

# iNACT

inclusive educators



## Good Practice Compendium for Creative Classrooms

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# Introduction

This compendium is created within the framework of the Erasmus+ project Inclusive and Innovative Pedagogies for Educators (INACT) (01.11.2020 – 31.10.2022).



The main goal of the INACT project was to provide educators with the knowledge, skills and confidence to engage in pedagogic innovation, helping them to create inclusive, innovative and genuinely engaging learning experiences for all students.

The INACT project team consisted of partners from six countries: Belgium (Open Education Community foundation), Denmark (European E-learning Institute), Estonia (Tallinn University), Greece (AKMI Anonimi Ekpaideftiki Etairia),

Ireland (Momentum Marketing Services Limited), Sweden (Folkuniversitetet Stiftelsen vid Lunds Universitet).

The target group of this project involved vocational education teachers and trainers in post-secondary schools or institutions including also continuing VET. Moreover, the positive impact of the project is expected to reach educators and managers in Adult and Higher Education.

As we know, teachers from all educational fields and levels are challenged by the need to train students with diverse backgrounds, to teach them new skills and shape necessary competencies (e.g. critical thinking, communication and learning-to-learn) required in response to wider societal changes as well as unpredictable labour market situations.

The outcomes of the INACT project are expected to support and motivate educators to develop their teaching practices, try out new teaching methods and create innovative and inclusive learning spaces. The compendium includes existing and implemented best practices across Europe that support active student involvement in the teaching and learning process in the context of inclusive education and diversified student populations.

We conceptualise inclusion in education based on Molbaek's (2018)<sup>1</sup> definition that inclusion is fundamentally built on the choices of teachers before, during and after teaching, and that systematic work on and awareness of these choices can ensure increased student participation, both academically and socially, leading to increased inclusion.

The goal for inclusive education is to widen access to education and to promote full participation and opportunities for all learners vulnerable to exclusion to realise their

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<sup>1</sup> Molbaek, M. (2018). Inclusive teaching strategies – dimensions and agendas. *International Journal of Inclusive Education*, 22(10), 1048-1061. <https://doi.org/10.1080/13603116.2017.1414578>

potential. Therefore, the best practice cases presented in the compendium include specific and unique activities which work towards the goal of inclusion in education. In addition, the offered best practices are also considered to be transferable/replicable in different learning contexts.

The following criteria have been taken as indicators when selecting the practices and methods from different countries to be presented in the compendium:

- Differentiated or learner centric approaches have been successfully applied in teaching.
- Learning activities are selected according to the target group and purpose of the study (teacher has identified the characteristics of the learners and has taken these into considerations in practice). The teacher applies instruction that responds to the variety of students and their diverse needs.
- Students are given an active role in the teaching and learning process. The teacher tries to motivate the learner and engage him/her most during the learning process.
- The teacher provides feedback on the learners' learning.
- The teacher creates a learning environment (including the physical, mental and social environment) that promotes deep learning based on the specifics of the target group. The teacher should act as a challenger and a leader inspiring confidence in the students.
- The teacher applies methods that support co-learning.
- The teacher reflects and develops her/his teaching practice.
- The teacher has strategies for assessing what differentiation is needed.
- The teacher has strategies to promote an inclusive classroom.
- The teacher has strategies/methods for assessing/evaluating outcomes, goal vs outcome, for individuals and groups.
- The differentiation has been successfully transferred to other teachers / educators / educational institutions / internal groups through collaboration.

The Good Practice Compendium is expected to provide new ideas, broaden and deepen educators' skill set by showcasing and providing guidance on introducing effective learning and teaching activities in order to teach theoretical knowledge and practical skills as well as developing general key competencies.

The compendium includes two larger parts. The first part of the compendium describes the educational institution or classroom level strategies contributing learner empowerment and inclusion (e.g. creative collaborative strategies, projects strategies). The second part of the compendium presents initiatives contributing to learner empowerment in wider educational contexts.

**Part I**  
**The educational institution or  
classroom level practices  
contributing to learner  
empowerment and inclusion**

## Creative collaborative strategies

### Creating a mind map: systematically learning the characteristics of goods/products

This best practice was implemented in an Estonian vocational school in the context of a specialist trade. The aim of the practice was to support students in acquiring theoretical knowledge on the characteristics of goods/products. During the topic of the characteristics of goods/products, the students learned about different types of tea.

The learning group included work-based students who differed from one another in terms of previous education, life and work experience. Students also had different levels of Estonian language skills.

Generally, to implement this practice in the classroom one needs to choose a product and think of how many categories of characteristics can be brought up. It is good to provide the learners with a minimum number of characteristics for the category. In addition, questions have to be created for the purpose of identifying the characteristics. All this information has to be added systematically to the mind map. The completed mind map will be presented.



The following activities are identified in the implementation phases:

- Before the classroom activities, the students have to prepare a paper about different types of tea as homework according to the instructions prepared by their vocational teacher.
- For the classroom activities, the vocational teacher prepares written instructions for creating a mind map, which contain clear substantive criteria for performing the task (e.g. how many characteristics of a product need to be highlighted and how many questions need to be asked to determine each characteristic), information of the tools and/or environment the students should use, an explanation of how to prepare the paper and also information about students per group and the time limit.
- In the introduction phase, the vocational teacher explains the purpose and content of the assignment, the steps in the learning activities, and hands out the instructions. The vocational teacher can also agree with the student on their preferred technical solution for creating the mind map (e.g. pen and paper, online tool, app).
- Students get into groups and start working. The vocational teacher monitors the students' activities so that everyone is engaged with the given task. If necessary, then the vocational teacher provides extra explanations and guides student activities in the groups. In addition, the vocational teacher gives continuous feedback during the

group work activity and also informs them about the remaining time so each group can be ready in time.

- At the end of the classroom activity, the mind maps created in the groups are presented. The students of the other groups and the vocational teacher also offer feedback on the presentation and also indicate the most substantive aspects needing correction. In this example, the students are given an active role in the teaching and learning process, which makes it possible to highlight the previous knowledge and experience of the learners, from which fellow students can learn and also support co-learning.

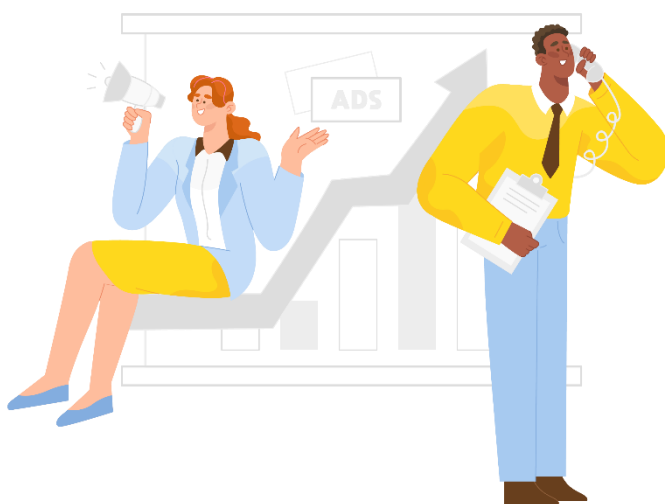
*This activity can be applied to the whole classroom, in groups, but also as an individual work. Various tools and web environments can be used for creating the mind maps, and thereby it is possible to support the development of digital competencies in students. For example, when presenting the results, different solutions can be used (e.g. paper posters, web-based posters, PowerPoint, word document, video, drawing on a whiteboard, collage), and when choosing the format of presentation, the wishes of the students can be taken into consideration. This activity can be regarded as developing student creativity.*

*The mind map activity can be applied when studying theoretical topics in different specialist fields. For example, mind maps suit topics where it is necessary to systematically categorise product features or describe production stages or sequences and the activities to be carried out for each stage. It is also suitable in food preparation fields (e.g. chef, caterers), for example, for creating menus or recipes or new product ideas. It can also be used to identify prior knowledge of a topic or to generate ideas on*

## Drama for learning values

This best practice was implemented in Estonia and in the profession of officer for learning the code of ethics and core values. That best practice enables learners to learn the values of the profession creatively and meaningfully as well as supporting the better understanding of these values.

The learning process involved students who had completed military service and were of different ages (20 years and older).



When implementing this best practice, it is necessary to prepare the study material, which includes the summarised code of ethics as well as the values of the profession. The created study material should be handed out to each student in the classroom who sits at tables in groups. The students first learn in a group the core of values of the profession. Subsequently, they select one value (e.g. courage, bravery) which they then prepare to present as a performance as the group. When



the time for planning and preparing is over, then they will perform their value during one minute.

The following activities are identified in the implementation phases:

- Students come to class and the teacher immediately lets them sit at the tables that have been set up for them.
- The vocational teacher presents the introduction to the lesson and explains the topic, the learning outcomes and the learning method.
- Then the vocational teacher hands out the necessary learning materials for the students.
- The students read with thought and discuss the principles and all the values in the code of ethics of the profession.
- The teacher monitors/observes students learning in groups and if necessary, directs the group activities and/or answers questions.
- After that when the values have been clarified and learned, the teacher lets each group choose one value that they need to dramatise in 1 minute (max.) so that others can understand what value they are trying to present/dramatize.
- The ideas are then discussed in groups in terms of how they could dramatise their chosen value (e.g. courage).
- The teacher sends some groups into other rooms (spaces) for 2 to 5 minutes so they can practice their performance.
- Then the groups come back and present their performances and the other groups try to guess what value is being shown.
- In this way, all the groups present their own dramatisation.
- At the end of the lesson, there is a summarising discussion about the values of the profession, which also provides a framework for feedback about how the students have understood the learned values.

In applying this practice, the students are given an active role in the teaching and learning process, which also allows the learners to share their understanding of the topics and support co-learning as well as student creativity. The teacher creates a learning environment (including the physical, mental and social environment) that promotes deep learning based on the specifics of the target group as well as providing feedback on the student's learning.

*This applied practice can easily be transferred to different fields where the topic of learning professional values is important (e.g. construction, services). Moreover, drama as a learning method can be applied in different contexts and fields of study, and different study groups. It enables the learners to make sense of the topic and use creativity to invent solutions for different situations (e.g. work-related situations). It also works well with students with lower language skills.*



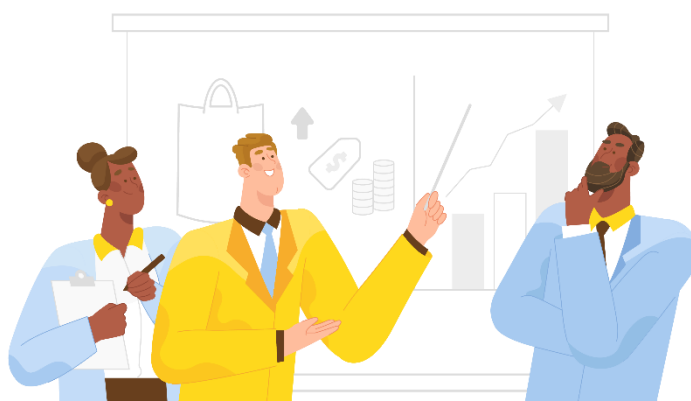
## Group work strategies

### Mosaic group (group puzzle) method for studying theoretical knowledge based on a paper previously prepared by the students

This best practice was implemented in an Estonian vocational school for learning theoretical knowledge about different varieties of products. In this case the students learned about different types of tea.

The learning process involved work-based students who differed from one another in terms of previous education, life and work experience. The students also had different Estonian language skills.

When applying this group method, the learning topic has to be divided into subtopics. The subtopics are distributed among the students. Each student prepares a report on the received subtopic. Subsequently, during the classroom activities the groups are first formed so that each group includes students who have studied the same subtopic. They discuss what they already know and bring up the



most important knowledge of the subtopic that needs to be taught to other students who studied other subtopics. Later, the students move on to other groups, where each student has learned a different subtopic, and mosaic groups are created. In these groups, each member teaches the subtopic they have learned to the other students, resulting in the members of all groups learning the whole topic. At the end of the lesson, there is a concluding discussion.

The following activities are identified in the implementation phases:

- Before the classroom activities, the vocational teacher divides the learning topic into subtopics, and creates report guidelines and criteria for the students. The teacher then divides the subtopics equally among the students. For example, there are four subtopics in a topic, so each subtopic has the same number of students where possible. The students are given a deadline by which the report must be ready.
- In the classroom, the vocational teacher introduces the lesson and explains the topic, the learning aims, outcomes and learning method. In this example, the students learn about different types of teas.
- The vocational teacher then asks the students to form groups according to the subtopics they have learned (in this example, the subtopics were: black tea, green tea, white tea, and red tea). In the groups, the students discuss what they already know and proceed from the given points in the report guidelines. During the discussion they pay attention to what is the most important knowledge that needs to be taught to the other students.
- After a certain amount of time, the vocational teacher asks the students to move to another group so that each student has a different sub-topic in the new group. In this

way, the mosaic groups are formed. In these groups each student teaches their own learned subtopic to the other students. The vocational teacher moves around the groups and listens to how the teaching and learning is progressing in the groups and, if necessary, specifies or guides them.

- When the teaching and learning time is over for these groups, then all the students come together for a discussion and conclusion. In this last step, the students can point out what was new, what questions arose or still exist, what was not understood or was not answered according to the learned topic. The vocational teacher can also emphasize the most important knowledge that the students have to know for the topic.

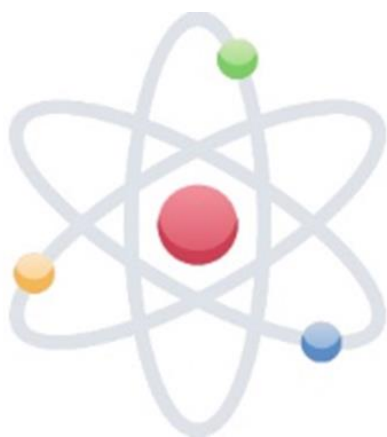
Applying this best practice makes it possible to learn large topics with less time and the process includes the intrinsic involvement of the students – for the students are given an active role in the teaching and learning process. The methods support co-learning and the teacher provides feedback on what the students have learned.

*This best practice is suitable for various fields where a large theoretical topic is to be studied and the topic can be divided into sub-topics. For example, in tailoring, this best practice is suitable for learning different types of fabrics.*

### Mosaic method for learning to handle weapons

This best practice was used in pre-vocational education in upper secondary schools in Estonia to study the topic of weapons training (i.e. to get to know and handle a weapon) within the framework of National Defence Education.

The learning process involved students aged 17 to 19 years and both Estonian and Russian, who received daily information about the world through various channels, which can be controversial. In the classroom there were equally boys and girls, and differences were also observed in terms of gender. Girls preferred to do more independent work and the boys were more active in the practical activities.



In implementing this practice, learners need to be divided into groups in the classroom. Each group is given a subtopic and the necessary study materials, on the basis of which the students learn together in the group to understand their subtopic. After that each group then teaches their own subtopic to the other groups and learns the subtopics of the other groups. In this way, the necessary knowledge and skills are acquired for the whole topic

The following activities are identified in the implementation phases:

- The vocational teacher introduces the lesson and explains the topic, learning aims, outcomes and learning method.
- The teacher divides the learners into groups according to the number of sub-topics and handouts the learning materials.

- Each group starts learning a sub-topic, which may include learning a skill. In addition to learning the topic, the group also discusses how to teach the topic to others and, if necessary, they also practice this teaching.
- The vocational teacher moves around the classroom and observes the group's progress and, if necessary, clarifies or guides them or answers questions.
- Once the subtopics have been learned, one group moves to another group and teaches their own subtopic to the other group. After that the other group teaches their subtopic to them.
- The movement between the groups continues until all subtopics have been exchanged through teaching and learning between the groups.
- At the end, there is a summary demonstration to check the students' knowledge and skills, which provides feedback on the acquired knowledge and skills for both learners and teachers. In this example, the teacher asks for the weapon to be dismantled, during which he checks that everyone does it correctly. The teacher then asks questions and lets some students answer.
- This control activity can also be performed in two groups. The first group demonstrates and the second group controls and then vice versa, the second group demonstrates and the first group controls. The teacher monitors and corrects if necessary.

Through implementing this practice the students are given an active role in the teaching and learning process, which also allows the learners to share their understanding of learning topics while supporting co-learning as well as providing feedback on how well the students have learned. This best practice enables students to be in a teacher role and responsible for teaching.

*This best practice is suitable for various fields where a large topic is to be studied and the topic can be divided into sub-topics; for example, in history or in the field of catering when studying kitchen equipment.*

## Gallery walk for learning future skills

This practice was implemented in Estonia with students training to become officers in the military to help them learn skills for the future (e.g. technology and computational thinking, new media literacy, transdisciplinary etc.).

The learning process involved students who had completed military service and were of different ages (20 years and older).

When applying this best practice, it is necessary to formulate as many questions about the topic that would be related to the substantive aspects of the topic and the learning outcome(s). These questions should be written on large sheets of paper and hung on the walls around the room. According to the number of questions then the same number of groups should be formed. Each group starts answering one question and after a certain time (2–3 min) they move on to the



next question. They read the previous answers and add their own answers or supplement the existing ones. The movement continues until each group returns to the question they answered first. They review the answers added by the other groups, summarise and present the result.

The following activities are identified in the implementation phases:

- The vocational teacher asks the students to bring a fully charged smartphone with them to the next class.
- Before the lesson begins, the teacher writes previously formulated questions on large sheets of paper and hangs these on the walls of the room.
- At the beginning of the class the vocational teacher introduces the lesson and explains the topic, learning aims, outcomes and learning method. He explains that the answers to the question have to be sought from the internet using their smartphones.
- The teacher divides the students into groups based on the number of questions. In this example, there were 10 questions (10 future skills) and each group had 2–3 members.
- The teacher directs each group to one question, which will also be the group's home question. The teacher tells the students when the time starts for answering the questions. Two minutes is given to answer the first question.
- The students search the internet for answers to their question using their smartphones and write the answers down on the paper.
- When the first 2 minutes have passed, the teacher signals that the time is up and the groups have to move on to the next question.
- When the groups move on to the next question, then the groups first read the question and the previous answers. Then they search the internet for additional information to answer the question and add what they find to the paper. Three minutes is allowed for this question.
- After three minutes the teacher signals that the time is up and the groups have to move on to the next question. This activity is repeated until each group reaches their first home question.
- When the group has reached their home question, the group reviews all the answers added by the other groups. Each group summarises the answers and then presents them. This final stage in the activity should take 10–15 minutes.
- Then the knowledge is presented using the questions as a basis, and each presentation can be up to 5 min. If necessary, the teacher supplements the presentations and also receives feedback about the development of knowledge in the students. The full activity from start to finish is possible within 90 minutes.

In applying this practice, the students are given an active role in the teaching and learning process, which also allows the learners to share their understanding in learning the topic, while also supporting co-learning as well as providing feedback on how the students have learned the topic. In addition, this best practice makes it possible to integrate the topic being studied with the ability to search for information on the internet

*This practice is suitable in different fields for learning a new topic or repeating and reviewing theoretical knowledge as well as exchanging previous experience in the context of learning the topic. For example, this best practice is suitable for learning different regulations that the students need to know in certain professions. In addition, a vocational teacher can modify this method in various ways in order to meet the learning task, outcomes, or the needs of the target group.*

## Case study strategies

### Learning history through researched stories

This practice was used in pre-vocational education in upper secondary schools in Estonia to learn about the occupation of Estonia during World War II within the framework of National Defence Education and to provide students with a deeper understanding of events in military history that may have also influenced their family stories.

The learning process involved students aged 17 to 19 years and both Estonian and Russian, who received daily information about the world through various channels, which can be controversial. In the classroom there were equally boys and girls, and differences were also observed in terms of gender. Girls preferred to do more independent work and the boys were more active in the practical activities.

This teaching practice starts in the classroom with a general introduction to the topic of the World War II occupation. Subsequently, the students conduct semi-structured interviews with their grandfather, grandmother, great-uncle, or a close relative who had experience or knowledge of the occupation in Estonia. The student should then prepare a summary of the interview and present it in a freely chosen format, such as a paper, an essay, a written summary, a PowerPoint presentation, or an oral presentation.

The following activities are identified in the implementation phases:

- First, the teacher presents the topic and an overview of the content. This is followed by a description and explanation of the independent work and agreeing on a deadline for submission with the students. In addition, the vocational teacher hands out an interview guide for the students. The interview guide includes the questions the students should answer based on the answers given by their interviewees.
- After receiving the assignment, the students start interviewing some of their relatives who have experienced the occupation of Estonia in WWII or know about others' experiences.
- The students compile a summary of the information obtained during the interview in a freely chosen format (e.g. presentation, essay, paper, etc.) based on the interview questions and submit it to the vocational teacher by the agreed deadline.
- After the students have submitted their independent work, the teacher plans a lesson(s) which summarise the topic. During the lesson(s) the students can make oral presentations (if they chose that format) and listen to other students' stories/presentations.

In applying this practice, the students are given an active role in the teaching and learning process, which also allows learners to share their understanding of the topic, while supporting co-learning. The teacher promotes deep learning based on the topic and wider historical understanding from the student's personal perspective, which can support the student's motivation to learn. The teacher takes into consideration the different needs of the students in the context of the presentations.

*This practice can easily be transferred to different fields where the topic is to learn the history of the field or topic. For example, in the field of clothing design, it would be possible to study how people in their 40s and 50s perceive modern fashion, because current fashion trends are very similar to the fashion trends in their youth. This practice also contributes to developing research skills and critical*

## Discussing case studies in groups

This practice was implemented in Greece at a Vocational Education College. The aim was to develop student discussion and also critical thinking skills through the discussion of cases based on the topic being learned.

The learning process involved students of different age, gender, economic background, sexual orientation, nationality as well as language (from Africa and Egypt, England, America, Greece, Arabia) and also adults with mental health disorders.

The following activities are identified in the implementation phases:



- According to learning topic the teacher searches for case studies based on audio-visual material. In addition, the teacher prepares teaching material which the students will use when they discuss the case studies. The teacher also prepares self-assessment questionnaires for the students to use.
- In the classroom the vocational teacher first explains the purpose, content and steps of the

learning activities.

- The teacher presents the case study (audio-visual material) and offers guidance about which aspects the students should pay attention to.
- After watching the case study, the students move into groups where they start discussions. The vocational teacher hands out learning material on paper, which includes the theoretical aspects of the topic. The students can read the paper and associate the theoretical aspects with the case and also consider their personal experiences – both help them make a group solution.
- After the group discussion, each group presents their case solution and explains it according to the theory. The vocational teacher and other students ask questions if needed. The vocational teacher gives feedback or/and redirects the solution if needed.
- After all the groups have presented, the vocational teacher makes a summary and brings up the most important points.
- At the end of the class the vocational teacher hands out assessment questionnaires on the basis of which the students analyse what they have learned, what was most important for them, how the group worked etc.

In applying this practice, the teacher creates a learning environment (including physical, mental, social environment) that promotes deep learning based on the specifics of the target group, supports co-learning and provides students an active role in the teaching and learning process. The vocational teacher also provides feedback on the students' learning.



*This discussion based on cases is suitable for different specialist fields; for example, learning new technology, although the teacher needs to know what prior knowledge the students have when choosing a case. This practice is also suitable for learning theoretical aspects via active listening. Vocational teachers can show audio-visual material about a case which consists of a dialogue between two people. Then the students in a group can discuss/analyse the communication based on the theory of active listening.*

## Case study in logistics training

This practice was used in logistics training at a vocational education centre in Estonia. The applied practice was used because it allows learners to systematically define the quality of service in companies, and this case study is related to the tasks to be performed in the vocational exam.

The practice was implemented with students in vocational secondary education at level 4 (EQF), in school-based studies, with students aged 17–26 (mostly girls), with students who have Estonian and Russian mother tongue, students with different abilities and work experience, including students with special educational needs (e.g. speaking difficulties). All students had completed a vocational internship in a company. Some students had work experience in a company in the field and knowledge of the supply capacity of logistics companies, quality indicators and their measurement, as well as other relevant practical experience.

The quality of the services of logistics companies was analysed through a case study. Students with no work experience completed the task using a case prepared by the teacher. For the purpose of meaningful learning, students with work experience were allowed to complete the task using data from their internship company or using the data from their own workplace.



In order to implement the strategy, it is necessary to prepare a task, a study guide (work guide) and prepare cases. It is also necessary to design a detailed teaching methodology, prepare and conduct theory studies using an inverted classroom as a teaching method – students read texts previously and subsequently learn the terms and basics and there is a discussion in synchronous learning at school. Then the task of the case study needs to be explained to the students.

Implementation process of this best practice:



- The student learns the terms and concepts independently and in synchronous learning at school.
- Students with vocational work experience collect data according to the guide from the company in which they work or from their internship company; the students then describe the case.
- Students with work experience analyse the case individually and the collected data according to the study guide; students with no work experience analyse the case prepared by the teacher according to the study guide. In this example, the case under analysis was related to the quality of the service of a logistics company.
- The student participates in an individual assessment interview.
- The student conducts a self-assessment.
- The teacher gives summary feedback to the group.
- There is constant guidance, counselling and feedback from the teachers at all stages.

*The strategy can be used at different levels of study and in different vocational fields. The strategy can be adapted to different study volumes.*

*The practice supports the development of various key competences (e.g. entrepreneurial competence, language competence, digital competence, information retrieval and processing competence, mathematical competence, etc.) and the development of learner self-assessment skills. It is possible to use a variety of digital tools to support the development of digital competences. The practice can be used in distance learning; for example, as a group work in Teams, Zoom, Google Classroom.*

*The practice can be implemented in different ways, depending on the needs of the group of learners, previous experience, using individual work, group work (group discussion), and guided discussion in a large group.*

## Use of audio-visual materials

Audio-visual materials can be effectively used to support the learning process in different learning contexts and for different target groups, including groups that are diverse in terms of origin (from another country), learners with learning difficulties, learners with autism, difficulties with speech etc. By using audio-visual materials, learning can become better, easier, more understandable and more pleasant for the learners. Moreover, it can be a useful way to learn for students with reading difficulties or low level language skills.

First, the most suitable audio-visual material will be identified for use within teaching in order to support not only the teaching but also the learning process for all students and finally increase their active participation in the classroom.

Second, a plan with questions for discussion will be prepared. The timeline and a plan for how this process will be integrated in the classroom effectively needs to be well prepared. In the discussion, personal customised questions will be used in order to help learners understand what they like and give them time for reflection. Different tools and equipment will be used (e.g. media facilities, computer, projector, speakers, paper, markers, etc.).

The practice involves the following stages:

- First, students are given structured questions to get acquainted with.

- Second, audio-visual material will be presented. Students need to focus their attention on certain aspects. For example, when learning a work process, students can be presented with a video where there are certain mistakes that need to be noticed and the right solution proposed.
- Third, general discussion in the group and with the (vocational) teacher. In some cases a video with another solution (more appropriate) will be presented.

*The practice can be applied when teaching and learning different topics, in the frame of different fields and target groups. For example, using the video is suitable in fields where the process of product completion is studied. Using the video makes it possible to be less abstract and to draw the learners' attention to areas that are important for quality assurance. The practice also suits students with special educational needs.*

## Projects strategies

### Project method

Project training was implemented in secondary education and in VET education institutions in Athens, Greece.

The aim of implementing the strategy was to acquire practical and theoretical knowledge at all levels of education (secondary and vocational schools, lifelong learning).

Project training allows students to experience success and be proud of achieving goals as well as the expected results, especially when goals are exceeded. A prerequisite for the success of the projects is good teamwork and a topic that attracts the students' attention.

Learners differed in terms of gender, age, sexual orientation, disabilities, cultural background and income. During the project, students collaborate, search, design, create, and present their results.

As a preparatory action for this strategy, teachers should choose suitable topics, plan time for teamwork, presentations, feedback and reflection, create evaluation criteria for the teamwork results and presentations, provide the necessary tools and materials, and create a suitable learning environment.

The following activities are identified in the implementation phases:

- The students are divided into project teams.
- The teacher introduces the purpose and theme of the project.
- The students work in teams on a topic, researching, designing, etc.
- The teacher supports and guides the teams in working on the project topic (e.g. support and guide on how to make a video).
- The students prepare a presentation using a poster, PowerPoint, video app.
- The students present the results of their teamwork.
- The teacher gives feedback, highlights the strengths and weaknesses of each team.
- It is important to analyse the team's dynamics, to utilise each skill from everyone.
- Self-reflection is used to highlight what each student has learned and what should be learned.

The practice can be applied in the learning process of different fields to acquire practical and theoretical knowledge, to develop different key skills, as well as to motivate students to study, diversify their learning activities and open up the larger picture of the field or the student's potential.

*Such small-scale projects can be implemented in a variety of fields, but require the VET teacher to think carefully about what prior knowledge and skills the students need to have, what tools and equipment are needed for the project, and what instructions are needed. For example, this project is suitable for learning occupational safety, in which students make a short study film explaining how to act professionally and safely or how to use a tool or equipment safely.*

## Project for learning about professional tools

This practice was used in a vocational education centre in Estonia to learn about construction tools through several learning activities in different learning environments over several days.

The practice was used because it supports students who did not have previous experience with construction tools, it allows for various integrations (theory and practice, mobility, linguistic competence, digital competence, entrepreneurial competence) and helps to consolidate knowledge.



The practice was implemented in school-based vocational education with students at EQF level 4, in vocational secondary education in the study field of construction (masons and concreters).

The goal was for the students to recognise the professional tools when they started the practical exercise. The strategy was used over several days to learn the tools in the classroom, in the workshop for practical training and in a retail construction equipment company.

In order to implement the practice, it is necessary to prepare a task, a study guide and a worksheet, and to explain the task to the students.

The following activities are identified in the implementation phases:

1) In the classroom:

- The students map their initial knowledge of construction tools, trying to name the tools in a photograph.
- The teacher gives a concise overview of the construction tools.
- The teacher explains the task and the worksheet, shares the worksheets to the students.
- The students look up the names of the tools on the worksheet and write them next to the tools.

2) In the workshop for practical training:

- The teacher demonstrates using the construction tools.
- The students can take a closer look at them.

3) In the construction tool retail outlet:

- The students search for the tools on the worksheet.
- The students take a picture of themselves with the construction tools on the worksheet to prove that they have actually found them.
- The students add a price to the worksheet for each tool.
- The students send the filled worksheets to the vocational teacher.

The practice can be used at different levels of education and in different fields of study. The practice can be adapted to different study volumes. The practice can be implemented in different ways, depending on the needs of the study group, students' previous knowledge and experience, and using individual work or group work.

*It is possible to use a variety of digital tools to support the development of the digital competences of the students. The practice enables the integration of theoretical and practical learning in different learning environments; for example, in the field of clothing or catering. It also enables integrating knowledge in different disciplines; for example, the prices of equipment and budget planning.*

## Project for learning to produce the product

This practice was used at a vocational education centre in Estonia as part of the practical training for a carpenter.

This best practice was used because it provides a realistic learning context, helps learners find the meaning of work and develop the skills to participate in the work process as a whole, and effectively prepares students for the labour market. In addition, it motivates, arouses interest, engages learners and supports the ability to work in a team.

This project was used in the field of carpentry with young learners in vocational secondary education and also with adult learners, some of whom had extensive work experience. The students were in both school-based and work-based learning.

The project involved practical training for building a garden house. The aim of the project was for the student to get a complete overview of the process from the design of the product based on the customer's needs and wishes, to selling the finished item to the customer. The aim was also for the student to acquire the skills to design and produce a specific product using a variety of technologies.

In order to implement the strategy, it is necessary to first compile study material for theoretical studies, conduct theoretical studies, compile a task, a study guide for the learners and assessment criteria. Order the necessary tools and materials, and explain the task to the students.

The following activities are identified in the implementation phases:

- Present the theoretical principles to the students in the classroom.
- Initial acquaintance with the context and equipment for the work in the practical training facility.
- Divide students into teams.
- Design the product as teamwork, based on the customer's needs and wishes.
- Produce the product as a team.
- The teacher provides continuous instruction and feedback during the production process.
- Formative assessment of the product, based on assessment criteria and construction standards.
- Final installation of the product at the customer's house with ongoing instruction by the teacher.

A summary of the product completed during the project and the knowledge and skills acquired.

*The practice can be used at different levels of study and in different vocational fields, where products can be made for customers during their studies. The practice can be adapted to different study volumes. The practice can be implemented in different ways, depending on the needs of the students, their prior knowledge and experience, using both individual and group work. For example, individual projects in the field of designing and making clothes (the student should design and make an evening dress for a certain client).*

## Learning restaurant work via the project method

This best practice was used to conduct restaurant training at a vocational education centre in Estonia for students at different levels of education training as chefs. The aim of the project was to offer a positive visitor experience to customers at the training restaurant.

This best practice was used because the students and their interests and abilities are different, but the project allows everyone to achieve the learning outcomes at least at the threshold level. The project facilitates developing different aspects of learners (strengths as well as weaknesses) and for them to gain different experiences. The project enables learning collaboratively and from each other which is more effective according to the learners. It also helps students see the whole picture and gain a holistic experience and success in specialist training. It provides an opportunity to see and experience different cultures and customs of nutrition. The project makes it possible for the learner to engage their talent, creativity, while creating synergies, added value and positive experiences, which allows the learner to open their inner world, gain recognition and develop as a person. In addition, the students experience different leadership styles during the project. The project allows the vocational teacher to take the role of tutor.

The practice was used with school-based students (mostly boys) in vocational secondary education aged 17 to 21 with Estonian or Russian as their mother tongue, each with different motivations, some with special educational needs (autism spectrum disorders, students with simplified curricula, etc.), and all different social backgrounds.

During the project, the student plans, leads and conducts one thematic day in the training restaurant. The project was individual for each student and involved guiding and leading the team and reaching a result with the team (the whole study group). Consequently, the student could practice the role of restaurant chef. The remainder of the study group participates as team members in



all the individually designed and managed projects performing the cooking and/or service tasks.

In order to implement that best practice, it was necessary to prepare a schedule of thematic days, make agreements at the school (funding, organization of work, division of tasks between teachers), prepare methodological material for the project and assessment (worksheets, evaluation table), and prepare the contact training and independent work.

The following activities are identified in the implementation phases:

- Setting the general goals of the study group and defining the expectations of the team. Then each student sets personal goals.
- The student starts individually preparing a thematic day for the restaurant (searches for a theme, researches the theme, compiles a menu, calculates and develops technology, plans a service, draws up a teamwork plan, etc.). For example, one of the thematic days for the restaurant was Trendy Green Turn.
- After the individual preparation, the preparation of the activity continues in a team (discussing what has been planned individually, doing preparatory work, cooking, service, billing, analysing work and customer feedback, etc.) and then the team conducts the thematic day in the training restaurant, where one student is the head chef.
- After the restaurant day there will be individual and team reflection and evaluation (self-evaluation, evaluation of the teamwork, individual evaluation based on the conversation with teachers, team evaluation based on the conversation with teachers).

At all stages of the project the teacher offers continuous guidance, counselling and feedback.

*This best practice can be implemented at different levels of study/training and in different disciplines in order to conduct learning in a real-world work environment. This best practice is suitable for developing teamwork and leadership or coaching skills as well as various key competences (e.g. entrepreneurial competence, language competence, cultural competence, digital competence, information retrieval and processing competence, mathematical competence, etc.), and student self-analysis and self-assessment skills. The strategy can be adapted to different study volumes.*

## Project for learning to develop a business model

The practice was used to conduct entrepreneurship education in a vocational education institution in Estonia for students of different fields and levels of education. The strategy was used because it makes it possible to:

- engage in a task for an extended period of time, receiving ongoing instruction and feedback during the learning process;
- diversify learning, using collaborative learning methods that activate different students, such as brainstorming, discussion, research, presentation, etc;
- integrate theory and practice, key competences and entrepreneurship education with the vocational field being studied (e.g. students looking for information on companies and doing market analysis in the field, etc.);
- help students to develop their creativity (e.g. branding or advertising design).



The practice was implemented with study groups at different levels of vocational education (EQF level 4, in vocational secondary education and in vocational education after general secondary education, also with students at EQF level 5). The strategy was used with different volumes of study in school-based studies, with full-time and part-time students in different fields: electrician and automation, printing technology, multimedia, photography, software development, telecommunications, etc. The learners were young people with a basic education (17–19 yrs), young adults with secondary education and adults with work experience, some of them also working in the field they are studying. There are usually more male students than female students in the study groups in technical fields.

Students work together in teams to develop a sector-specific business model in the classroom and they complement and formalise the business model as independent work. The work consists of different stages and during the process feedback is received from the teacher.

In order to implement the strategy, it is necessary to plan the project stages according to the study volume of a specific study group (different groups have different volumes), prepare a worksheet (digitally fillable or printed business model template), prepare supporting study material or links to suitable study materials.

The following activities are identified in the implementation phases:

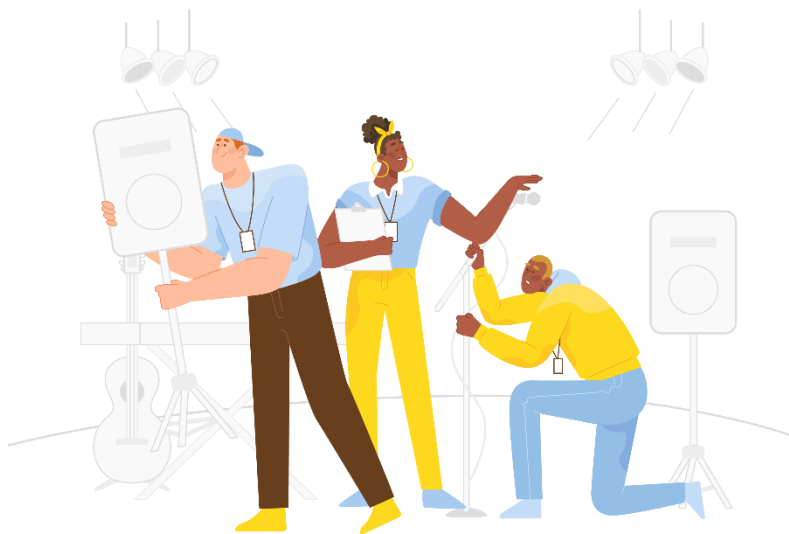
- The teacher briefly explains the task and principles of creating a business model.
- Students are divided into teams.
- The students brainstorm in teams to find a service or product related to their field of study that they want to take as a business idea and build a business model for. The results of the brainstorming session will be presented to other working teams and discussed.
- The teams seek information about the business area and the companies in the field, products or services, prices, describe and analyse target customer groups and their characteristics, etc. (exploratory learning takes place).
- During the study period, under the guidance of a teacher, each team develops its own business model based on the template and using the acquired knowledge from the companies in the field.
- The teams design the brand and advertisements for their business model (creative task).
- Each team presents the results of their work to the others.
- Members of the team self-assess their contribution to the teamwork and explain their potential role in this business.
- The teacher and co-learners provide feedback to the teams based on the assessment criteria.

*The practice can be used at different levels of education and in different fields of study; for example, to generate and develop ideas about products and services, to develop collaboration skills and different key competences (e.g. linguistic competence, digital competence, competence to search for and process information, mathematical competence, etc.), also to develop student self-analysis and self-assessment skills. The practice can be adapted to different study volumes. The strategy can be used in distance learning; for example, as a group work in Teams, Zoom, Google Classroom, using a digitally fillable worksheet in Google Drive.*

## Real-World Learning as a multidisciplinary project

The Real-World Learning strategy was implemented in the VET institution in Leeuwarden, Friesland, The Netherlands by a vocational teacher and FabLab coach at a school for groups of diverse students.

The students were VET students (16+) from various study programmes – in particular, practical and design programmes – but the module was open to all students. This means that the group was highly diverse in terms of learning level, background etc. Although not actively recruited as target groups, the groups tend to include students who are struggling with formal education, have challenging home situations, or other issues affecting their learning, alongside students who are high achievers.



Real-World Learning was offered as part of 'free choice' module allocation, which is a feature of Dutch VET schools. Students are encouraged to choose a module outside of their usual studies. It is delivered at the D'Lab a FabLab / Makerspace within the organisational structure of the school but at a separate location. The challenges are always linked to an external 'challenge-owner' and often to a planned event, such as international

mobility, the Sustainable Education Day, a conference organised by the local government or similar.

The idea behind the practice is to create a place within the school where students could put their knowledge into practice in a way which truly engages with the world outside the school, while also to create a space for multidisciplinary working, where students from different courses come together. The practice also offered students from somewhat troubled backgrounds a broader perspective of the options open to them, skills and passions they did not realise they had and would not have been exposed to within the confines of their chosen course.

The diversity of the group and the way in which the project was built-up also gave a lot of space for differentiated learning.

The process should be well prepared beforehand; this creates an environment where the focus is on the learning rather than constantly re-explaining the process. Preparatory activities for implementing the strategy include:

- Creating a strong network of stakeholders as a school who you can approach to be challenge-owners.
- Finding the real-world challenge, where the outcome is not set in stone.
- Explaining the role and commitments of the challenge-owner clearly to your external partners from the start.

- Agreeing on the roles within the project, which should be filled by different people – the teacher should not be the same person as the challenge-owner.

The following activities are identified in the implementation phases:

- The external challenge-owner introduces the challenge(s) to the students.
- Teams of students are formed – each student works based on their own skillset and self-defined role within the team.
- The external deadline is always some form of presentation moment, either as a pitch to the challenge-owner or at an event.
- Celebration – allow students to celebrate the work they have done.
- Given the individual goals of the different students and their different roles and backgrounds, the assessment is done via peer review – focusing on their contribution to the team.
- Students engage in self-reflection for their soft skill development. Students will need to answer some questions themselves (Has the challenge been solved? Is there now a logical next step? Is the challenge-owner pleased with what has been delivered?).

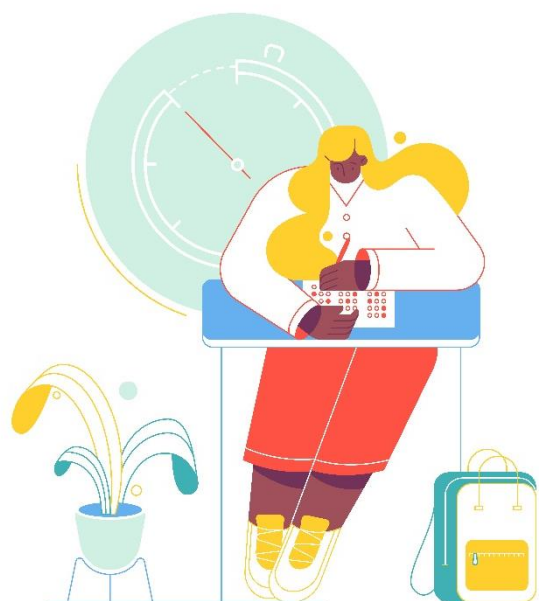
## Reflection at the end of the project

This practice was used at a vocational education centre in Estonia to reflect on the project learning process and results with students in the field of welding. The aim of implementing the strategy was to direct the students to analyse their activities and evaluate their learning outcomes. The aim was also to get feedback that would allow the teacher to adjust the learning activities and better adapt them to the expectations and needs of the learners. In order to implement the strategy, it was necessary to describe the assessment criteria, prepare a worksheet and a guide for the students. The Gibbs reflection model was used for the reflection.

The students had previously completed a project over a long period, during which they had completed the practical work.

The following activities are identified in the implementation phases:

- At the end of the project, the students were given the task of individually analysing the process and results of the project, based on the following questions: What did you do? How did you do it? What evaluation did you give based on the evaluation criteria?
- Subsequently, a discussion occurred between the teacher and the student based on the student's own analysis, where the student was asked to point out good aspects, mistakes, and things that could be improved.
- After this discussion there was a group discussion.
- Based on the results of the discussions, the work was adjusted.



- Finally, a self-assessment of the final result of the work was carried out, based on the reflection and assessment criteria.

*Methodological material (worksheet) is needed to implement the strategy. During the reflection, the student can assess themselves based on the assessment criteria. It also allows the teacher to obtain feedback on their teaching and adjust it if necessary. The practice can be used to summarise the learning process and outcomes at different levels of study and in different vocational fields, to develop student self-analysis and self-assessment skills, and to receive feedback on the teaching. In the reflection process, it is good to use different reflection models; for example, Gibbs reflective cycle.*

## Flipped classroom

### Flipped classroom for developing English communication skills as a second language

This best practice was implemented in Czech Republic. The aim of the practice was to develop English communication skills in the students. This method primarily focuses on giving English as a Foreign Language (EFL) students the tools necessary for communicating in the target language, emphasizing aspects of fluency, lexis, and ways of working within potential language limits.

International students (Chinese) aged 20 to 22 took part of the English Preparation Course for future business/economics study in the School of Economics and Business at the Czech University of Chemistry and Technology.

In general, communicative EFL teaching focuses on supplementing textbook instruction via the use of authentic materials for exposing students to the target language (magazine/newspaper articles, songs, videos) as well as encouraging students to work in groups to play games, problem solve, develop presentations, conduct class discussions, and give peer assessments.

The following activities are identified in the implementation phases:

- The first class serves as an introductory exercise where students are placed in groups and conduct peer interviews and partner presentations. Assessment by the teacher is continuous, peer assessment can also be utilised. The teacher acts as a coach, encouraging students to speak and react to the language and giving help where and when needed. The teacher is able to accurately assess the prior language knowledge and confidence of the students through speaking and using the language.
- In the following classes, the students self-study and prepare for lessons via reading an article before class in order to allow discussion and vocabulary practice during class. Students can also perform research for in-class presentations. For each class the possible discussion topic for certain students will be divided. During the course each student should carry out this preparation activity.
- Each class starts with a student prepared presentation, after which a student discussion takes place. Then the teacher will use a learning textbook and other materials linked to the prepared presentation topic. Therefore, the student will also learn correct grammatical rules, relevant phrases, and spelling according to the presented topic.

Applying this practice gives students an active role in the teaching and learning process. The teacher tries to motivate the students during the learning process through feedback and encouragement.

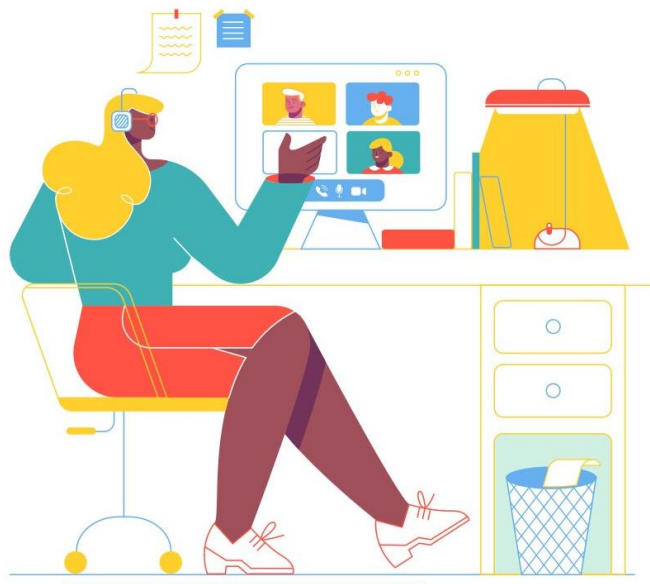
*This best practice is possible to use in the process of learning any language (e.g. Finnish).*

## Developing key competences

### Diverse Role Models for developing key competences

The practice of Diverse Role Models was implemented in a social enterprise and non-profit involved in education provision (The Entrepreneurial Refugee Network) in London, UK by the instructional designer. It was used to develop and increase the entrepreneurship of refugees and to encourage them to start their own businesses. Role models help students learn through modelling what is possible, and sharing strategies for dealing with failure, finding success, and achieving goals. In a diverse and inclusive classroom, it is really important that each learner has a role model they can identify with in one way or another. As such, diverse role models have increased importance.

Positive role models are also shown to decrease a youth's potential for risky behaviours such as drug and alcohol abuse, sexual intercourse, and violence. Studies also show that when youth can identify positive role models within their family or school, they are more likely to make healthy lifestyle choices regarding nutrition and exercise.



From The Entrepreneurial Refugee Network experience in a 2-hour workshop, a 15 min presentation and Q&A delivered by an alumni or an established role model entrepreneur can make a massive difference in terms of grounding the subject matter, motivating the participants to actively listen and engage with the topic for the rest of the workshop.

The learners differed in terms of age, race, ethnicity, socioeconomic status, cognitive development, social development, and digital skills.

As a preparatory action for this strategy, educators should research diverse role models that suit their learner group. In addition, the teacher prepares the learning process with the person who will be a role model.

The following activities are identified in the implementation phases:

- At the Entrepreneurial Refugee Network, their diverse role models are their alumni facilitators who help frame why each topic in a training programme is covered and why each step in our process has been important in their business journey. This real-life insight brings learning to life and thereby increases participant buy-in into the Entrepreneurial Refugee Network's overall process.
- Incorporate role models who are supportive, engaging, relatable, and who mirror the diversity in your learners.
- Invite role models to be guest speakers, host learning panels, and provide opportunities for your students to engage in hands-on activities with the role models.

- Encourage the role models to describe their experiences and career paths, what their work looks like, and how their work benefits others. Ask them to talk about their personal lives as well, including their hobbies, interests, pets, and families.
- Assign students streaming content (Netflix, podcasts etc.) to learn more about the content and the diverse role models in their subject area or field of education.

The strategy can be used to develop an entrepreneurial attitude at different levels and in different disciplines, to learn career and entrepreneurial competencies, as well as to motivate students to study, diversify their learning activities, and open up a larger picture of the field or the student's potential.

#### References

[Role Models and Mentors | National Alliance for Partnerships in Equity \(napequity.org\)](#)

[Diverse Role Models \(weebly.com\)](#)

[Positive Role Models | Lesson plan | Education.com](#)



## Discussion

### Interpersonal and Intercultural Understanding

Interpersonal and Intercultural Understanding benefits the delivery of teaching and learning based on diversity. Interpersonal and intercultural understanding is a key element in the training and support provided by the Go-Woman! Alliance CIC (UK, Birmingham). This organization provides a range of training and support, but their core offering is delivering basic English classes to learners that are recent arrivals in the country. Students usually vary in terms of age, race, ethnicity, socioeconomic status, cognitive development, social development etc. Respecting every learner and providing them with space to celebrate and respect their own diverse backgrounds, as well as each other's will provide a rich and stimulating learning space. Moreover, each educator will come with different experiences and their knowledge is imperative to a collective approach.

It is believed that understanding each individual learner's cultural background, hobbies and learning style is the first step in ensuring they are inclusive and differentiated in their delivery. In order to ensure that they remain inclusive throughout, Go-Woman! Alliance CIC feel it is important to ensure they keep communicating consistently with the learner. As the learner grows in confidence through newfound knowledge, their education needs change and



grow, so one-to-one interpersonal knowledge is important. The key to delivering teaching and learning to a diverse group of learners is having the capacity to understand the diverse group and ensure that all learners in the room are equally respected.

The points to keep in mind:

1. Start small and build safe spaces.

To do this, use warm-up exercises that help everyone, including the educator, to relax and get to know each other on a personal level before advancing to a cultural level. For example, invite your learners to bring one (small) object to class that is significant to them, and discuss how it represents them, their hobbies, or family.

2. Distinguish between personal, situational, and cultural differences. As you observe and discuss intercultural issues, bear in mind that not all conflicts or disagreements are based on cultural differences. Note the specific elements of the situation or personalities involved, and help your students learn to consider all angles of an issue before making a decision.

3. Build up activities and discussions to deepen learning.

Tackle cultural issues that exist within your local communities, then make connections between these and the larger world to help learners realise they are shaped by their surroundings while simultaneously connected to much more than what is immediately

around them. As a result, your students will broaden their worldviews, become more flexible, and become able to respect different perspectives.

4. Recognise and encourage healthy conflict or the sharing of different, even dissenting views. Often there is a concern that dealing with differences can become personal, and perhaps uncomfortable, even for the world's newest learners, "Generation Z" students, arguably some of the most comfortable with diversity on the planet. Guide your students to actively listen and suspend judgement in uncomfortable conversations to maximise their learning potential.

5. Recognise and redirect conflict that is not productive.

Sometimes conversations need to be slowed down or even redirected. Overheated situations do not make a productive learning environment, so you can defuse them by using historical or literary references to take a step back and provide a more comfortable way to tackle bias or stereotypes.

6. Help learners process through a three-step debriefing.

For intercultural learning activities to be most impactful, follow-up discussions or "debriefing" with students is crucial. Do this by first helping students reflect on and discuss what they have learned; next, encourage them to imagine how they can apply these lessons to their daily lives; and finally, come to a shared understanding with the learners about why the activities were conducted: global competence is necessary in our communities, and our world should not be kept a secret!

This approach can be used in different contexts and while integrating different subjects. Some useful teaching/learning materials, facilities or technologies for interpersonal and intercultural understanding include:

- [Cultural-awareness-training-exercise-pack.pdf](#) ([culturewise.net](http://culturewise.net)) contains 15 cultural awareness training activities which provide a ready-made source of suitable cross-cultural and cultural awareness training activities.
- [Booklet Intercultural Communication Resource Pack.pdf](#) ([salto-youth.net](http://salto-youth.net)) contains a set of tools and methods for youth activities, some personal insights of other youth workers involved in intercultural communication projects as well as theoretical inputs and references for further work in this area.
- Intercultural Competence Toolkit - Global Initiatives - UW Bothell offers resources, strategies and activities to develop intercultural competence.

## **Part II**

# **Educational initiatives for learner empowerment**

## Hack-lab as a format of training for young people at risk of social exclusion: the case of teaching cyber security

The Hacklab is an initiative from The Netherlands targeting young people from 15 to 25 who have dropped out of formal education or who are at risk of dropping out of formal education. The Hacklab is an independent organisation funded and supported by both public and private bodies and working closely with schools and universities. After completing the programme students can gain professional certificates, but the Hacklab trajectory does not result in a formal qualification.

The Hacklab project is especially for youngsters outside regular education – gamers, school leavers, people on the autism spectrum or people who miss a challenge in their current education or have a difficult home situation. Prospective participants are young people who have left formal education but have skills or interest in IT.

One of the programmes conducted within the framework of Hacklab is “Cybersecurity”. The Hacklab is a safe place where young talented internet users can develop knowledge and skills within the cyber domain at their own level and pace. Previous education is not necessary, motivation and curiosity are.

The Hacklab employs an operational manager and two coaches. The operational manager is responsible for acquisition, planning, finance, and IT infrastructure. The coaches are responsible for the content of the lessons, student coaching and organising internships. A coach needs to be knowledgeable in IT and needs to be able to guide special needs students. The Hacklab team has recruited two IT specialists with coaching experience.

In the Hacklab, various guest teachers pay attention to 21st-century skills. The students are challenged with various individual and group exercises in the field of hacking, programming, lock picking, pen testing etc. Because every pupil is different, a mentor will look at an appropriate development path within the workshop. Each student's programme is therefore customised. The student is in control and the Hacklab facilitates. Before and during the student's individual programme, goals are documented, tested and adjusted where necessary.

The mentors within the Hacklab, if desired, find matches between students and possible employers. In addition, young people who want to start their own business from the Hacklab are also supported in this by the mentors.

Besides the practical lessons with the teachers, students work on practical exercises and projects both as individuals and within (project) teams. Students with more experience provide lessons to the new students on pen-testing, software programming and hardware. The practical assignments and projects give the students the opportunity to work on their own portfolio which they can also use to find a job.

The Lab is open from Monday to Friday. Students can come to the Lab to work on projects, individual assignments or to study for a certificate or go to one of the extra lessons given by other students.

The phases in the Hacklab include:

- At the start of the trajectory there is an intake period of four weeks to see if the Hacklab suits the candidate.

- This is followed by a two-month period called 'Discover your talent', where students are able to try out various workshops and lessons from different IT disciplines, finding the area that they would like to specialise in; for example, cyber security and hacking, data analysis or front-end development.
- The next phase is 'Develop your talent.' In this phase, students work on increasingly difficult material and put their knowledge to the test in independent projects. This phase is free and students are encouraged to focus on what they truly enjoy and develop a specialist profile.
- The final phase, lasting three months, is the wrap-up phase which is particularly focused on linking the student to the world of work. Students work on real-world assignments for Hacklab's affiliated IT companies in their specific area of technical expertise and start short-term work placements. This period is finished once the student is offered work at one of the IT companies the Hacklab works with or decides to pursue further studies at one of the VET or HE organisations who work with Hacklab. The Hacklab team retains contact with the student and works with the company to ensure a smooth transition.

The Hacklab initiative has been successful in The Netherlands. The model started in Leeuwarden, but has now spread to other cities in Friesland and Groningen.

Thanks to the Hacklab, students who were not in formal education now have paid work or have returned to higher education as a result of the programme. In order to adapt the model to different contexts, continuous collaboration between government, business and education providers is essential

## Learning Laboratory (FabLab)

The learning laboratory (FabLab) is an initiative of Friesman College. In the FabLab both companies and individuals as well as students can pursue the development of all kinds of prototypes. FabLab is part of the College but at a separate site. In addition to students of Friesman College, students from the other schools in Leeuwarden (VET and HE), professionals, artists and (start-up) companies, all find their way to the FabLab. FabLab also serves as a 'learning company' – a place where students can run their internship.

Learning Lab is a motivating environment especially for VET students (16+), in particular for those who are at risk of leaving formal education or who struggle in a traditional classroom setting. It is also particularly suited to students following a practical or design course.

As the FabLab belongs to the College, it does not rely on funding from others. External users pay for materials used and a small fee for the use of machines. Students are welcomed into the FabLab either as part of a minor, an internship, an entrepreneurship project in the form of a group internship, or on an individual basis. The mix of students and diversity of groups using the space broaden the horizons of students and help them to make more informed choices about their future path. The initial motivation behind opening the FabLab was to make technology more available to students and the wider community, with the above-mentioned learning outcomes as a wonderful by-product.

Students have the opportunity to work individually on their own making process, often with assignments and projects they have themselves chosen resulting in high levels of intrinsic

motivation. Besides that, the learning laboratory can be used when students who are following a particular course are in a phase where they need to work on individual projects.

The following ideas have been followed when planning the FabLab: The space should be safe, accessible and clearly differentiated from other learning environments. It should be staffed by experienced coaches and facilitators, who have the technical abilities to support students with whatever facilities are made available to them in the learning lab.

Second, and more importantly, is the mindset. A learning culture should be created, a culture that emphasizes informal, networked, peer-led, and shared learning motivated by fun and self-fulfilment. FabLab should be a safe environment mentally and physically where students work on 'drafts' and feel they are allowed to make mistakes as part of the learning process.

The FabLab is led by the following principles:

- Once the space has been set up, equipped and staffed, the staff should make clear choices about the roles they play within the lab.
- When students enter the lab for the first time, they should be shown how the different facilities work and have a brief chat with one of the coaches / facilitators about the project they will be working on.
- The student should then be free to work on this individually at their own pace, reaching out to coaches / facilitators for support when necessary.
- Coaches / facilitators keep an eye on the progress of each student and check in with them at key moments, but without taking over ownership of the learning process. The learning lab is an informal learning environment, so formal assessment of knowledge and skills does not take place.
- However, the coaches / facilitators should congratulate students on the progress they make and remind them of how far they have come in their skills progression once their time at the learning lab is over.

This method has been gaining more support and attention in the past few years, with positive results seen for students from particularly difficult target groups. The principal ideas of the learning laboratory initiative could be transferred to different contexts. The full machinery typically associated with a FabLab is not a necessary prerequisite to creating a learning laboratory. The key components are that the learning takes place in a designated space outside of the normal classroom environment. This space should be freely accessible for students, with a coach or facilitator present rather than a more traditional teacher.

## Mentor programme

MentorProgramma Friesland is a network organisation and collaboration between the VET colleges and technical universities of the Friesland region in The Netherlands. The programme has now been successfully running for almost 25 years. The mentoring programme regards itself as the "third line" of contact for students, in addition to providing a personal counsellor for students and various social and learning services. Any student can be referred to or self-referred to the mentoring programme, whether or not they are dealing with a specific challenge. All students taking part in the mentoring programme have an individual learning goal which they want to address through their participation.

The participants can be students from any of the VET colleges and technical universities in Friesland. This means that they are of diverse age groups (16+) and from different study fields. Moreover, learners are diverse in terms of background, gender, ethnicity, sexual orientation etc.

The original idea behind the programme is to offer students a broader perspective on their own learning by matching them with a mentor who can show the range of opportunities open to that student. Therefore, students can be expected to be more likely to choose the learning path that works for them, be more engaged in their own learning and less likely to drop out of education.

The mentors form a 'role model' for students. This is particularly valuable for students who do not have an existing role model for their particular goals in their social circle.

For an individual student, the MentorProgramma begins when they either self-refer or are referred to the programme to be matched with a mentor. At VET level, most students are referred by their guidance counsellor. At first, the student is asked to define their learning goal. Based on this learning goal, the student is matched with an appropriate mentor. Mentors are volunteers drawn from every walk of life who can support the student based on their own personal experience. Once the match has been made, mentor and mentee make their own arrangements about the frequency and form of their mentoring relationship. There is close contact between the mentor and MentorProgramma Friesland, to support them in referring their mentee to the right services from school and beyond as the need arises.

It is important to ensure that each learning goal can be matched with a relevant mentor who can help the student in achieving their goal. The underlying issues behind a student's learning goal can also be taken into account in the matching, but the matching does not aim to necessarily match female students with female mentors, refugee students with mentors with a refugee background, etc. The individual learning goal of the student is the leading factor.

The assessment of student knowledge and skills is challenging in a programme based on individual goals. For this reason, the achievement of the individual learning goal of the student is the main assessment criteria of the student's progress.

Every year, MentorProgramma Friesland reports to the colleges and universities with which they work. Every few years, this is supplemented by a scientific evaluation of the programme which looks at student outcomes for the cohort as a whole. This evaluation shows better outcomes for students from even the most vulnerable groups: they are more likely to stay in education and often end up studying at a higher level than a control group of students who did not take part in the mentoring programme.

Although students are generally referred to the programme through their college or university, the programme takes place outside of the framework of formal education. This means that the students' mentor is an 'objective outsider'. The MentorProgramma Friesland organisation is fully funded by the colleges and universities they work with. When transferring this model to a new context the funding as well as the motivation and commitment from educational institutions and enough volunteer mentors is crucial.



## Preventive programme for students with psychological issues: building an interdisciplinary support team

The programme called "School als Werkplaats" (SAW) was established in Friesland College in Leeuwarden as a preventive measure to combat school dropout. It is a support system within the school, working with both students and teachers, outside of the classroom.

The programme can be formed by an interdisciplinary team made up of employees working for the school itself and a number of external health and social partners, as well as the local municipality if possible. The members of the programme should have weekly contact with all VET courses at the school's (various) locations and should be always reachable by students.

The core of the work consists of being available on site and making contact with both students and teachers. Optimal reachability is the key to early identification and preventive work:

- The teacher monitors a student's progress and is responsible for referring the situation to the programme's team.
- The team comes into the picture when the teacher or the student makes a request, or when a SAW team member themselves sees a need.
- They focus on psychosocial issues within the broader social environment of a young person. They have more possibilities, including more time and more expertise, to focus on the needs of the student than the teacher, working as an extension of the teacher.
- It may happen that, in consultation with the teacher or coach, the conclusion is reached that a wider range of help is needed for a student. In that case, the programme employee will use his/her own network for consultation and can also get an application through the procedures and to the right place more quickly.
- Subsequently, the programme worker continues to monitor the course of events, keeping close contact with the student and informing the teacher about progress and further steps.

The most important preparatory step in order to build up this kind of programme is building collaboration with the various social services providers and experts. The agreement between these organisations and the practical steps ensuring that their staff and experts can work at the school for a certain number of days per week is essential for the smooth running of this type of programme. In addition, an awareness campaign among teachers and students explaining how the programme works as well as the importance of the members involved is essential. For the teacher (coach) this means a different use of his/her hours for guidance: on the one hand, he/she has to invest more time in consultation and coordination with the SAW employee, but on the other hand, he/she needs less time for time-intensive support of students. Building a monitoring and reporting structure from the start is essential as it will also save time later (e.g. building an IT system or tool to track student progress).

Ten years after the programme was launched, this way of working has become a fully integrated structure within the whole school and has been widely studied as a best practice within The Netherlands. The programme has been proven to noticeably lead to

more job satisfaction, more peace of mind for instructors and less absenteeism and less student drop-out.

## Team teaching as part of entry level courses

The team-teaching method has been adopted by the entry level retail course at multiple locations of the Friesland College (Netherlands). Entry level courses are taken if a student has left secondary education without any qualifications. The entry courses lead to further VET education at a higher level and lasts between 1 and 2 years depending on the student. This course is also for newcomers to The Netherlands who have completed their initial integration course, but do not have a valid high school diploma.

The team-teaching method has been considered as suitable due the extremely diverse and challenging nature of the students (diverse levels and backgrounds) in entry courses. Many of the students have a low level of Dutch, have a difficult home situation and lack of study motivation. The age range is 16 – 30 years. The needs of each student can vary enormously, so team-teaching offers a way to give a differentiated form of teaching to each student.

In the team-teaching method, there are always a minimum of three teachers working with a student group (of around 30 students) at one time. This leads to shared responsibility – the team of teachers effectively act as one teacher but can be in multiple places at once. This means that while teaching is happening, another teacher can give a student who needs individual support the attention they need. Each week there are six subject lessons (Dutch, numeracy, citizenship and course specific subjects). Each of these lessons is offered three times per week, each time the same lesson. In this way, students can plan their own learning around their (compulsory) internship days and take more responsibility for their own learning. It also allows students who do not speak Dutch as their first language to review a lesson later in the week if they have struggled with the vocabulary and have used some independent study time to work on this. Students can also choose to use their time for independent study.

Key to the method is that this is all taking place in the same classroom – a large room with areas for group work and individual study. Multiple lessons happen simultaneously, as does individual support – this is the main advantage of team-teaching. Having everything in the same room at the same times of day also creates a sense of safety and rhythm which students find very helpful – many are unused to a school system and would struggle with the self-organisation needed to follow a timetable across multiple locations. Instead, they are able to practice this self-scheduling within the safe framework of the team-teaching method. This means that the teaching is very much a differentiated approach for each student, with the time, flexibility and resources to support them individually within a safe framework.

The course works in three phases: pink, orange and green. The first phase is pink: they receive an orientation booklet with various introductory assignments to get to know the subject and each other. Basic concepts are also explained in this phase. These orientation assignments also offer the teachers a chance to assess the level of each student. This phase lasts about six weeks. The core phase (orange) lasts 24 weeks, with the wrap-up / exam phase (green) lasting 10 weeks. If a student finishes his/her orientation booklet early,

then he/she can progress sooner. Similarly, if students struggle and need more time, this is also fine. The course lasts one year in theory but can be completed more or less quickly according to the level of the student. During the orange phase, the students have to follow at least one lesson per subject every week and complete assignments. This is monitored very simply in a paper booklet, the extension of the orientation booklet. This booklet works as a learning portfolio. This book is also used to keep track of a students' progress at their compulsory work placement / internship. The booklet is jointly filled in by the student, his/her personal coach and the teachers from the teaching team. Once this portfolio has been completed, the student progresses to the green phase and enters the exams. The flexibility in timing also creates space for differentiated learning – each student can complete the course in his/her own tempo with as much extra support as needed.

There are also specific lessons for groups of students with specific needs – students who do not speak Dutch as their first language are given extra support with language development, for example. General Dutch classes are given to a mixed group of both native and non-native Dutch speakers. Assignments are also flexible – if a student has a particularly high level of motivation in a particular subject, they can be assigned more challenging work by the teaching team.

Each teacher in the team also plays the role of personal coach for a number of students in the cohort, with all students having a coach. The teaching team is also made up of teachers with complementary backgrounds and skills – one of each subject to be taught, plus a teacher specialised in Dutch as a foreign language. Teachers support each other by bringing in their own knowledge and expertise. Communication between the teachers in the team is essential. This is facilitated by weekly team meetings and every month a case meeting where every student and their progress is discussed. Alongside the core teaching team, a social support staff member comes to classes at least twice a week to remain connected to the students and teachers. This social support contact person is also always present at the case meetings in case broader support is needed for the students; for example, that a student does not have a laptop at home or is having other personal challenges.

Team-teaching has proven to be a very successful method in Friesland College and could be adapted to other contexts, especially in other entry level courses. One of the challenges is the diversity of the teaching team that could be more representative of the student groups served. Secondly, the classroom (class space) needs to be suitable for team-teaching.

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