



Erasmus+

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O1 Research Report

19/03/2019.



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1. Executive Summary

The LELLE 2 Project

The aim of the LELLE 2 Project is to enhance the efficiency of secondary education helping to build the development of three key competences in learning:

- Critical Thinking (CT),
- Problem Solving (PS),
- and Managing own Learning Processes (MOLP)

Having acquired this key competence, students will also receive better grades, accomplish their tasks better and faster, and will be motivated to reach higher. Students taking a job after secondary school will have higher job security due to their efficiency and their ability to acquire job-related knowledge quickly. This will contribute to increased competitiveness of their home countries' and Europe's economy as a whole.

Supporting teachers in adopting collaborative and innovative practices: our project supports teachers in adopting collaborative and innovative practices in order to enhance the learning skills development of secondary school students.

The development of relevant and high-quality skills and competences are planned to be reached through the creation of five innovative outputs:

1. Best Practice Collection on Learning Skills Development
2. How to Teach How to Learn - teachers training in secondary schools
3. Learning skills assessment of secondary school students
4. Pedagogical materials for learning skills development
5. European Learning Skills Development Gateway (website)

This document is the closing document of the first stage of the project. In this output we carried out a research program, compiled a glossary and made a selection of best practices for the further outputs of the project.

The Research

The research took place in November and December, 2018, the analysis was made in January, 2019. Each of the seven partners conducted one group interview with secondary school teachers, company representatives and trainers taking part in secondary education. A total number of 61 schoolteachers and 10 business partners from 9 companies took part in the interviews. Colleagues from 3 research institutes accepted the invitation to take part in the study.

Altogether 10 educational institutes represented themselves: 6 of them were traditional secondary grammar schools, 3 “alternative” comprehensive schools and 1 alternative vocational grammar school. Sample sources: Own colleagues (secondary schools), Partner institutions, Schools, University partners (companies, etc.), eTwinning and School Education Gateway platforms

There are 19 Good practices in Critical thinking, 17 in Problem Solving and 20 in Managing Own Learning Process in our pool of Good practices. See appendices no. 3-5.

The Best practices selected from the results of the research

With regard of the O1 Research report and the discussion at the Transnational project meeting in Bratislava, the project partners agreed to further develop 3x10 skill development items selected from the pool of good practices found in the research phase.

LELLE 2 Best practice table

	Critical Thinking	Problem Solving	Managing own Learning Processes
1	The Mosaic Method C, A	Pbl / Problem Based Learning C, A	Career Guidance C, A
2	Guided Reading S, B	Making decisions & flexibility (Entrepreneurship Skills) C, A	Contracting C, I
3	Cinquain S, A	Analysis of problems through songs	Emotional Log S, I

		C, I	
4	Time Axis S, I	Micro- inquiry C, B	Personalized Learning C, A
5	Analysis Of Advertisements C, I	Board games C, A	Peer mediation S, I
6	T-Table S, B	Comparison Of Models C, A	Personal Swot Analysis S, I
7	Analysis Of Famous Speeches S, I	Is Your Guess As Good As Mine? C, I	Scheme Of Thinking S, I
8	The Debate C, A	Written brainstorm S, B	Free Choice Of Tasks Related To Gardner's Multiple Intelligences C, A
9	E-U-R Method S, I	RED/GREEN lights S, I	Difficulty Leveled Assessment Exercises S, B
10	Complex-Evaluation C, A	Learning from mistakes S, A	Drama In Education C, I

Legend: Task difficulty: Simple (S) – Complex (C), Skill development level: Basic (B) – Intermediate (I) – Advanced (A)

The next tasks will be to develop the Training material for secondary educators based on the selected best practices and to compile a measurement tool to measure the three key competences in high school students.

2. Research Report

Background

In the Application Form, the main objectives of the project are detailed, in this chapter, we summarize these goals.

Our project aims at equipping secondary school students with learnings skills development through improving their capabilities in Critical Thinking (CT), Problem Solving (PS), and Managing own Learning Processes (MOLP). Based on feedbacks of company managers and university teachers, secondary school students are required to have the ability to acquire new, practical, relevant knowledge and skills quickly.

WEF The Future of Jobs Reports

Year after year, the World Economic Forum examines the prognosis of the labour market and issues a report on the future of jobs¹. Using these reports, we can predict the new demands from the world of work regarding employee competences and make changes in the focus of education. We selected three skills that are connected to each other in order to successfully develop key competences in school. These skills are supporting young people's successful integration into the society and the labour market, see Fig. 1.

¹ In collaboration with Boston Consulting Group <https://www.weforum.org/>

Stable Roles	New Roles	Redundant Roles
Managing Directors and Chief Executives General and Operations Managers* Software and Applications Developers and Analysts* Data Analysts and Scientists* Sales and Marketing Professionals* Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products Human Resources Specialists Financial and Investment Advisers Database and Network Professionals Supply Chain and Logistics Specialists Risk Management Specialists Information Security Analysts* Management and Organization Analysts Electrotechnology Engineers Organizational Development Specialists* Chemical Processing Plant Operators University and Higher Education Teachers Compliance Officers Energy and Petroleum Engineers Robotics Specialists and Engineers Petroleum and Natural Gas Refining Plant Operators	Data Analysts and Scientists* AI and Machine Learning Specialists General and Operations Managers* Big Data Specialists Digital Transformation Specialists Sales and Marketing Professionals* New Technology Specialists Organizational Development Specialists* Software and Applications Developers and Analysts* Information Technology Services Process Automation Specialists Innovation Professionals Information Security Analysts* Ecommerce and Social Media Specialists User Experience and Human-Machine Interaction Designers Training and Development Specialists Robotics Specialists and Engineers People and Culture Specialists Client Information and Customer Service Workers* Service and Solutions Designers Digital Marketing and Strategy Specialists	Data Entry Clerks Accounting, Bookkeeping and Payroll Clerks Administrative and Executive Secretaries Assembly and Factory Workers Client Information and Customer Service Workers* Business Services and Administration Managers Accountants and Auditors Material-Recording and Stock-Keeping Clerks General and Operations Managers* Postal Service Clerks Financial Analysts Cashiers and Ticket Clerks Mechanics and Machinery Repairers Telemarketers Electronics and Telecommunications Installers and Repairers Bank Tellers and Related Clerks Car, Van and Motorcycle Drivers Sales and Purchasing Agents and Brokers Door-To-Door Sales Workers, News and Street Vendors, and Related Workers Statistical, Finance and Insurance Clerks Lawyers

Fig. 1. Examples of stable, new and redundant roles in all industries, WEF Future of Jobs Report 2018²

We will experience structural changes in the workforce in the following years according to forecasts of the most demanded skills, see Fig.2.

Today, 2018	Trending, 2022	Declining, 2022
Analytical thinking and innovation	Analytical thinking and innovation	Manual dexterity, endurance and precision
Complex problem-solving	Active learning and learning strategies	Memory, verbal, auditory and spatial abilities
Critical thinking and analysis	Creativity, originality and initiative	Management of financial, material resources
Active learning and learning strategies	Technology design and programming	Technology installation and maintenance
Creativity, originality and initiative	Critical thinking and analysis	Reading, writing, math and active listening
Attention to detail, trustworthiness	Complex problem-solving	Management of personnel
Emotional intelligence	Leadership and social influence	Quality control and safety awareness
Reasoning, problem-solving and ideation	Emotional intelligence	Coordination and time management
Leadership and social influence	Reasoning, problem-solving and ideation	Visual, auditory and speech abilities
Coordination and time management	Systems analysis and evaluation	Technology use, monitoring and control

Source: Future of Jobs Survey 2018, World Economic Forum.

Fig.2. Comparing skills demand 2018 vs 2022, top 10, WEF Future of Jobs Report 2018

The complexity of the demanded skills is increasing so learning itself and the development of one's own learning strategies are getting more and more important, on every level of education. Building

² <https://www.weforum.org/reports/the-future-of-jobs-report-2018>

advanced skills through personalized learning is one key concept of the White paper, titled *Strategies for the New Economy*, issued by the WEF in 2019³.

Towards a Reskilling Revolution⁴

In this white paper, the WEF (2019.) is dealing with the impacts of the Fourth Industrial Revolution. The progress will have two kinds of impact: „On the one hand, large parts of the labour market will be impacted by intelligent systems and automation, a transformation we can already observe today. On the other hand, technological integration will change the business models of all industries, giving rise to a number of emerging jobs.” WEF concludes that proactive and strategic effort is needed on the part of all relevant stakeholders to manage reskilling and upskilling to mitigate against both job losses and talent shortages.

Renewing secondary education is a key agent in this system, because it provides rather factual knowledge, and fails to teach students how to gain new knowledge and skills efficiently. This is a common problem in the countries represented by the partners. For this reason implementation of our project will contribute to improving quality of secondary education by providing learning skills development for students. Integrating learning skills development into subjects and normal course of class lessons will allow teachers to transfer factual knowledge to students in a more "consumable" way.

Objectives of the project:

Aim of our project is to call attention to the importance of assessing learning skills of secondary school students and that of building learning skills development into subjects. Having acquired this key competence, students will also receive better grades, accomplish their tasks better and faster, and will be motivated to reach higher. Students taking a job after secondary school will have higher job security due to their efficiency and their ability to acquire job-related knowledge quickly. This

³ <https://www.weforum.org/whitepapers/strategies-for-the-new-economy-skills-as-the-currency-of-the-labour-market>

⁴ <https://www.weforum.org/whitepapers/towards-a-reskilling-revolution-industry-led-action-for-the-future-of-work>

will contribute to increased competitiveness of their home countries' and Europe's economy as a whole.

Supporting teachers in adopting collaborative and innovative practices: our project supports teachers in adopting collaborative and innovative practices in order to enhance the learning skills development of secondary school students. Teachers will be involved in a regional strategic partnership, cooperating with national educational development institutions and university professionals who will provide substantial knowledge and new, state-of-the-art innovative techniques, new methods in teaching.

Teacher leadership: through the mentoring processes of other teachers and of students', teacher leadership roles will strengthen. Based on our previous experiences from higher education development projects we can securely state that upon completing the project, educators will rather become personal leaders, mentors, coaches who will be capable to give personal guidance to students.

New assessment methods: teachers will be aware of new assessment methods for evaluating learning skills of their students. They will be involved in elaborating and fine tuning a new survey.

The development of relevant and high-quality skills and competences are planned to be reached through the creation of five innovative outputs:

1. Best Practice Collection on Learning Skills Development
2. How to Teach How to Learn - teachers training in secondary schools
3. Learning skills assessment of secondary school students
4. Pedagogical materials for learning skills development
5. European Learning Skills Development Gateway (website)

The first output of the project is the Good Practice Collection on Learning Skills Development (this document).

We approached learning skills development by the method we applied in our previous project, LELLE. The LELLE Learning Skills Development model consist of the three pillars of Critical Thinking (CT), Problem Solving (PS), and Managing own Learning Process (MOLP). According to this model student's learning skills are developed by improving the skills sets in these three domains.

Skill definitions

Critical Thinking includes: to reflect and handle tasks autonomously; to make sound decisions and reasonable judgements; to identify connections and recognize opportunities; critically evaluate ideas.

Problem Solving includes: to understand the process of successful problem-solving; to be able to solve problems independently and collaboratively; compounding analytical and creative thinking; assertive, open communication.

Managing own Learning Processes includes: strategy, training, time management; the ability to access, gain, process and assimilate new knowledge and skills, organise one's own learning, evaluate one's own work; integrating information into learning process in appropriate ways, adjusting way of learning to own goals. We used the same categories as in LELLE, see Table 1. and Fig.3.

Competence:	Critical thinking	Problem Solving	Managing own learning process
Description by Lelle:	To reflect and handle tasks autonomously; to make sound decisions and reasonable judgements; to identify connections and recognise opportunities. critically evaluate ideas	To understand the process of successful problem-solving; to be able to solve problems independently and collaboratively. a mixture of analytical and creative thinking. Assertive, open communication.	Strategy, training, time management. The ability to access, gain, process and assimilate new knowledge and skills, organise their own learning, evaluate their own work. integrating information into the learning process in appropriate ways, adjusting way of learning to own goals.

The subskills of the three key skills are defined as follows:

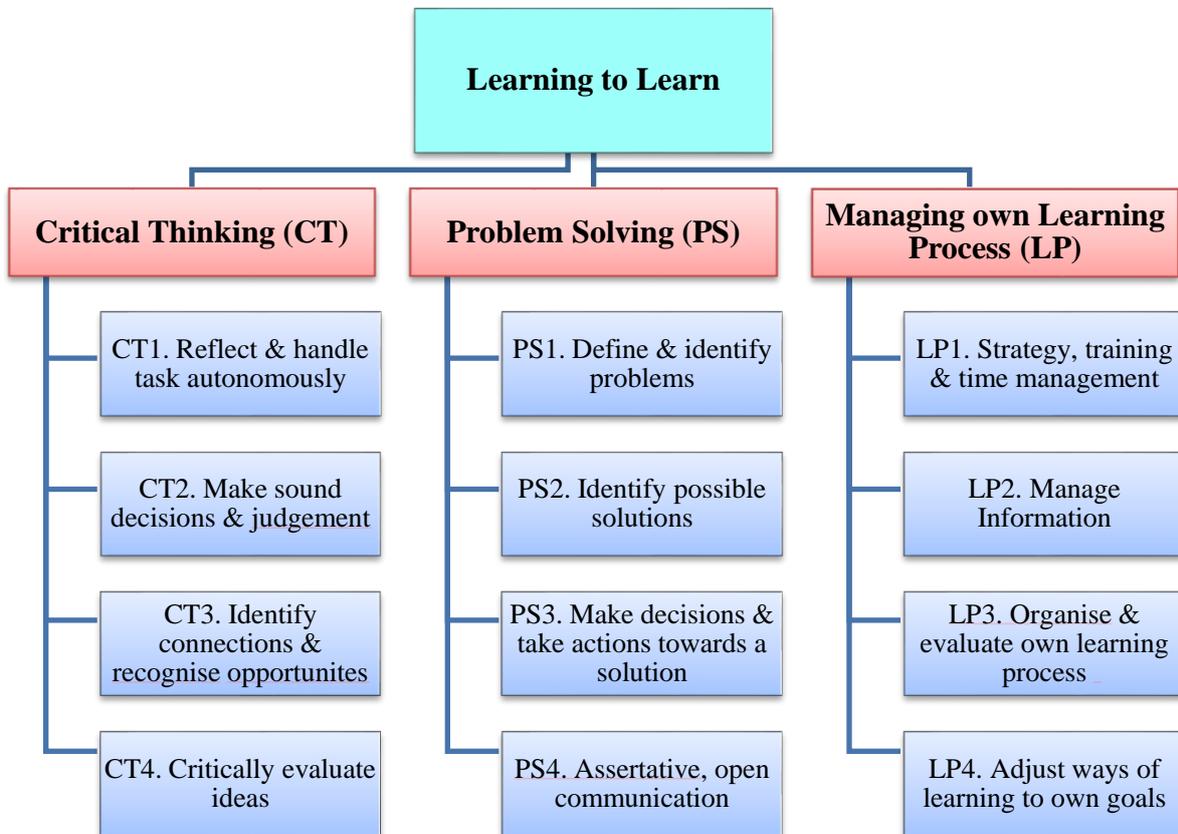


Fig.3. Subskills used in the first LELLE project

O1 Research Plan

The outputs of the project will be built on the desk research and empirical research carried out in O1. The aim of the research is doublefold. One aim is to collect good (best) practices in the field of the three skills, the other goal is to identify methods and demands from stakeholders of secondary education regarding skill development (CT, PS, MLP). In the first LELLE project, we conducted a research on the topic, and in this project, we planned to extend this research to the level of secondary education. Therefore we used the results of the LELLE project too in the desk research along with updates from the World Economic Forum's, the EU and OECD forecasts and findings.

Phases

A1 - Elaboration of the LELLE2 vocabulary – use of LELLE glossary

A2 - Development of research plan

A3 – Research

A4 - Data processing, analysis of research results

A5 - Producing Best Practice Collection – result

Methodology

∠ Building glossary (vocabulary) – based on Lelle and Kickoff discussion

∠ Desk research – making use of the EU and OECD results (IALS, AHELO, previous developments, also LELLE data)

∠ Focus group interviews – exploring methods, demands and good practices in secondary education. Conducting research with selected, relevant participants, 4-8 person at a time. Each partner organized one focus group. Results had to be presented in a given form prepared by PE, accepted by Steering committee.

See the research materials developed in the project in Appendix 1. and 2.

Research questions

The research questions were:

- 1) How important is the learning competence / critical thinking / problem solving / managing of own learning process in relevant organisations?
- 2) What are the areas/fields where the learning competence / critical thinking / problem solving / managing of own learning process is particularly needed?
- 3) What are the determinants of the obtained learning competence / critical thinking / problem solving / managing of own learning process (how the learning competence or any of the mentioned skills are manifested)?
- 4) What are the ways of verifying the obtained learning competence / critical thinking / problem solving / managing of own learning process?

We developed an interview plan and a research form to collect and structure answers.

3. Results

The research took place in November and December, 2018, the analysis was made in January, 2019. Each of the seven partners conducted one group interview with secondary school teachers, company representatives and trainers taking part in secondary education. One of our partners, I. Béla Gimnázium, conducted 4 group interviews. The Good practices were collected and listed in Appendix 3-5. The first two Good practices were further developed into Lesson Plans by one of our Partners, Marianum High School. Some of the Good practices collected by National Institute for Education of Slovakia were written in the context of a Lesson plan as well.

A total number of 61 schoolteachers and 10 business partners from 9 companies took part in the interviews. Colleagues from 3 research institutes accepted the invitation to take part in the study. Altogether 10 educational institutes represented themselves: 6 of them were traditional secondary grammar schools, 3 “alternative” comprehensive schools and 1 alternative vocational grammar school. Sample sources: Own colleagues (secondary schools), Partner institutions, Schools, University partners (companies, etc.), eTwinning and School Education Gateway platforms

There are 19 Good practices in Critical thinking, 17 in Problem Solving and 20 in Managing Own Learning Process in our pool of Good practices. See appendices no. 3-5.

Selecting Best Practices

The research brought more good practices as in the processing of the collected documents, we found that there are more types of practices and also there are minor techniques and methods within more complex ones, so we decided to handle each practice one-by-one. This resulted in an extended table, where we listed all the small and big techniques that we could identify in the

research materials and did a first selection of best practices based on the descriptions we had in the pool of good practices.

The criteria of the selection was the following:

- the practice will be used in secondary education, so it must be fitted to that environment and the needs and capacities of the students
- the practices have to have clear descriptions and examples on how to use them
- there must be different kinds of practices, so the teacher can address multiple skill development levels (simple, complex tasks on basic, intermediate, advance levels, we selected both simple and complex methods, so the teachers can apply tasks suitable for the group)
- the practices should be available to use in different subjects

We pre-selected 10 good practices for each competence and then, asked the Steering Committee at the Bratislava meeting to finalize the selection. We also developed a more detailed description format to be more clear in the descriptions so anyone can apply them without further knowledge of the project.

The next table shows the selected and finalized best practices:

LELLE 2 Best practice table

	Critical Thinking	Problem Solving	Managing own Learning Processes
1	The Mosaic Method C, A	Pbl / Problem Based Learning C, A	Career Guidance C, A
2	Guided Reading S, B	Making decisions & flexibility (Entrepreneurship Skills) C, A	Contracting C, I
3	Cinquain S, A	Analysis of problems through songs C, I	Emotional Log S, I
4	Time Axis	Micro- inquiry	Personalized Learning

	S, I	C, B	C, A
5	Analysis Of Advertisements C, I	Board games C, A	Peer mediation S, I
6	T-Table S, B	Comparison Of Models C, A	Personal Swot Analysis S, I
7	Analysis Of Famous Speeches S, I	Is Your Guess As Good As Mine? C, I	Scheme Of Thinking S, I
8	The Debate C, A	Written brainstorm S, B	Free Choice Of Tasks Related To Gardner's Multiple Intelligences C, A
9	E-U-R Method S, I	RED/GREEN lights S, I	Difficulty Leveled Assessment Exercises S, B
10	Complex-Evaluation C, A	Learning from mistakes S, A	Drama In Education C, I

Legend: Task difficulty: Simple (S) – Complex (C), Skill development level: Basic (B) – Intermediate (I) – Advanced (A)

4. LELLE 2 Glossary

In the Glossary, we define the concepts and expressions used by the LELLE 2 team and intellectual outputs to have a common understanding. All partners should consult this document and use only the defined terms (according to their definitions below) in all their LELLE 2 activities, outputs and publications. The glossary mostly builds on the glossary of the first LELLE Project.

TERM / EXPRESSION	EXPLANATORY NOTES
Activity (pl.: activities)	Definition: „Activities = Performance of Knowledge + Skills + Competences (+ individual ability).” Source: Stracke, C. M. (2012)
Best practice	Definition: Activities that we collect in the research to help developing competences in the classroom and match the criteria of being useful and applicable in secondary education and has practical information on how it works.
Competence (pl.: competences)	Definition: "Competence is the ability (that cannot be observed directly but only by activities) to adequately and successfully combine and perform necessary activities in any contexts to achieve specific tasks or objectives." Source: Stracke, C. M. (2012)
Competence relation	Definition: "Competence = Knowledge + Skills (+ individual ability)." Source: Stracke, C. M. (2012)
Competency (Pl.: competencies)	NOT to be used (decision at kick-off meeting, see OUNL slides) Use "competence" (instead of "competency")
Complex method	A method is considered complex if te task has multiple goals or it requires more than one 45 minutes class or it needs a lot of preparation from the teacher.

<p>Critical thinking (CT)</p>	<p>To reflect and handle tasks autonomously; to make sound decisions and reasonable judgements; to identify connections and recognise opportunities. critically evaluate ideas</p>
<p>Curriculum / Syllabus</p>	<p>A curriculum or a syllabus is a plan of a longer learning process, typically an academic year in high schools or a semester in universities, but it can cover the whole learning process of the educational contract (high school or diploma). It consists of learning goals, methodology and didactics and it has lesson plans as annexes.</p>
<p>Learning to learn</p>	<p>Definition: "Learning to learn' is [a key competence and] the ability to pursue and persist in learning, to organise one's own learning, including through effective management of time and information, both individually and in groups." Source: EU (2008) Notes (cited from EU 2008): "This competence ['learning to learn'] includes awareness of one's learning process and needs, identifying available opportunities, and the ability to overcome obstacles in order to</p>
<p>Lesson plan</p>	<p>Lesson plan is a structured document that is the guide of a learning activity. It covers the 45 minutes (academic) class with every aspect of the process (method, learning outcome, equipment, timetable, sources, didactic description, preferred outcome, homework, etc.)</p>
<p>Levels of competence (Basic, Intermediate and Advanced)</p>	<p>The methods and techniques listed are divided into 3 groups: Basic, Intermediate and Advanced levels based on the previous experience of the students. Basic level is the introductory level of a competence, it can be used with no previous knowledge or experience of the students. Intermediate level methods are designed to follow basic exercises to the groups that have some experience with the topic and have a basic understanding and command of a competence.</p>



	Advanced level methods are following intermediate exercises and are for groups and students who are experienced in the topic and want to be professional and high level of command of the competence.
Managing own learning process (MOLP)	Strategy, training, time management. The ability to access, gain, process and assimilate new knowledge and skills, organise their own learning, evaluate their own work. integrating information into the learning process in appropriate ways, adjusting way of learning to own goals.
Mentor	Definition: "Mentors are LELLE 2 partners including 'trainers' for the other mentors" Source: Decision at kick-off meeting Note: We will not use "trainer" but "mentor"
Problem Solving (PS)	To understand the process of successful problem-solving; to be able to solve problems independently and collaboratively. a mixture of analytical and creative thinking. Assertive, open communication.
Profiling criteria	Definition: "Profiling criteria (called "filter" in the proposal) will be defined only for students (pre & post-tests) and the profiling will address only individual level" Source: Decision at kick-off meeting
Simple method	A method is considered simple if the task has one goal and can be completed within a 45 minutes class and it does not require much preparation from the teacher.

Student	<p>Definition: "Students from schools of secondary education" Source: Decision at kick-off meeting Note: We will focus their employability (as main target group)</p>
Teacher	<p>Definition: Teachers are any professors/lecturers/educators (of subjects) at secondary educational institutes (schools / grammar schools / vocational schools) Source: Decision at kick-off meeting</p>
Teachers' Material	<p>Definition: "The 'Teachers' Material (O2) is a general manual (training material) for teachers (including material for students)" Source: Decision at kick-off meeting</p>
Trainer	<p>NOT to be used (decision at kick-off meeting) Use "mentor" (instead of "trainer")</p>

References used in the Glossary:

- European Parliament & Council (2006). Key Competences. Recommendation of the European Parliament and of the Council of 18 December 2006 on key competences for lifelong learning (2006/962/EC). European Union: Brussels. [retrieved online from: <http://eurlex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2006:394:0010:0018:en:PDF>]
- Stracke, C. M. (2012). Competences and skills for learning-outcome orientation: competence development, modelling, and standards for human resources development, education and training. 华东师范大学学报 (自然科学版) Journal of East China Normal University. Vol. 2012 (2). Shanghai: ECNU. pp. 115-130. [CLC number: Q948; DOI: 10.3969/J. ISSN 1000-5641. 2012.02.012] [retrieved online from: <http://www.opening-up.education>]
- LELLE project Glossary and Research Report 2015-1-HU01-KA203-013619

5. Connecting other Outputs

Research results have to be useful to give input to the other work packages and especially to the Gateway.

O2: Teacher Training Material

- i) at least ten learning skills improvement methods and techniques will be developed for each of the three pillars,
- ii) two teachers from each partner secondary school will be selected to be a Mentor and to receive teacher training at a Transnational Project Meeting,
- iii) six other teachers in each partner secondary school will receive teacher training by a Mentor, and
- iv) at least five subjects will be included into learning skills development in a partner school.

O3: Learning skills assessment of secondary school students, project objectives will be reached and project results will be considered of high quality if

- i) 100 students from each participant schools will take part in the student assessment tests at the beginning and at the end of school year, and
- ii) at least 25% improvement will be realized in the answers given to assessment questions in each domain of Critical Thinking, Problem Solving, and Managing own Learning Processes.

O4: Pedagogical materials for learning skills development, teachers will use sample learning skills development methods and techniques provided by training material (O2). They will also develop new methods by doing independent research and using the miscellaneous resources provided in the training material. Teachers will revise and finalize their own pedagogical materials after the school year ends and will prepare them for project submission. Project objectives will be reached and project results will be considered of high quality if each participant teacher will submit at least 10 learning skills development methods to the projects.



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O5: European Learning Skills Development Gateway will be developed. Project objectives will be reached and project results will be considered of high quality if the Gateway will be tested and launched with its full functionality by the International conference in Hungary October 2020.

Appendix 1: LELLE 2 Research summary

Goal:

To find successful strategies, good practices and ideas to develop the three skills in secondary level education. To examine the differences (and similarities) in theory, methodology and demands of secondary and tertiary education in order to find synergy (also WOW).

The research questions to be addressed are:

- 1) How important is the learning competence / critical thinking / problem solving / managing of own learning process in relevant organisations?
- 2) What are the areas/fields where the learning competence / critical thinking / problem solving / managing of own learning process is particularly needed?
- 3) What are the determinants of the obtained learning competence / critical thinking / problem solving / managing of own learning process (how the learning competence or any of the mentioned skills are manifested)?
- 4) What are the ways of verifying the obtained learning competence / critical thinking / problem solving / managing of own learning process?

The process:

1. Desk research on competence measurement projects and previous EU results, incl. LELLE
2. Empirical research on best practices in high schools and other secondary education institutes, also input from the world of work
 - a. focus groups (at least one per Partner, with at least 5 participants, preferably from different institutes)
 - b. Research to be carried out UNTIL 7th of December.
3. Research report compiled to fit into O2 and O3 tasks (end of January 2019)
4. QA and SC feedbacks

Appendix 2: LELLE 2 Research guidelines

Focus group interview plan

Before every group interview, please **fill out the attendance sheet** and **inform the participants about the goals of the research**, that is:

INTRO:

„This focus group interview is about how you can and should develop certain skills in secondary education. We try to find good practices in order to enhance three skills:

- *Critical thinking*
- *Problem solving*
- *Managing one's own learning path*

We kindly ask you to think about how important these skills are to you, your institute (company), how do you know if somebody is equipped with these skills and how do you help students/coworkers to develop those skills.”

Stage	Questions	Attn!
1. Warmup	Please shortly introduce yourselves. Where are you coming from (school, business)? What are you teaching? Companies: are you doing any targeted skill development?	let everybody answer! please introduce yourselves too! 2-3 minutes per person, 15 minutes total
2. CT	What is Critical thinking? How would you define it as a competence? Why is it important in secondary school / at your business?	you dont have to wait for everybody to answer, if you have a good definition, you can summarize it and go on to next question. 5-10 minutes
	What methods do you use to measure this competence? How do you know if a person is good at this?	please require concrete answers that contain some objective measurement 10 minutes

	What strategies/methods/techniques do you personally use in teaching/development to enhance this competence?	at least 3 good practice should come from the group write down details for each item! 20 minutes
3. PS	What is Problem solving? Why is it important in secondary school / at your business?	you dont have to wait for everybody to answer, if you have a good definition, you can summarize it and go on to next question. 5-10 minutes
	What methods do you use to measure this competence? How do you know if a person is good at this?	please require concrete answers that contain some objective measurement 10 minutes
	What strategies/methods/techniques do you personally use in teaching/development to enhance this competence?	at least 3 good practice should come from the group write down details for each item! 20 minutes
4. MOLP	What do you think Managing one's own learning path mean? Why is it important in secondary school / at your business?	you dont have to wait for everybody to answer, if you have a good definition, you can summarize it and go on to next question. 5-10 minutes
	What methods do you use to measure this competence? How do you know if a person is good at this?	please require concrete answers that contain some objective measurement 10 minutes



	What strategies/methods/techniques do you personally use in teaching/development to enhance this competence?	at least 3 good practice should come from the group write down details for each item! 20 minutes
5. Closing	Summarize the outcomes, let the minutes taker (notary) have some feedback questions if needed! Make sure that you thank the participants for their inputs! Close the interview.	Please thank every participant for taking part in the research, and ask to fill out the attendance sheet. Also please let them know about future project plans (regional roundtables, conference) and ask them to like the Facebook page. 15 minutes
Total:		about 150 minutes

Research template

After completing the interview, please gather the data in the following way:

Interview date:

Organization: (P1, P2, etc)

Interviewers:

Number of participants:

Part 1. Definitions

How did the group define the competence?

∠ CT

∠ PS

∠ MOLP

Part 2. Measurement

What measurement strategies/tools they use?

∠ CT

∠ PS

∠ MOLP

Part 3. Good practices (as many as you could find)

No.: 1

Skill: **CT** / PS / MOLP

Name of method / tool / technique / practice:

Description: (as detailed as possible)



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Were there any best experiences / risks explained using this method? If so, what:

Part 4. QA feedback

Please write some insights on how the interview went. Do you consider it succesful? Why?

Appendix 3: LELLE 2 GOOD Practices 1. Critical Thinking

No.: #1

Skill: **CT** / PS / MOLP

Name of method / tool / technique / practice:

The mosaic method, guided reading, discussion, asking questions, cinquain

Description: (as detailed as possible)

see Lesson Plan No. 1.

Learning through assembly - the mosaics method:

A type of co-operative teaching which include direct exchange of acquired pieces of information. Create groups (I, II, III). Re-group students according to certain criteria (a, b, c, d). All expert group (a, b, c, d) must study one part of a new material, understand it and find out how they can hand it over. Afterwards, all students return to their original groups and teach the other members their part of the material, creating thus the whole new part of the curriculum they need to study.

Cinquain – aka 5-verse poem:

Line 1: one-word name of the topic (a noun)

Line 2: two-word description of the topic (2 adjectives)

Line 3: three-word description of the storyline (3 verbs)

Line 4: four-word expression how you feel about the topic

Line 5: one-word synonym expressing the core

Guided reading:

The teacher divides the text to read into passages. Prior to reading each passage, he asks a question which is supposed to motivate students for further work. After reading one passage, a debate follows about their feelings in connection with the given part. Before reading the next passage, the teacher can ask them to anticipate how the story will develop further.

Were there any best experiences / risks explained using this method? If so, what:

The asset of this method is supporting creativity and experience-based learning on lessons of Slovak literature, as it is easy to motivate students for active participation. While working with the cinquain they express their attitudes, thoughts and emotions. It is a perfect method for locating and collecting important pieces of information in and out of a literary text, and thus for completing an outline, which later serves as a basis for text reproduction. Clearly, while working, students' concentration and attention are being motivated.

We would not recommend this single method for processing longer literary texts. Without it being combined with further methods it may allow little space for expressing emotions and thoughts, for describing and reflecting on a given topic.

No.: #2

Skill: **CT** / PS / MOLP

Name of method / tool / technique / practice:

guided reading, discussion, asking questions

Description: (as detailed as possible)

see Lesson Plan No. 2.

Were there any best experiences / risks explained using this method? If so, what:

This method is suitable to develop critical thinking, as students have to select important facts, relations and traits, and, based on them, they have to draw conclusions. It also develops common thinking and reaching a joint stand (forming opinion for the whole group).

What possible dangers are inherent in this method? – it will not work if students are passive and refuse to co-operate. If there is a large amount of differing opinions, we can easily run out of time. (e.g. when speculating over the title).

It also will not work if the group cannot reach a joint stand, or one is hard and lengthy to reach or if they fail to present their opinion.

No.: #3

Skill: **CT** / PS / MOLP

Name of method / tool / technique / practice:

E-learning – ‘Virtual Study Room’

Description: (as detailed as possible)

For our students of 9th and 12th grades we have organised a ‘Virtual Study Room’ where students can practice Mathematics and English. The exercises are uploaded on weekly basis. They are grouped and clearly labelled by difficulty – in different files there are exercises for developing the skills of students weaker in Mathematics and for developing the skills of students who learn Mathematics in a higher number of lessons to pass their higher level (A level) final exams. English exercises are labelled by A1-A2, B1 and B2 levels.

Students are motivated to use this database and solve the exercises. They are motivated both externally and internally. – They get a good mark if they do the extra exercise (external motivation). They can ask their teachers if their solutions are right or not. In case they are not right, they are supported to find the solution – Teachers ask questions which lead them to the proper solution. Students are not given the proper answer directly (developing CT). Students feel satisfied when they can solve a problem and it motivates them internally to do more exercises. Moreover, they feel that their Mathematics and language knowledge is developed and it internally motivates them to do further exercises.

These exercises always scaffold the material of the week (as they are uploaded on weekly base) and they are closely related to the topic of the week both in Mathematics and in English. We use the uploaded exercises as a ‘back-up’ knowledge – in case students did the exercise they can solve an exercise more easily during the lesson.

To tell an example from the English tasks, students get the task to find 5-5 arguments for and against that ‘School uniforms are a must.’ (B1, B2 levels) To be able to solve this task students have to use their background knowledge of school, they have to think over the cultural differences between the target language culture and ours (CT development – identifying connections). They have to be able to form and use phrases or sentences in the target language to be able to write a draft. Students have their own ideas about the given topic and they usually ‘stand’ on one side, so

it is easy to list some arguments on their side. However, their task is to find the counter arguments as well. So they have to think over the opposite point of view. It also develops their CT skills as they have to critically evaluate their ideas.

Seemingly it is easy to find for and against arguments, however practice shows that at the beginning of the academic year it is not so easy for students of 9th grade to do this task. For the first time the majority of the students come that they could find just one or two counter arguments and we discuss the further possible arguments together – we let them work in pairs or small groups to find more arguments during the lesson. It always occurs that together they find the missing two or three arguments easily. It also scaffolds their social skills and problem solving skills as they have to solve the problem collaboratively.

Surprisingly there is a considerably wide number of students who do not like working together at the beginning, they cannot work collaboratively and they have to learn how to work together effectively as they are not used to it at primary schools.

In the long run we can state that ‘Practice makes perfect’ – after doing similar tasks three or four times students are able to find the necessary five arguments both for and against without any problems.

Were there any best experiences / risks explained using this method? If so, what:

At the beginning weaker students are just externally motivated to do the tasks both in Mathematics and in English. It takes time for them to realize the more they practice the better they become.

Teachers have to find time to develop tasks scaffolding not just their subject but the three soft-skills. We have to consider the level of our students.

No.: #4

Skill: **CT** / PS / MOLP

Name of method / tool / technique / practice:

Project work

Description: (as detailed as possible)

Project work deepens students' knowledge and we can turn theoretical knowledge 'into life'. Project work develops not just CT Skills but students' Problem Solving Skills and develops their own learning process management. It is the quintessence of skills development.

Our foreign language teachers usually give the students project tasks to summarize a certain material or deepen students' knowledge.

To tell an example, in groups of three or four students have to prepare different kinds of pancakes and share the recipe with each other in English or German. They have to create a short video demonstrating all the steps of the preparation in the target language. This task, besides summarizing their knowledge of the topic and their language knowledge, helps students to develop their three soft-skills (CT, PS and MOLP).

Highlighting CT skill development: students have to reflect and handle the task autonomously. They have to decide how to make the video – where to meet, who holds the camera, who prepares the pancakes, who tells the recipe, etc. (It includes CT and PS as well). They have to make sound decisions – they have to consider who is good at making videos, speaking, who has already cooked anything to be able to do their task successfully. As the different groups have to make different kinds of pancakes, e.g. American, British, Hungarian, German, etc., the groups have to agree who prepares which pancakes. They have to compare and contrast the recipes, consider the ingredients needed, the process they obtain the ingredients, the methods, etc. (It again includes both CT and PS skills.)

After clearing the roles and writing-altering the recipes together (usually during the lesson) students usually do not bother with the language barrier or the vocabulary, they focus on the task – to prepare the pancakes. They enjoy every moment of the process and laugh a lot.

They are not conscious about the fact that they have to use the target language instead of their mother tongue, they just use it naturally – after some rehearsals – and theoretical knowledge comes alive.

Students obtain a life-long memory of the pancake preparation and obtain common memories. Reading about cuisine or any food topic they recall their experience how they prepared pancakes.

Were there any best experiences / risks explained using this method? If so, what:

Students tend to postpone the task fulfilment finding several excuses at the beginning. Later they willingly do project tasks.

12th grade students do not like project work, they want to focus on drilling as many Matura Exam exercises as possible to pass the final exams successfully.
There is little time to do project work during any lessons.

No.: #5

Skill: **CT** / PS / MOLP

Name of method / tool / technique / practice:

Assessment tasks

Description: (as detailed as possible)

Teacher of Arts and Design prepares assessment tasks this way: Instead of asking students to describe the Egyptian art in 250 words, he shows them a photo of the pyramids and ask scaffolding questions, e.g.:

Are these buildings bigger or smaller than your house? What does the size of a building like this tell you about the society?

Does the shape have symbolic meaning?

If you look at the picture can you tell some words about the society? Could members of a little village build such a huge building? Did they have to be organized? Did they have to possess highly developed equipment?

Did they believe in life after death?, etc.

This way students have to reflect the task autonomously, they have to identify connections and critically evaluate their own ideas about the Egyptian society. The way assessment tasks are developed improves and scaffolds students' critical thinking skills on a higher level.

Were there any best experiences / risks explained using this method? If so, what:

No risk, students have got used to the method, they like creative questions. The results of the tests are better. Even weaker students can get better marks.

No.: #6

Skill: **CT** / PS / MOLP

Name of method / tool / technique / practice:

Technical Proposals

Description: (as detailed as possible)

Employees (both office workers and factory hands) regularly have the chance to offer acceptable and reasonable changes in their fields to improve their field of work. They have to describe their technical proposal in details and they have to plan the process of improvement as well (it effectively develops CT and PS skills). Employees always get feedback.

Were there any best experiences / risks explained using this method? If so, what:

Employees appreciate feedbacks, pay raise and chance of promotion. The above practice improves the quality of the produced cars and makes business prospering.

No.: #7

Skill: **CT** / PS / MOLP

Name of method / tool / technique / practice:

Project method

Description: (as detailed as possible)

The projects are complex tasks that are focused on a practical nature problem, a method that builds on students' interest and the activities of teachers and students.

John Dewey, American philosopher and teacher was the creator of the project method in the last years of the 19th century, his follower, Kilpatrick described the theoretical basis of the method and the methods of practical application.

In applying this method, four types of projects can be developed:

1. a practical task, such as the design and implementation of a useful object,
2. Experiencing an aesthetic experience (writing an article, keeping a drama lecture),

3. Solving a problem,
4. Acquire some activity and knowledge.

Steps for applying a project method:

1. goals, topic selection
2. planning
3. data collection
4. processing the subject, product compilation
5. evaluation of the project
6. presentation of the product

The main value of the project method is the workflow: the thinking process, the mental and emotional impact of experiences that are gained in the realization of practical activities.

Were there any best experiences / risks explained using this method? If so, what:

The project method enables a high degree of student autonomy, it provides a way to integrate knowledge, to get to know the outside world, to build relationships. The students discover as many connections as possible to one problem as well.

Its implementation is also in difficulty: it assumes a new kind of teacher-student relationship, it is difficult to match on the usual organizational forms and frames, requires the modification of curricula.

No. #8

Skill: **CT** / PS / MOLP

Name of method / tool / technique / practice:

The debate

Description: (as detailed as possible)

The debate is a dialogic oral communication method, which, besides acquiring knowledge, is designed to develop thinking and communication skills. In the debate students have a relatively high level of autonomy, the teacher guides the course of the debate from the background.

The method of debate can be applied at all ages and in all subjects, but depending on the age, the complexity of the subject to be discussed and the duration of the discussion (from 10 to 15 minutes to one and a half hours) show a significant difference.

We must mention the conditions for effective discussion of the dispute:

1. preparing students to participate in the debate,
2. the proper preparation of the debate,
3. the proper conduct of the debate.

The stages of the debate are:

- the communication of the goals, the discussion of the rules of the dispute, the duration of the dispute,
- exposing, focusing,
- the dissemination of debate, the closure of the debate and
- summarizing the results of the discussion.

It raises the intellectual level of the debate if the students are prepared for the argument in advance.

Were there any best experiences / risks explained using this method? If so, what:

Teacher and student routines often involve the consequence that the debate is transformed into a discussion and then a presentation. To avoid this, the teacher needs to retreat. Through the debate, you can achieve lasting subject knowledge, problem-solving skills, developing communication skills, forming attitudes, developing interpersonal relationships and community development.

No.: #9

Skill: **CT** / PS / MOLP

Name of method / tool / technique / practice:

EVALUATION MODEL

Description: (as detailed as possible)

*for evaluation clear criteria or evaluation model is provided

*10-point system: the value of points depends on the level of performance; at the end of lesson takes place self-evaluation and evaluation by the teacher, which is followed by comparison of grades and analysis, also evaluation of one's evaluation result

*within the lesson both the evaluation of one's performance and the evaluation of co-students take place; in comparison with other evaluations the evaluation to one's self-evaluation is given

Were there any best experiences / risks explained using this method? If so, what:

-

No.: #10

Skill: **CT** / PS / MOLP

Name of method / tool / technique / practice:

CONTEXT

Description: (as detailed as possible)

*setting activities into context, development of perception of connections, linking the topic learned in the lesson with the context; e.g. linking the topic studied with the events taking place at the same time

*linking events to the wider picture, creation of the context, providing parallels; e.g. comparison of customs of celebrating holidays in different countries

Were there any best experiences / risks explained using this method? If so, what:

-

No.: #11

Skill: **CT** / PS / MOLP

Name of method / tool / technique / practice:

TIME AXIS

Description: (as detailed as possible)

*ranking the events, using logics in ranking; e.g. whether the event x could take place before the event y, whether such sequence is realistic

Were there any best experiences / risks explained using this method? If so, what:

-

No.: #12

Skill: **CT** / PS / MOLP

Name of method / tool / technique / practice:

ARGUMENTS

Description: (as detailed as possible)

*evaluation of other students and justification of the given evaluation, grades should be provided with verbal explanation

Were there any best experiences / risks explained using this method? If so, what:

-

No.: #13

Skill: **CT** / PS / MOLP

Name of method / tool / technique / practice:

COMPLEX-EVALUATION

Description: (as detailed as possible)

*planning one's learning process and taking responsibility, understanding the evaluation process: the set of tasks and time by which the set must be completely performed are specified, different number of points is given to part-tasks

Were there any best experiences / risks explained using this method? If so, what:

-

No.: #14

Skill: **CT** / PS / MOLP

Name of method / tool / technique / practice:

FULL PICTURE

Description: (as detailed as possible)

*formation of comprehension of the integration, that the integration is made up of parts, teaching the ability to notice relations and associations; e.g. deriving formulas and showing relations between them

*acquiring the integration by part checks: many checks of part-skills are carried out during progress; in case of conclusive test the result is compared to part checks and it is analysed, why a difference occurred or why adding up the results of part checks do not give the aggregate result / integration

Were there any best experiences / risks explained using this method? If so, what:

-

No.: #15

Skill: **CT** / PS / MOLP

Name of method / tool / technique / practice:

MODELS

Description: (as detailed as possible)

*providing example solutions, basing on models and learning via models, analysing different models and finding one's own solution

Were there any best experiences / risks explained using this method? If so, what:

-

No.: #16

Skill: **CT** / PS / MOLP

Name of method / tool / technique / practice:

E-U-R method. Brainstorming. Role games. Discussion /debate. Role-playing games. Discussion/debate.

Description: (as detailed as possible)

Competence: Critical thinking

Name of activity: What to do with waste?

Description of activity: The activity is focused on finding ways to protect nature on the basis of concrete proposals. In the activities pupils will become aware of the threats posed by waste in nature which causes environmental pollution. On the basis of various information concerning impacts of environmental pollution on health of people and animals, pupils become aware of the need to protect nature. They search for various forms and ways how it is possible to protect environment.

Methods: E-U-R method. Brainstorming. Role games. Discussion /debate.

Goals of method:

The goal of the method is for pupils to learn to think, collect information about the topic, to examine, discuss and give arguments.

The aim of the first phase (evocation) is to motivate pupils, to activate them and to collect information from their experience so far.

The aim of the second phase (awareness) is for pupils to acquire and process new information on the given topic.

The aim of the third phase (reflection) is for pupils to achieve awareness and reflection of what they learned, sorting of information, systematizing and strengthening new knowledge.

The aim of the fourth phase is for pupils to present results of their work, discuss about the given issue, argue and search for optimum solution.

Allocated time: 2 teaching lessons (1 teaching lesson/45 minutes)

Teaching aids: posters/papers, markers

Subject: Cross-curricular theme – environmental education forming part of biology, or ethical education, foreign language.

Procedure/Description of method usage during lesson /implementation of method:

First lesson

First phase (evocation)

1. Teacher introduces pupils into the theme with help of questions. The aim is to obtain information which pupils already know. Framework questions:

- What kind of waste is generated in your household and what do you do with it?
- Do you know what happens with the waste which you throw into waste bin?
- What do you think, what does the bottom of sea look like, what can be found in the sea?
- What kinds of threats exist in the sea or nature due to high waste amount?

2. Teacher divides pupils into 4 groups (4 - 5 pupils per group) and each group gets a big paper/poster and questions.

3. The task for the pupils is to exchange their experience and write on the poster everything they already know about the given issue (question which they got). Pupils discuss within the group and one pupil writes information to questions on the poster.

4. Groups exchange posters, they read what first group has written and provide additional information (their knowledge). In this way posters are distributed around (into every group). Each group adds to the poster of another group its own information.

5. In conclusion each group will get back its original posters. Pupils view information/notes which were written by their classmates from other groups. Pupils discuss new information on the poster.

6. In conclusion posters will be hung up in the classroom. Posters will be supplemented by new knowledge after awareness phase, or in the end.

7. Teacher writes a cycle on the board:

Plastic/plastic cover → Waste in nature → Organisms (animals) →(to be written by pupils) → Waste

Teacher asks pupils to supplement missing element which is missing in the circle.

(missing element is man who produces waste)

8. Teacher asks a question:

Imagine that there is a chip on the cover and you could follow its further destiny. Try to describe its journey.

Pupils express their opinions in plenary.

Teacher stresses what impact waste has on nature (animals,...). Together they make a summary of various risks which come up with waste on the board. Teacher also reminds pupils that it is necessary to help nature and protect it.

Second phase (awareness)

9. Teacher divides pupils into 4 groups (1st group: customer – 2nd group: manufacturer/scientist – 3rd group: lawyer (law) – 4th group: seller of goods /covers). Pupils draw cards (Annex 1). Each pupil draws one card and finds its group. Teacher stresses that each group will work in its position according to its group that they will now be manufacturers, lawyers, customers and sellers. Teacher explains pupils that their task in the group is to collect various information concerning waste, waste sorting, measures from the view of their task. Pupils search for information articles on Internet, or teacher prepares texts for them which they will process. For instance lawyers study Act on waste and 8 decrees, new changes occurred on 1st January 2018 or manufacturer/scientist: Waste as a precious source. Or customers: Do you know what will happen with waste after you throw it into waste bin?

Teacher reminds pupils that they will need information to prepare 3 proposals from their position which would help to improve environment.

Second lesson

Methods: Role-playing games. Discussion/debate.

Third phase (reflection)

1. Pupils divide tasks within the group of who will study what. After processing of their texts pupils exchange information within their group which they consider important.

2. Within the groups pupils process information together and prepare 3 proposals for possible measures/solutions. Where with waste, each group from its position. How would customer, manufacturer, lawyer and salesman resolve the situation.

3. An expert group is subsequently formed which will consist of one member from each group, jury which will also consist of one member of each group. The jury will also include a teacher. The pupils will also determine one or two moderators.

4. Each group will determine its representative/experts and jury member. Experts from individual groups will present proposals how to protect nature and defend an opinion and attitude of its team on “television“, e.g. in the program discussion forum, or round table. Other pupils will be viewers and can react, assess individual proposals, give their arguments, or counter-arguments.
5. The jury assesses each proposal and finally chooses best solutions. The jury must also justify why they chose that proposal and what improvement they expect in terms of its implementation.
6. In conclusion teacher summarizes once again along with pupils the results and asks them what they think, what measures they could start to implement by themselves right away. Pupils express their opinions in plenary.
7. In conclusion of the group they update their posters which hang in their classroom by new information they learned during respective activities.

Annex No. 1: Cards for dividing into groups

Were there any best experiences / risks explained using this method? If so, what:

Reflection (in relation to pupil): In conclusion teacher finds out with help of questions if there have been any shifts when it comes to opinions concerning given issue.

What surprised you most when you were reading the articles? How did your opinion change when it comes to environmental threats due to waste? How can you contribute to environmental protection?

Conclusions/recommendation/risks in relation to the use of the method (for teacher):

Were all pupils willing to participate in group work? Could the groups reach an agreement? Were pupils able to discuss among themselves even without teacher’s help? How could the moderator moderate the panel? Were pupils able to listen to the opinion of others and comment them? Were the questions well thought and rightly formulated?

No.: #17

Skill: **CT** / PS / MOLP

Name of method / tool / technique / practice:

T-table

Description: (as detailed as possible)

The T-table is an easy method to compare pro-contra arguments or different features. The students are asked to list all pros and cons of a desired/hated subject/concept in a table. These arguments can be organized into groups or offsets, or can be ranked by a dimension

Were there any best experiences / risks explained using this method? If so, what:

-

No.: #18

Skill: **CT** / PS / MOLP

Name of method / tool / technique / practice:

Analysis of famous speeches

Description: (as detailed as possible)

The students watch a video of a famous speech (eg. Martin Luther King's, or JFK's speech) and get the transcript of it. Then they have to select key sentences and analyse the context and meanings of the speech. They can also surf the web to find evidence for the effect of the speech. They also can analyse the possibilities of the influence of the speech on their life / what would happen if somebody gave the speech today?

Were there any best experiences / risks explained using this method? If so, what:

-

No.: #19

Skill: **CT** / PS / MOLP

Name of method / tool / technique / practice:

Analysis of advertisements

Description: (as detailed as possible)

The main objective of this task is to find scientific evidence on errors / lies / reasoning glitches in advertisements. The method is to watch the ad (or read or present) several times and give aspects for the students to analyse.

For eg. a toothpaste commercial:

- what do we know about the ingredients of a toothpaste?
 - what is the benefit of using one?
 - what should a toothpaste look like and how does it work?
 - what are the main statements of the ad?
 - how is the ad designed? what are the messages behind the elements of the ad?
 - what do you think about the ad?
- etc.

Were there any best experiences / risks explained using this method? If so, what:

-

Appendix 4: LELLE 2 GOOD Practices 2. Problem Solving

No.: #1

Skill: CT / **PS** / MOLP

Name of method / tool / technique / practice:

motivational talk, problem solving

Description: (as detailed as possible)

see Lesson Plan No. 3.

Others:

We must learn from our mistakes.

Gordon's method

Role-play

Written brainstorm

Were there any best experiences / risks explained using this method? If so, what:

What possibilities are inherent in the method?

- It provides great freedom
- Tolerance is developed
- Gives opportunity to present plans/ ideas which have existed previous to the lesson
- Taking responsibility for themselves as well as their classmates
- Constructiveness and the creative urge

What possible dangers are inherent in this method?

- It is hard to realize in a traditional school setting
- Arguments / debates may get out of control

No.: #2

Skill: CT / **PS** / MOLP

Name of method / tool / technique / practice:

experiment, group formation with cut up pictures, completing a poster, carrousel, set sentence beginnings

Description: (as detailed as possible)

see Lesson Plan No. 4

Were there any best experiences / risks explained using this method? If so, what:

The best experiences of using this lesson plan were the followings: all students were active during the lesson; the teacher does not have to give a lecture, but the students teach each other; the students work with the text by their own. The main risks of using the method are the followings: the preparation of the lesson is time demanding; the teacher has to prepare the motivational experiments very carefully; if there are some students in the class, who are not able to work independently, may cause a problem during the presentation of the posters; the lesson plan is not suitable for classes with more than 20 students.

No.: #3

Skill: CT / **PS** / MOLP

Name of method / tool / technique / practice:

PBL/Problem Based Learning

Description: (as detailed as possible)

On of the schools (the alternative secondary vocational school) participated in an international project, aimed at the improvement of the education of natural sciences. The implementation of the project was based on the Problem Based Learning (PBL). The method has a detailed professional literature and a toolkit, developed and tested by the participating schools. These can be found in the following web pages:
<http://www.studygs.net/magyar/pbl.htm>

[https://citl.illinois.edu/citl-101/teaching-learning/resources/teaching-strategies/problem-based-learning-\(pbl\)](https://citl.illinois.edu/citl-101/teaching-learning/resources/teaching-strategies/problem-based-learning-(pbl))

<http://www.sails-project.eu/>

Were there any best experiences / risks explained using this method? If so, what:

No.: #4

Skill: CT / **PS** / MOLP

Name of method / tool / technique / practice:

A subject of the entrepreneurship skills

Description: (as detailed as possible)

Representatives of the traditional secondary grammar school think a good possibility to develop the problem solving competence in a special subject. In their school they teach this subject for a year at the 7th grade. Teaching problem solving skills is also very useful in teaching is entrepreneurship skills(vállalkozói ismeretek), which has been taught in this school for ten years. The basis of learning in this subject is a situation, in which a group of students have an enterprise. The group, which works together for an academic year have to define the profile and the mission of that enterprise. Based on these they create their strategic goals, and the steps and activities to attain these goals. By the end of the academic year all groups have to create their own business plan and they have to present it to the class. It is a really complex task. Students have to think over the life of the enterprise from different aspects. (marketing, operative management, financial management, etc.) While they work in groups, cooperation is one of the most important competences to solve their task, but all of those three competencies, which are in the focus of the LELLE2 project, are important. Problem solving could be the most important, while during the year they have several real (lifelike) problems to solve.

The strategic plans are evaluated by the teacher on the basis of concreteness and feasibility. The strategic plans are also for the subject of peer assessment: students give presentations about their planned projects, after the presentation their peer ask questions and can make critical remarks on it.

So called “Money week”, organized in each year is connected to this competence. All classes are involved in to the programmes of this week. So all students can work with this topic in the school.



Were there any best experiences / risks explained using this method? If so, what:

No.: #5

Skill: CT / **PS** / MOLP

Name of method / tool / technique / practice:

Is your guess as good as mine?

Description: (as detailed as possible)

A problem is given during a maths class. Students have to solve the problems in different ways, using different methods, they are encouraged to find different routes to solve the problem. Then they discuss which way was the most effective; for example in terms of simplicity, time.

Were there any best experiences / risks explained using this method? If so, what:

Risks weren't mentioned during the interview, only benefits were emphasised.

No.: #6

Skill: CT / **PS** /

Name of method / tool / technique / practice:

Real life situation in language classes

Description: (as detailed as possible)

Students learn how to ask direction in an unknown place. First they drill the suitable structure and vocabulary to be able to use the necessary language, and then do the activities given by textbooks. After finishing and completing those tasks, teachers create a real life situation. The classroom is refurnished and the different pieces of furniture are given a name such as hospital, post office, stations ... etc.) Some students are local pedestrians and others ask for direction to a certain place, and that way they can practice the necessary language in a real-life like situations. The point is that the teacher creates a real problem with which students may encounter in their life out of the classroom.

Were there any best experiences / risks explained using this method? If so, what:

No risks, students are motivated, because they realize that they can acquire a skill which may be applied in real life / out-of-school situations.

No.: #7

Skill: CT / PS / MOLP

Name of method / tool / technique / practice:

Organizing school events with minimum help of adult's supervision

Description: (as detailed as possible)

Our institute offers a wide variety of programmes to its students, such as organising a camp for freshmen students, organising a party for school leavers, student's day, school leaver's ball. In this situations, our students are expected to do the majority of the preparations such as organising the programme, inviting lecturers, order the necessary equipment, or furnish the venue. Through these activities student's problem solving skills are highly developed, because the teachers are only facilitators, and students have to make decisions on their own. They have to get in touch and communicate with people outside from school, for example when they order the ribbons, plan and order the invitation cards, paying attention to the budget, organise the supervising

No.: #8

Skill: CT / PS / MOLP

Name of method / tool / technique / practice:

Role –play, game

Description: (as detailed as possible)

Role play and game are educational methods in which students acquire concepts, events, and phenomena through experiential learning and engage in activities.

Role playing is when someone plays the roles or functions of another person.

The role play has great potential in school teaching. For example: different viewpoints of imaginary or realistic historical figures can be represented by students. Preparing for role play - which is a prerequisite for the realistic formation of personalities - is a motivated research activity for the students.

Game is a competition that, in keeping with certain predetermined rules, can win victory through skill, strength or luck. Games may require prefabricated tools, there may be verbal quiz games, and we can include crossword puzzles with paper and pencils as well.

Were there any best experiences / risks explained using this method? If so, what:

The role play motivates students, provides enjoyable, developing knowledge and empathy. The role play is time-consuming, so it's preferable to use it occasionally.

Games strong motivate the children, if they rarely use them to make "serious" learning colourful.

No. #9

Skill: CT / PS / MOLP

Name of method / tool / technique / practice:

Cooperative teaching methods

Description: (as detailed as possible)

The cooperative teaching method is based on the activities of students (4-6 persons) in small groups. The cooperative learning develop the thinking, cooperative and communication skills.

In group learning - students work in a four-member heterogeneous group after an introductory lesson by a teacher. They strive, that all members of the group prepare well to the individual report.

The method of mosaic education, developed by Aronson in the seventies, consists in the fact that members of the six-member groups are reading the part of the task. Then, members of the different groups who have studied the same part of the meeting will meet. After the discussion, they return to their own group where, according to the agreed version, everyone reads the entire material, and "experts" help others to study it more carefully.

The cooperative learning is based on group work but it is more than a traditional group work.

Were there any best experiences / risks explained using this method? If so, what:

The role of the teacher is also changing in the context of cooperative learning. Preparing for lessons is more labour-intensive, but it is a huge profit that the teacher can turn his / her attention on each student.

No.: #10

Skill: CT / **PS** / MOLP

Name of method / tool / technique / practice:

COMPARISON OF MODELS

Description: (as detailed as possible)

*providing sample solutions, relying on models and learning through models, analysis of different models and creation of new models

*comparison of different solutions e.g. teacher gives a sample solution and students analyse if there are other solutions as well and evaluate which is optimal or the most suitable for them, taking into account also the difference in level

Were there any best experiences / risks explained using this method? If so, what:

-

No.: #11

Skill: CT / **PS** / MOLP

Name of method / tool / technique / practice:

CHOICES OF SOLUTIONS

Description: (as detailed as possible)

*problem is given, but the tool or approach method should be found by students and by comparison the students will see that there are more optimal solutions
*tasks without specific instructions are given, where creation must be implemented
*for instance orientation: the task is given to reach certain destination using the map, the solution/moving way must be found by students, taking into account the differences of the situation and options; enhancing pictorial thinking

Were there any best experiences / risks explained using this method? If so, what:

-

No.: #12

Skill: CT / **PS** / MOLP

Name of method / tool / technique / practice:

GROUP-WORK

Description: (as detailed as possible)

*tasks basing on cooperation: the group divides the obligations on its own, giving thus the evaluation to each other's competences, the occurring obstacles are solved in the process, e.g. illness of one team
*learning from each other: in the group-work each other's ideas are used, not only the teacher's

*groups are formed with even level, so that no one will do the other's work

Were there any best experiences / risks explained using this method? If so, what:

-

No.: #13

Skill: CT / **PS** / MOLP

Name of method / tool / technique / practice:

LEARNING FROM MISTAKES

Description: (as detailed as possible)

*correction of mistakes, the teacher refers to a mistake, but the students must find the reason on his/her own and correct the mistake

*admitting the failure and learning from it and consistent seeking for new solutions

Were there any best experiences / risks explained using this method? If so, what:

-

No.: #14

Skill: CT / **PS** / MOLP

Name of method / tool / technique / practice:

OUT OF FRAMES

Description: (as detailed as possible)

*the task, which brings the students out of routine, is given and this makes students look for new solutions, not to remain in provided „tunnel“

*boredom is provoked on purpose, which makes students implement creativity

Were there any best experiences / risks explained using this method? If so, what:

-

No.: #15

Skill: CT / **PS** / MOLP

Name of method / tool / technique / practice:

Methodology Aflateen – social and financial education

Description: (as detailed as possible)

Competence: Problem resolution

Name of activity: Pocket money

Description of activity: The activity deals with solving problems in terms of financial literacy. It provides reasonable planning of expenditure to secondary school students on the basis of a simple example from practice.

Method: Methodology Aflateen – social and financial education

Goals of method:

1. Self-knowledge and development
2. Rights and responsibility
3. Savings
4. Planning and budget

With help of activities pupils should be able to assess what is important for them and what is less important, to become aware of values.

Allocated time: 1 teaching lesson (1 teaching lesson/45 minutes)

Teaching aids: table (Supplement 1), colored papers (red and green)

Subject: Cross-curricular topic (social and financial education) as part of natural sciences and humanity subjects

Procedure/Description of method usage during lesson/implementation of method:

First phase Self-knowledge and development

1. Teacher gives pupils tables (Annex 1), he/she makes an introduction into the topic and asks them a question: If you got 50 € pocket money for one month, how would you spend it? Income must be equal to expenditure.

Pupils have the task to make calculation. Their income is pocket money in the amount of €50. Pupils write down expenditure in a way that they do not exceed their income.

If pupils do not know what the price is they can find prices on Internet.

2. Teacher divides pupils into pairs and assigns them a task: Exchange your calculations (tables) and read what your partner would do with his/her pocket money.

Pupils should consider whether each point in the list is necessary. Subsequently, pupils divide them into two groups: necessary (N) – not very necessary (N). They have a discussion afterwards. Framework questions: Do you think that everything your partner has written is necessary for him/her? Label individual items as necessary (P) and not very necessary (N). Discuss it with him/her. Your partner must think and defend his/her choice, why he/she thinks that it is necessary for him/her. Or he/she let himself/herself convince that it is not so necessary for him/her.

3. Teacher hands out green and red cards to pupils. The role of pupils is to write necessary things on green cards (one thing for each card) and things which they do not consider necessary on red cards. Pupils write their names on the cards.

4. All green and red cards will be clipped on the magnetic board. The cards will be sorted into groups according to their type (e.g. all cards related to interests into one group), so cards with the same content into one group. In this way they can state what they consider to be their priority, what is important for them, what they like to buy and what is less important for them. This part of the activity can be also organized on an interactive board where pupils write directly and divide their expenditure into groups on the board.

5. In conclusion of this activity pupils and teacher together assess which items they consider to be necessary and which are considered less necessary and at the same time they would assess how discussion helped them in terms of changing of their opinion on importance and lower importance of their items in the list.

Second phase saving, planning and budget

6. Teacher tables a problem on cutting pocket money and asks pupils to think what they would leave out from their list. Framework question: Parents will cut your pocket money by 20 €. Think again what you would leave out from your list. Work independently and with your original table (calculation).

7. Pupils consider, review their list and adjust them according to the assignment.
8. Teacher asks pupils to take items from the magnetic board which they left out from their list due to cutting pocket money and to clip them on the side of magnetic board.
9. In conclusion of this activity pupils together with teacher will assess what they left out from their list and why.

Annex 1 Budget - pocket money

Were there any best experiences / risks explained using this method? If so, what:

Reflection (in relation to pupil):

In conclusion pupils together with teacher assess respective activities. Framework questions: How did discussion with partner help you in assessing importance and lower importance of item in the list? What convinced you of importance and lower importance of items? On what basis did you decide what you delete from your list?

Conclusions/recommendations in relation to method usage (for teacher):

Did the pupils agree on important and less important items among themselves even without teacher's help? Were the pupils able to listen to the opinion of others and accept them? Were their argumentations justified?

No.: #16

Skill: CT / **PS** / MOLP

Name of method / tool / technique / practice:

Lyrics analysis

Description: (as detailed as possible)

The students are asked to analyse their favourite song's lyrics in the context of different problems: are there any explicit problems in the verses? are there possible solutions? can they find a connection between everyday life and the text?

The teacher can select songs too for analysis. The lyrics can be visualized as well by the students.

Were there any best experiences / risks explained using this method? If so, what:



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No.: #17

Skill: CT / **PS** / MOLP

Name of method / tool / technique / practice:

Research mini-project

Description: (as detailed as possible)

The aim is to find a research topic that the students are interested in, and then plan a short and easy research framework.

For example, a group of 3-6 students would like to discover healthy dishes for fellow students with allergies. Therefore they launch a research project and interview the parents of classmates to collect recipes. At the end, the results of the project are presented in the form of a poster for eg.

Were there any best experiences / risks explained using this method? If so, what:

-

Appendix 5: LELLE 2 GOOD Practices 3. Managing own learning path

No.: #1

Skill: CT / PS / MOLP

Name of method / tool / technique / practice:

warm-up, updating the curriculum, explanation, heuristic discussion, fixation with the help of questions and answers as well as discussion, revision in practice

Description: (as detailed as possible)

see Lesson Plan No. 5.

Compare and contrast

A method observing two or more objects, ideas, phenomena, texts, etc. Suitable for pair work.

Description:

- 1 Complete a list of similarities
- 2 Complete a list differences
- 3 Illustrate the most interesting similarities and differences /e.g. Venn diagram/
- 4 Present own discoveries and evaluation.

Summary

An effective way of reflecting on curriculum, either for individual or pair work. The learner's task is to

- 1 identifying key words / write down or highlight/
- 2 understanding: explaining them in own words orally or in a written form
- 3 graphic visualization: process key word on a mind map
- 4 reflecting: process a 10-line summary using they key words

Were there any best experiences / risks explained using this method? If so, what:

The advantages of this type of lesson is in revising and fixing certain phenomena via thinking about the different grammar laws and realizing their use in everyday communication or in writing.
The disadvantages inherent in this type of lesson may be students' disability to express, defend and eventually present own ideas, and possibly also to apply the new knowledge in practice (connection with real life).

No.: #2

Skill: CT / PS / **MOLP**

Name of method / tool / technique / practice:

experiment, guided group formation, completing a poster, carrousel, set sentence beginnings

Description: (as detailed as possible)

see Lesson Plan No. 6.

Were there any best experiences / risks explained using this method? If so, what:

There were several good experiences during the lesson. Just some examples: the students were active and pro-active during the 90 minutes of the lesson. They were able to present the experiments independently without the help of the teacher. The teacher was in the role of a facilitator instead of being the source of information. Of course there are some risks about the lesson plan, too. For example the teacher has to take a big effort on planning the division of the groups: all of them have to be able to work independently. The experiments and all the materials have to be prepared.

No.: #3

Skill: CT / PS / **MOLP**

Name of method / tool / technique / practice:

Career guidance

Description: (as detailed as possible)

To find a good job and to choose a direction and higher education institution for further education is a real problem for all students. This is a strong motivator to improve self-understanding and the self-directed learning. A career-guidance group of teachers supports this activity of the students in the traditional secondary grammar school. The leader of this support group is a teacher with the specification on career guidance (diáktanácsadó szak). The group of these teachers creates several tasks for students of different ages from the sixth grade (that is the beginning grade of this school). Most of these tasks are solved in the “lessons of the form-masters” (osztályfőnöki óra). By the result of this programme students know the world of the work and by their age of 16 they have a vision about their career, and their intended job. The very popular workplace-visit programme, organized for the students of the 11th grade is an important element of the career guidance programme in this school. Students can decide about their jobs or/and workplace they are interested in and want to visit. They can make several choices, but they have to prioritize their ‘desire list’. On the basis of these lists, the school organises a daylong visit for each students. They meet with and talk to a representative of the chosen job This real life experience is good not only for the students, but for the workplaces as well. For supporting the students’ career guidance, the school has organized a job-orientation thematic week, this has been working for ten years.

Were there any best experiences / risks explained using this method? If so, what:

The school had a good connection with a dress-designer. She impressed the students so intensively, that several students learned in further education for dress-designer. The lady took these students for a summer job practice.

No.: #4

Skill: CT / PS / **MOLP**

Name of method / tool / technique / practice:

Personalized learning in a digital environment

Description: (as detailed as possible)

The alternative vocational grammar school intends to realize a real life learning in the school. To realize this intention they can use digitalization. Digital environment is familiar for students, they like it, and this positive attitude supports personalized learning. Each students has their own personal curriculum in this school. This digital learning space gives a new interpretation

and possibilities for task- and the time management. A new learning environment and culture has been forming. Students, parents and teachers as well has to learn this new phenomena. This method is totally new for the school, they has been trying that for 3 months. So they are at the very beginning of a new road, and they have lot of uncertainties and debates as well.

The technical background of the method is a laptop or a tablet for all and each students. All of them have a digital exercise book. This technology supports the creation of different learning strategies, which is the basis of personalized learning. In a traditional learning environment this would be very complicated. Teachers can facilitate the personal learning pathways of each students, based on their personal learning aims, either personally, or in groups. Partnership and cooperation can be managed easily in a digital space. Information management is a core element of learning in this space, and it is a good tool to improve critical thinking as well.

Were there any best experiences / risks explained using this method? If so, what:

There is a debate in the school on the advantages and disadvantages of the new method and on the subject- specialities.

No.: #5

Skill: CT / PS / **MOLP**

Name of method / tool / technique / practice:

Designing objectives

Description: (as detailed as possible)

At the beginning of the academic years we set our purposes in connection with the results. We do this on different levels. On the level of the professional working communities (the objectives are declared in the work plan for the actual academic year), on the level of classes (they declare their objectives in the classroom curriculum planned by the head teachers) and on the level of individual students (they put down their aims on a piece of paper collected, checked and retained by head teachers). These goals have to be measurable e.g. subject averages, number of missed lessons, number of community service hours, number of language exams or extracurricular activities. Head teachers help with identifying the milestones of the learning process, they check

the individual objectives designed by their students, if it needs, negotiations are made. Head teachers inform the relevant tutors about their students' goals to make them possible to support the students' efforts. The fulfilment of the individual commitments are examined at the end of the semesters by the students themselves. They have to evaluate their own results by making some self-reflective remarks in written form. The class objectives are set together and analyse together in oral form. Head teachers have to refer to their classes' objectives in their semester reports. We evaluate the performance of the classes at the end of the semesters, we set up the rankings of the classes in our school. This is a sort of motivation making the work a bit competitive.

Were there any best experiences / risks explained using this method? If so, what:

We have been using this method for a while. It has been up-dated several times to make it more appropriate to our aims. Objectives designed by the students themselves help to develop their responsibility for their own learning process. Since we design objectives for the class as well, individual successes promote the class, too. Head teachers can use this method to strengthen the sense of responsibility of community. Head teachers have to help to keep the individual objectives adequate. They should not be too easy to fulfil but should not be too hard either. Students should make some efforts to reach their aims, however, we can not let these objectives become missions impossible.

No.: #6

Skill: CT / PS / **MOLP**

Name of method / tool / technique / practice:

Personal SWOT analysis

Description: (as detailed as possible)

SWOT analysis is a technique mostly used in business context to identify the strengths, the weaknesses, the opportunities and the threats in connection with the development of strategies to make the company more successful. Performing a personal SWOT analysis can help to get closer to the realistic self-image that is the foundation of MOLP. Self-knowledge and the improvement

of it is an important topic in the classroom curriculum so filling in the matrix (available on the internet) is a task on classroom lessons. Head teachers help in interpretation of the matrix labels with questions leading to recognise the strengths and the opportunities useful in achieving personal goals and face the weaknesses and the threats to eliminate or at least reduce in order to move forward. Students collect the characteristic attributes about themselves on their own. They can ask for help of their close friends or family that is people they rely on as it is not an easy task to list our personal characteristics. They keep the matrix for themselves, sharing it is absolutely voluntary. The main point to make them think about themselves and offer them a useful tool to get to know themselves and get to closer to their objectives. (This link could be very useful in connection with the above mentioned:

https://www.mindtools.com/pages/article/newTMC_05_1.htm)

Were there any best experiences / risks explained using this method? If so, what:

Performing a personal SWOT analysis among 9 year students is extremely difficult but it is worth trying. Students should expanding the content of the framework during their studies and head teachers should remind them about it at least at the beginning of the new academic years.

Performing a personal SWOT analysis requires the special balance of objectiveness and tactfulness.

No.: #7

Skill: CT / PS / **MOLP**

Name of method / tool / technique / practice:

Day of career choice / Career performances

Description: (as detailed as possible)

Day of career choice is a regular event organised by the employment centre annually. It is for final year secondary school students to inform them about the offer of higher education institutions. The organisers invite the representatives of the institutions to introduce or advertise themselves. This event is similar to a fair where our students can get first-hand information about colleges or universities they are interested in. We prepare a visit to this event on classroom

lessons in advance. We clarify concepts related to higher education, conditions for entry into higher education, we collect questions worth asking at the fair. Every student has to collect information about at least three different institutions. We first take our students to the fair in their first year in the secondary school because we want to raise their awareness of the challenges ahead. This day has a special programme for students in connection with career choice. The visit to the fair is only one of them. Just to mention some other possibilities, e.g. career performances held by representatives of different professions (these representatives are often parents or ex-students we ask to introduce their jobs); we have performances for students about certain professions outside the school e.g. in the court house building or in the building in the fire department. To prepare the programmes of this day our teachers mobilize their contact capital. We have another traditional event organised by our teachers annually that has similar elements to the day of career choice. This event is named after our school, we call it Béla Day. We organise different interesting, often interactive programmes for students this day. The introduction of some professions is also included in the program selection.

Were there any best experiences / risks explained using this method? If so, what:

These events provide information for students about possible career choices. They find these occasions very useful as quite a great amount of secondary school students is uncertain about their career. It is our challenge to help them to find their future career. To be able to manage their own learning path they should know which way to go.

No.: #8

Skill: CT / PS / **MOLP**

Name of method / tool / technique / practice:

Free choice of tasks related to Gardner's multiple intelligences

Description: (as detailed as possible)

This practice presupposes self-knowledge regarding the students' learning styles and intelligence structures. There are tests available to decide the most effective methods of learning for students. We use these tests on classroom lessons to raise students' awareness of their abilities. On the basis

of the knowledge about their learning styles there are some projects they can choose tasks the most appropriate for them. During a module or at the end of a module students get a range of tasks organised in a matrix according to the Gardner's multiple intelligences and Bloom's taxonomy. They have to choose the given number and types of tasks. While deciding on the tasks to do they can take their strengths into consideration. This way they can manage their learning process.

<https://www.youtube.com/watch?v=s2EdujrM0vA>

Were there any best experiences / risks explained using this method? If so, what:

Very good but rather complicated method. It needs a lot of preparation and cooperation between head teachers and subject teachers.

No.: #9

Skill: CT / PS / **MOLP**

Name of method / tool / technique / practice:

Difficulty leveled assessment exercises

Description: (as detailed as possible)

IT teachers have developed practice and test exercises with their difficulty level, indicated on the top. The tests consist of basic and advanced level tasks. Doing the basic level tasks students can achieve a '3' and doing the advanced level tasks they can achieve a '5'. It is their responsibility to decide which level they prefer. The best students can find advanced + tasks at the end of the tests to provide them real challenges. These extra tasks give them the possibility to get an extra '5' in the end.

Were there any best experiences / risks explained using this method? If so, what:

Being allowed to choose between the basic and the advanced level tasks provide the feeling of satisfaction of free choice.

No.: #10

Skill: CT / PS / **MOLP**

Name of method / tool / technique / practice:

Online computer rooms for students

Personal SWOT analysis

Description: (as detailed as possible)

Moodle e-learning system has been used in our school for years to share supporting materials and give remarks to home work handed in via the system. IT teachers also use our school's own-developed net system to design practice exercises and supporting materials for students to be available for them on-line. Colleagues regularly use these resources on IT lessons and on afternoon extracurricular lessons as well. These systems provide possibility for students to practice and prepare on their own, move forward on the ways considered the best for their objectives.

Were there any best experiences / risks explained using this method? If so, what:

The Moodle system is available on line so students can practice even at home. The other system can be used at school. There is always a supervisor teacher in the IT classroom.

No.: #11

Skill: CT / PS / **MOLP**

Name of method / tool / technique / practice:

Drama in education

Description: (as detailed as possible)

Drama pedagogy is a recognized and used method across Europe. Drama pedagogy is a personality-oriented reform pedagogical trend.

The drama games are aimed at personality formation and socialization activities. Students play their fears, anxieties in their games, conflicts and moral problems are located, their value system is transformed, their tolerance is developing. Through the games, the students accepts and settles himself, develops self-discipline and the need for pour-improvement.

The drama games are complex, varied and can be adapted to the "suitable" age group, at the same time more areas are being developed.

Dramatic activities types:

1. exercises
2. dramatic games
3. theater
4. teaching drama

The main goal of teaching drama is to acquire missing knowledge and incorporating it into the participants' culture.

Were there any best experiences / risks explained using this method? If so, what:

The great advantage of drama pedagogy is that its basic technology, the game, it is attractive to all students. The game is always voluntary and joyful.

They can also be used to clarify educational issues.

The well-used dramatic education helps to develop student's autonomous, flexible thinking, for the planned work accustoming.

Make correction procedures more colourful.

No. #12

Skill: CT / PS / **MOLP**

Name of method / tool / technique / practice:

Contracting

Description: (as detailed as possible)

Contracting is the method of creating discipline. The teacher and the student together formulate the behavioural rules they are compelled to follow at the lessons. In the case of breach of rules, it is sufficient to refer only to commonly accepted rules accepted by everyone.

Were there any best experiences / risks explained using this method? If so, what:

Creating calmness it promotes emotional tune-up to the curriculum.

No.: #13

Skill: CT / PS / **MOLP**

Name of method / tool / technique / practice:

LEARNING SKILLS

Description: (as detailed as possible)

*enhancement of learning skills in all lessons, in smaller classes necessary a separate subject to deal with different learning skills

Were there any best experiences / risks explained using this method? If so, what:

-

No.: #14

Skill: CT / PS / **MOLP**

Name of method / tool / technique / practice:

DIRECTION OF LEARNING PATH

Description: (as detailed as possible)

*supporting students in finding a suitable learning path: different thinking/behaviour types are introduced, students need support and directions to identify their type

*to solve the task different options are provided, which enable the student to choose by themselves which type of solution suits the best for a certain task *rendering systemicity and guidance, presenting a sample, collective work on the sample in a detailed way up to formatting
*teaching learning strategies how to learn, how to remember more easily *explanations are provided what „learn it“ means, what kind of sub-activities it consists; students discuss what must be learnt and which are the different ways to do it
*to revise the details which for the teacher seem dead simple

Were there any best experiences / risks explained using this method? If so, what:

-

No.: #15

Skill: CT / PS / **MOLP**

Name of method / tool / technique / practice:

SCHEME OF THINKING

Description: (as detailed as possible)

*giving some indicative keywords, which direct students in the process of acquiring the material
*defining some points of reference, milestones how to study in the learning process
*relying on models

Were there any best experiences / risks explained using this method? If so, what:

-

No.: #16

Skill: CT / PS / **MOLP**

Name of method / tool / technique / practice:

SETTING OBJECTIVES

Description: (as detailed as possible)

*students are instructed to set personal goals, at which level to perform the task; it is not true that only minimum objective is chosen

*motivation design is applied: the grade depends on the level of solution, e.g. it depends on how the student is able to formulate a sophisticated objection; it is not true that students choose an easier way of resistance

*self-check option is offered; e.g. preparing for a bigger test some part-checks are made, which will not be counted in the final summary grade, but give students the feedback on their progress of the learning path

Were there any best experiences / risks explained using this method? If so, what:

-

No.: #17

Skill: CT / PS / **MOLP**

Name of method / tool / technique / practice:

RAISING RESPONSIBILITY

Description: (as detailed as possible)

*the deadlines for tasks are scattered in order not to cause the students to overwork on many assignments simultaneously; deadlines are agreed between the teacher and students and thus students take responsibility to keep up with the agreed deadlines

*the deadlines for assignments are flexible, if possible more than option is given

Were there any best experiences / risks explained using this method? If so, what:

-

No.: #18

Skill: CT / PS / **MOLP**

Name of method / tool / technique / practice:

Cooperative learning

Description: (as detailed as possible)

Competence: Management of own learning process

Method: Cooperative learning

Goals of method:

- deepening of listening skills, supporting positive relationship and mutual acceptance among classmates, intensifying motivation to learn, improved performance, deeper understanding, a more positive attitude towards school subjects, improvement of communication and social competences of pupils, deepening of ability to solve problems.

Name of activity: Let us learn together

Description of activity:

Activity focused on peer learning, reflexion of pupils, awareness of what they already know and what they still need and want to know.

Allocated time: 1 teaching lesson (1 teaching lesson /45 minutes)

Teaching aids: work letter and texts

Subject: any subject

Procedure/Description of method during teaching lesson/implementation of method:

First possibility of use for explaining new study material:

1. Teacher describes the topic of the lesson and explains pupils that they will be “teachers“ this day who will teach their classmates, he/she divides them into groups according to parts to which given teaching material can be divided; he/she provides texts/materials to each group.
2. Pupils study independently prepared materials and afterwards within their group they will jointly explain/summarize them and write notes on paper.
3. One pupil “teacher“ from each group goes to another group and explains what he/she has learned, he/she can take his/her notes. Others listen and make notes and if there is something they do not understand, they will ask at the end. In this way pupils “teachers“ move into all groups.
4. After pupils “teachers“ have explained their part to each group, they return back to their group and other group members explain to them what they have learned from other groups.
5. In conclusion volunteers repeat new learned material to the whole class. Teacher and other pupils help them and teacher makes an explanation in case of need.

Second possibility of usage to repeat and strengthen study material:

1. Pupils determine by themselves what they need to practice, strengthen and repeat.
2. Subsequently they create a common plan in a joint discussion depending on which material has to be repeated by most pupils, they discuss the topics according to the principle: the one who knows and understands it will become “teacher“. They will agree on time schedule of peer learning depending on urgency and amount of study material. In this way it is possible to divide peer learning into a number of consecutive teaching lessons of the given subject while continuing in learning new study materials, or lessons will be exclusively dedicated to common repetition according to the need and possibilities.
3. Plans and agreements will be written down and posted at a visible place.
4. At following lessons pupils will realize exercises, dialogues, presentations and learn from each other.
5. Each peer learning is followed by feedback, supplementary questions and explanations, mutual evaluation to what extent it is sufficient for understanding the material, topic, in what extent and quality it was presented or tested by pupils “teachers“.

Were there any best experiences / risks explained using this method? If so, what:

Reflexion (in relation to pupil):

In conclusion of each peer learning pupils will assess with teacher what it was like to teach classmates and with classmates.

Framework questions:

How did you feel in the role of “teacher“? What was most difficult for you as “teachers“ in preparation for teaching lesson/ during lesson? Did you understand your classmates when they explained new topic or practiced already learned things? Did you like the way they presented what they knew? What did you like most? What would you do differently?

Conclusions/recommendations/risks in relation to using the method (for teacher):

First possibility of usage to explain new study material:

Cooperative learning can be used in shortened form in any phase – in exploration, during reflection; in most subjects and starting as early as in primary school. As regards the first version there is a

risk that pupils will not be able to agree to decide who will perform “teacher” for the group. When they are divided into groups it is necessary to take into consideration that one group includes pupils with different results. It is necessary to consider selection of topic so that pupils can study it by themselves and explain to others. It is important to ensure a pleasant and productive atmosphere. The teacher should be helpful throughout the lesson.

The second possibility of usage to repeat and strengthen study material:

It is used before final testing, or secondary school final exams. It concerns repetition and strengthening of study material. Teachers allow pupils peer learning in terms of practicing grammar, language skills, reading comprehension, or repeating any thematic units in any subject. In case the teacher comes to the conclusion that this method does not lead to desired results in the given classroom, he/she can provide recommendations or correction on the basis on his/her pedagogical skills.

No.: #19

Skill: CT / PS / **MOLP**

Name of method / tool / technique / practice:

Reflective essay

Description: (as detailed as possible)

At the end of a learning module / complex task, the students are asked to write a reflective essay, about 1-2 pages on how they felt throughout the exercise and what they accomplished.

They also write about what they learnt and experienced and how these new experiences and pieces of knowledge will affect their future behaviour/life.

Were there any best experiences / risks explained using this method? If so, what:

-

No.: #20

Skill: CT / PS / **MOLP**

Name of method / tool / technique / practice:

Emotional log

Description: (as detailed as possible)

The students are asked to keep track of their emotions using a written log. They should register feelings, beliefs, experiences that carry emotional charge and try to identify the sources of that emotion. This way they learn how their emotions and behaviour affect each other and how they can manage their emotions.

Were there any best experiences / risks explained using this method? If so, what:

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Appendix 6: International results and tools to be used in the project

EU Skills and qualifications

New Skills Agenda for Europe

European Commission

<http://ec.europa.eu/social/main.jsp?catId=1217&langId=en>

International Adult Literacy Survey (IALS)

U.S. Department of Education

<https://nces.ed.gov/surveys/ials/>

AHELO Main Study

OECD (Assessment of learning outcomes in higher education)

<http://www.oecd.org/education/skills-beyond-school/ahelo-main-study.htm>

LELLE

<http://lelle.gtk.uni-pannon.hu/hu/kezdolap/>

e-CF

European e-Competence Framework

The 40 competences of the framework are classified according to five main ICT business areas and relate to the European Qualifications Framework

<http://www.ecompetences.eu/career-and-assessment-tools-3/>

Appendix 7: Modified best practice description table

NAME/TITLE	
SKILL targeted	Critical thinking / Problem solving / Managing own learning path
Skill development level	Basic / Intermediate / Advanced
Difficulty level of task	Simple / Complex
Detailed description (details on what the exact task is about, what does the teacher do, what should the students do, what is the setting, process and evaluation of the task) <i>please be as specific as you were in the discussion</i>	
Time (time plan of the task with regard of the possible sub-tasks)	
Materials needed (any kind of things needed: papers, scissors, computers, smartphone apps, clay, fake monex, etc.)	
Comments (practical info, additional comments on what to expect from the task, is there any kind of setback or special attention needed)	