathering evidence of students 'learning (for example, digital tools can be used for educational assessment to monitor, assess and evaluate students' progress);
- using phone calls or e-mail to assess student achievement and progress;
- considerations and agreements on how to apply summative (cumulative, cumulative) assessment activities.

5.11.1. Educational assessment

Educational assessment aims to provide comprehensive feedback on a learner's learning and development opportunities. Educational assessment should not cause tension or fear, as its purpose is to allow the learner to understand the strengths and weaknesses. Educational evaluation is most useful when it focuses on the conditions that determine success and raises the following questions: What are the necessary conditions for success? Have these conditions been met? Could they be improved? Educational evaluation is usually a repetitive process, performed many times before the end of the activity.

5.11.2. Summative assessment

Summative assessment helps to evaluate and document what has been achieved. Assessment forms can be of various types - grades, certificates, e-mails, etc., and the purpose is one to enable the student to move from one context to another (from one level or class to another, from school to the world of work, etc.). Summative assessment is usually carried out at the end of the year or at the end of the course, and its purpose is to measure and present the results achieved in the teaching process. It allows comparisons between learners or groups of learners. Summative assessment is usually associated with effective and reliable formal methods.