Analysis of the results of the teachers and students' surveys on how to improve teaching quality and students' performance in blended teaching/learning in today's study environment of VET schools

SUMMARY FINDINGS FROM ESTONIA, GREECE, LATVIA, LITHUANIA, AND SLOVENIA

Blended teaching and learning in VET schools

2020-1-LV01-KA226-VET-094501022699

Co-funded by the Erasmus+ Programme of the European Union

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The consortium implementing this project consists of:

- Ida-Virumaa Training Vocation Center (Estonia)
- 1C Piramīda Maribor (Slovenia)
- Epimorfotiki Kilkis Monoprosopi E.P.E. (Greece)
- Vilnius Jerusalem Labor Market Training Centre (Lithuania)
- VECC "Riga State Technical School" (Latvia)

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Introduction

Integration of blended teaching/learning in VET schools raises the question: how to improve (not to worsen) teaching quality and students' performance in today's study environment of VET schools. Teaching quality and students' performance in blended teaching/learning has affected by different internal and external factors. The current survey conducted to determine these factors.

Research information

Initially, two questionnaires were created (by the scientific working group of the project), one for students and one for teachers, which were then translated into the languages of the partners (English, Estonian, Greek, Latvian, Lithuanian and Slovenian). The questionnaires were distributed (in printed and electronic form) and answered by teachers and students of the countries participating in the project from September to December 2021. The survey involved a total of 158 teachers and 495 students from the countries participating in the project (Estonia, Greece, Latvia,

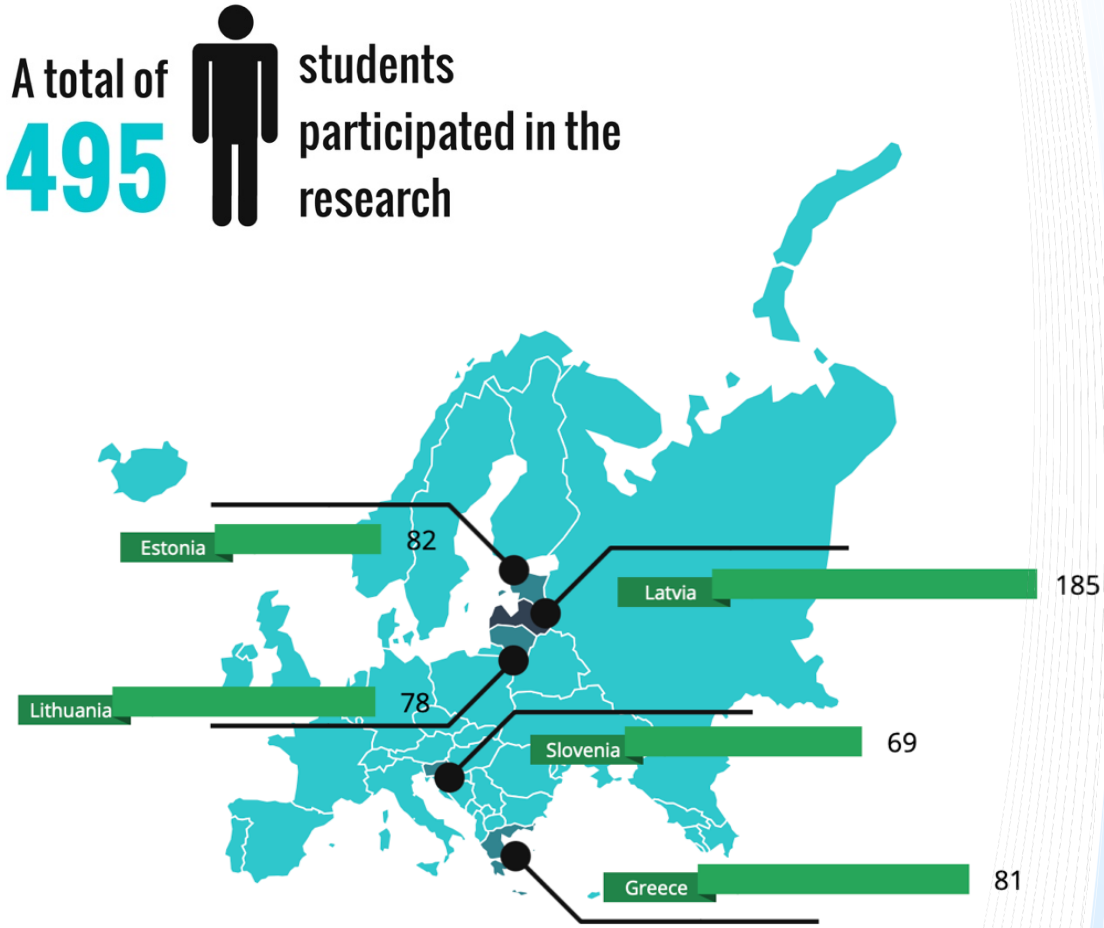
Lithuania and Slovenia). The information collected was used for a collection of general data and was anonymous. The results and conclusions from the surveys in each country have been published and are available (in English) on the project website (https://btl.rvt.lv/) . This report is a summary of the above research (a summary of findings).

What blended learning is

The term "blended learning" in the project is close to the definition: Blended learning combines in- person or face-to-face learning with online learning.
Blended learning describes a fundamental change in education design by utilizing a combination of digital learning and active learning methods to improve the learning experience and outcomes.
A teaching session created with a blended learning model uses the face-to face teaching time for activities that benefit the most from direct instruction. There's a general consensus that blended learning has three main components:
1) face to face active learning activities facilitated by an educator
2) digital learning objects, often bitesize chunks of information
3) structured independent study time guided by face-to-face teaching experience.
The role of teacher changes: from educators to facilitators that empower learners with the skills and knowledge required to make the most of the digital material, active learning activities and independent study time by guiding learners through the experience.
Facilitators focus in 3 key areas:
1) development of digital and active learning course content
2) guiding the learning experience of individual learners and customizing material wherever
possible to strengthen the learning experience
3) appropriate assessment

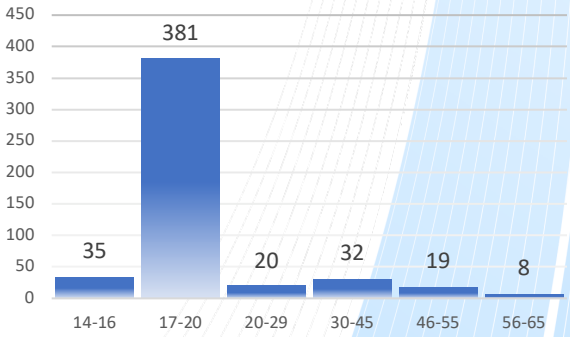
Analysis of the results of the students' survey

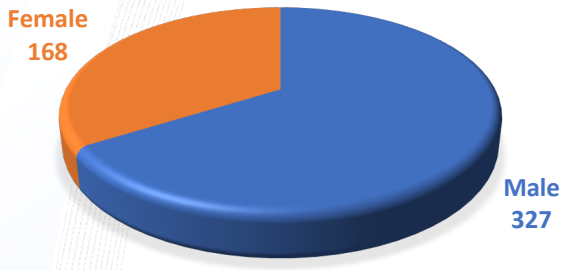
Number of participating students / countries



Age

The largest percentage of students who participated in the survey is 17-20 years old (77%), while the remaining 23% is distributed as follows: 14-16 years old - 7%, 30-45 years old - 6%, 20-29 & 46- 55 years - 4% and 56 years and over - 2%.



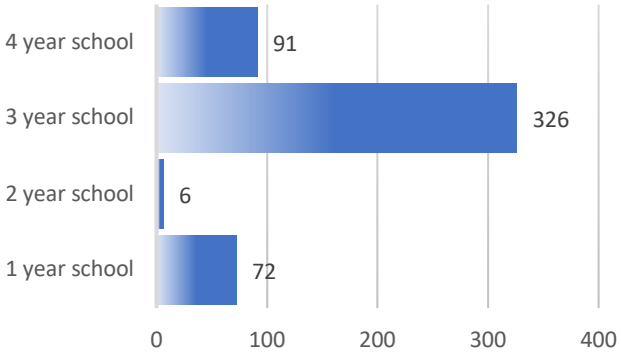


Gender

66% of the students who participated in the research were boys while 34% were girls.

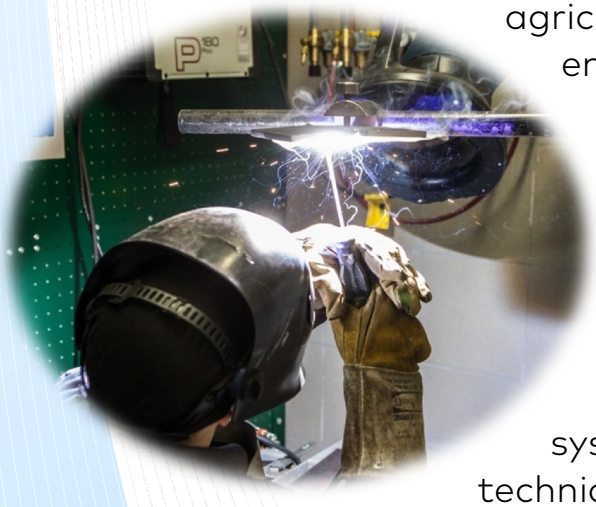
Duration of studies

36% of students study in a three-year program, while 18% in a four-year program. 15% attend a one-year program, while 1% attend a two-year program.



Student specialties

Students from various vocational training specialties participated in the research. Indicatively, some of them are mentioned below:



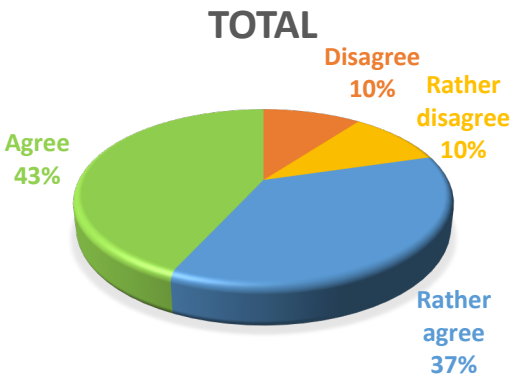
agriculture, engineering, electrical engineering, food technology, refrigeration technician, nurse assistant, medical and biological laboratory assistant, electrician, metal worker, welder, heating and cooling systems, energetics, car mechanic, commerce, computer systems technician, electrical technician, accountant, printing and media, customer service specialist, woodworking technician, chemical technologist, logistics, mechanical engineer, programming technician, multimedia specialist, and advertising service commercial employee.

Results analysis

To the question "**In your opinion, do the teaching and learning process in education institutions advance the development of the following competencies?**" the students had to rate fifteen educational aspects. To rate those aspects, they had to choose from a scale of 4 choices: I disagree, I rather disagree, I rather agree, and I agree.

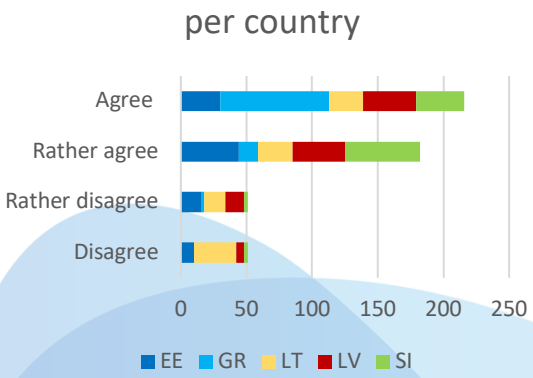
% The results presented below are a summary representation of the answers given by students and teachers reduced by a percentage

Daily communication in state language



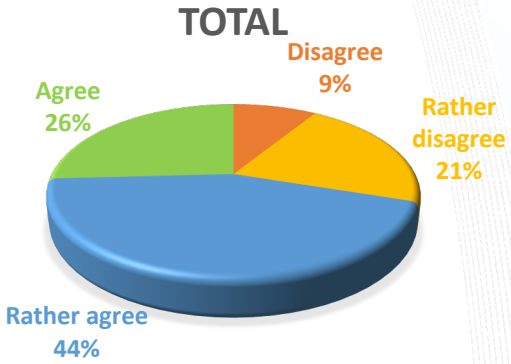
Most of the students agree with this statement (80%). The highest percentage of students who agree comes from Greece (98% of Greek students responded positively). On the other hand, the highest percentage of students who disagree comes from Lithuania (48% of Lithuanian students answered that they disagree).

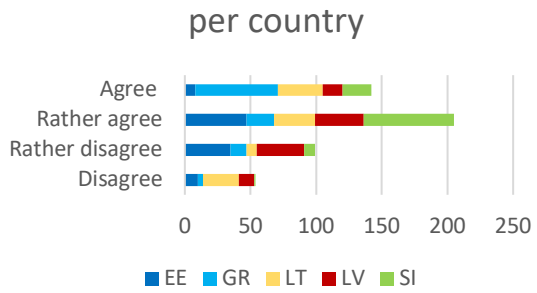
	EE	GR	LT	LV	SI
Agree	30	83	26	40	37
Rather agree	44	15	26	40	57
Rather disagree	16	2	16	14	3
Disagree	10	0	32	6	3



Daily communication in foreign languages

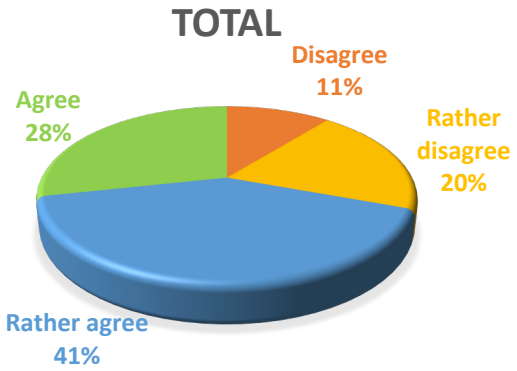
70% of students agree with this statement (26% strongly agree and 44% probably agree), while 30% do not (21% probably disagree and 9% strongly disagree).





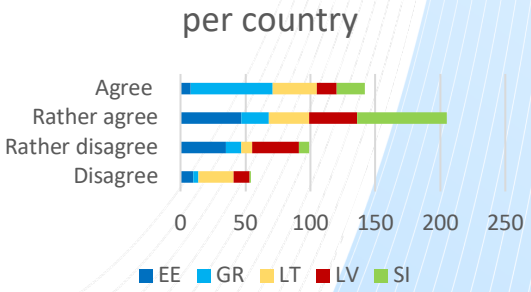
	EE	GR	LT	LV	SI
Agree	27	41	17	22	22
Rather agree	43	39	18	45	75
Rather disagree	21	11	46	26	2
Disagree	9	9	19	7	0

Daily application of mathematics



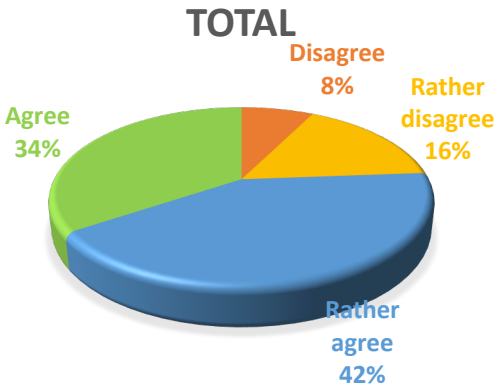
The highest percentage of the students (69,4%) agree with this statement (28,4% agree and 41% rather agree), while 30,6% do not (10,8% disagree and 19,8% rather disagree). Slovenian (91%) and Greek students (84%) seem to have a higher percentage of agreement.

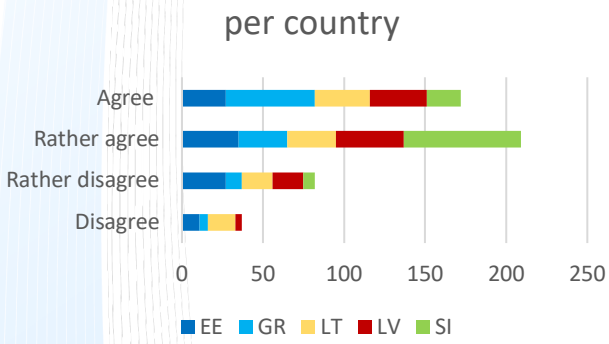
	EE	GR	LT	LV	SI
Agree	8	63	34	15	22
Rather agree	47	21	31	37	69
Rather disagree	35	12	8	36	8
Disagree	10	4	27	12	1



Application of industry specific technologies

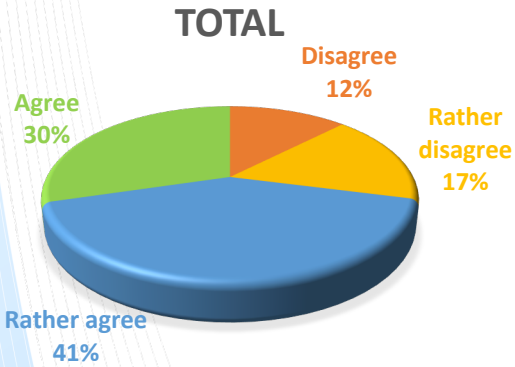
76,2% of the students agree with this statement (29,6% agree and 41,4% rather agree), while 23,8% do not (7,4% disagree and 16,4% rather disagree). Students from Slovenia (93%), Latvia (64%) and Estonia (62%) seem to have the highest percentages of agreement.





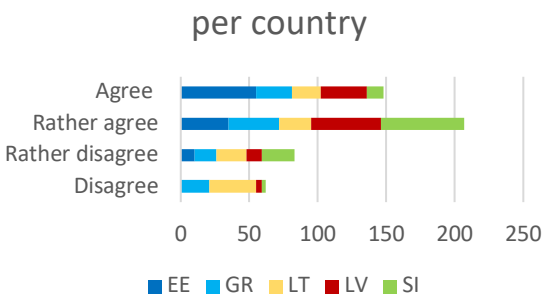
	EE	GR	LT	LV	SI
Agree	27	55	34	35	21
Rather agree	35	30	30	42	72
Rather disagree	27	10	19	19	7
Disagree	11	5	17	4	0

Application of information technologies

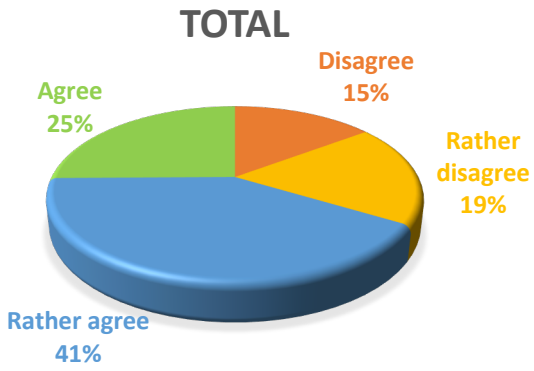


"Application of information technologies" is a skill acquired during studies according to 71% of the students. Most of the students from Estonia agree with this statement (90%), while the lowest percentage is observed in Lithuania (44%).

	EE	GR	LT	LV	SI
Agree	55	26	21	34	12
Rather agree	35	37	23	51	61
Rather disagree	10	16	22	11	24
Disagree	0	21	34	4	3

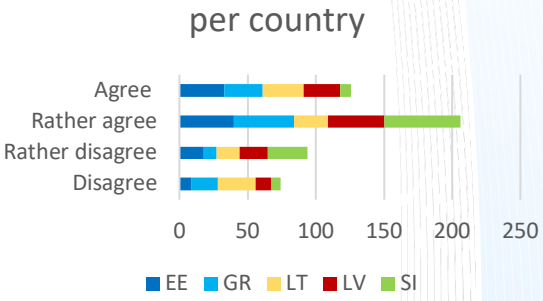


Time management

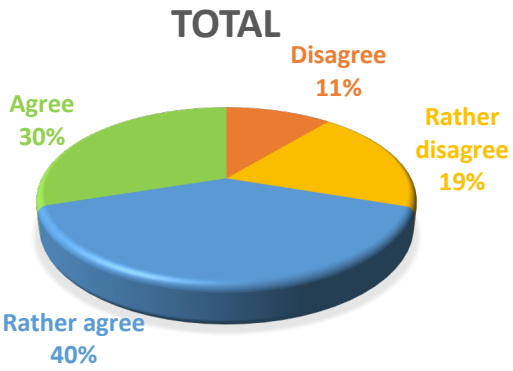


41,2% of the students rather agree with this statement, and 25,2% agree. 18,8% rather disagree, and 14.8% disagree entirely.

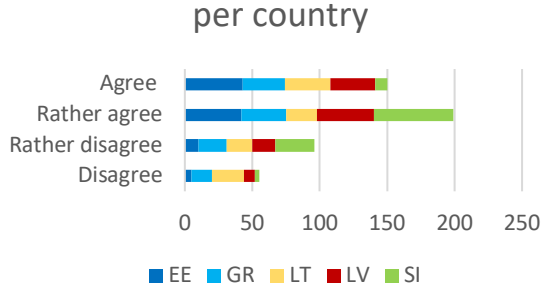
	EE	GR	LT	LV	SI
Agree	33	28	30	27	8
Rather agree	40	44	25	41	56
Rather disagree	18	9	17	21	29
Disagree	9	19	28	11	7



Ability to use critical thinking

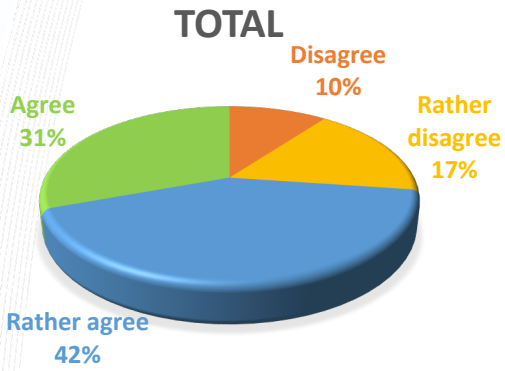


The highest percentage of the students (69,8%) agree with this statement (30% agree and 39,8% rather agree), while 30,2% do not (11% disagree and 19,2% rather disagree). Estonian (85%) and Latvians (75%) students have the highest percentages of agreement.



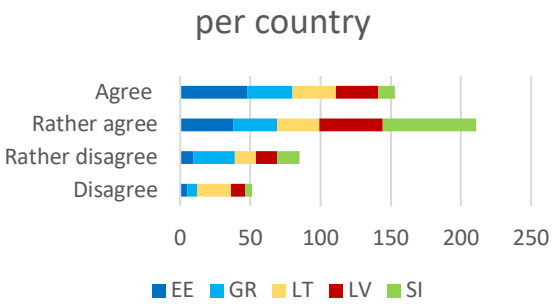
	EE	GR	LT	LV	SI
Agree	43	31	34	33	9
Rather agree	42	33	23	42	59
Rather disagree	10	21	19	17	29
Disagree	5	15	24	8	3

Problem solving



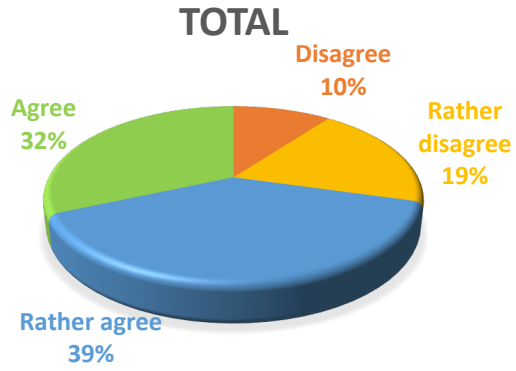
72,8% of the students agree with this statement (30,6% agree entirely and 42,2% rather agree). 17% rather disagree, while only 10,2% disagree entirely).

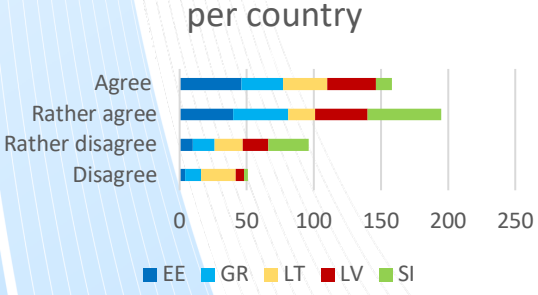
	EE	GR	LT	LV	SI
Agree	48	32	31	30	12
Rather agree	38	31	30	45	67
Rather disagree	9	30	15	15	16
Disagree	5	7	24	10	5



Communication and negotiation skills

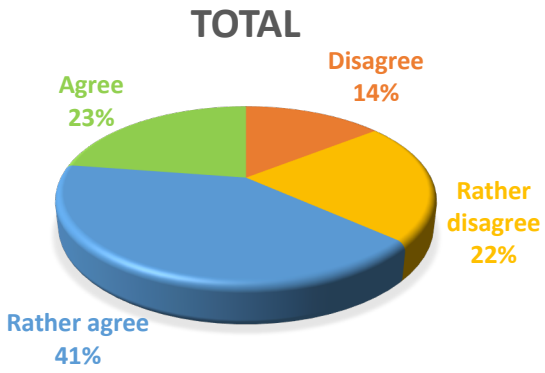
31,6% of the students agree with this statement, and 39% rather agree. On the other hand, 29,4% of the students disagree (10,2% disagree entirely and 19,2% rather disagree).





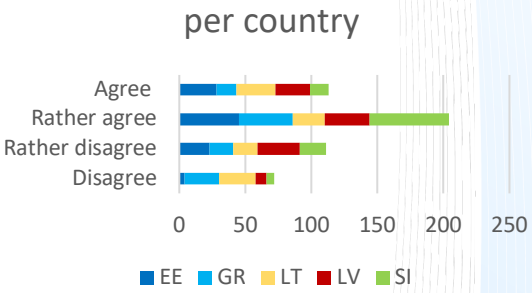
	EE	GR	LT	LV	SI
Agree	46	31	33	36	12
Rather agree	40	41	20	39	55
Rather disagree	10	16	21	19	30
Disagree	4	12	26	6	3

Cultural awareness



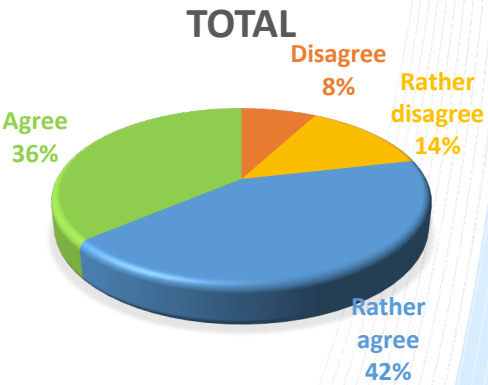
Regarding cultural awareness, only 22,6% of the students agree. This is the lowest percentage of all the statements given to them, while rather agree answered 40,8% of the students. The percentage of disagreement in this statement was quite high (36,6%).

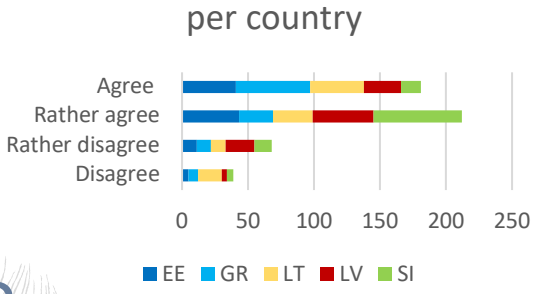
	EE	GR	LT	LV	SI
Agree	28	15	30	26	14
Rather agree	45	41	24	34	60
Rather disagree	23	18	18	32	20
Disagree	4	26	28	8	6



Ability to use life situations for learning new things

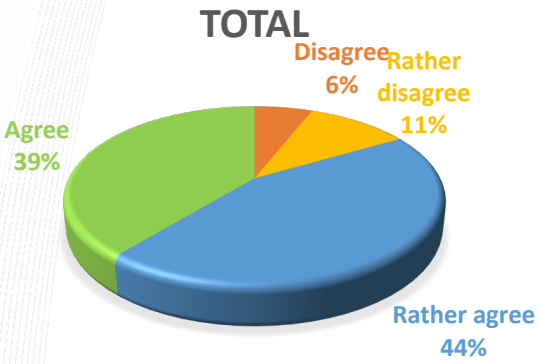
78,6% (36,2% agree entirely and 42,4% rather agree) agree with this statement, while only 21,4% do not agree.





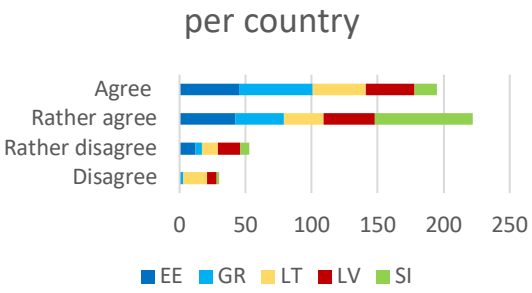
	EE	GR	LT	LV	SI
Agree	41	56	41	28	15
Rather agree	43	26	30	46	67
Rather disagree	11	11	11	22	13
Disagree	5	7	18	4	5

Cooperation with different people



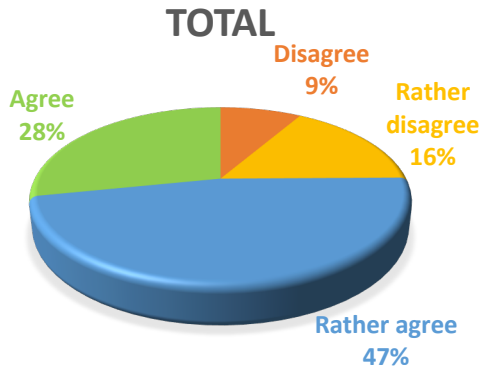
83,4% of the students agree with this statement (39% entirely agree and 44,4% rather agree), while only 16,6% did not (10,6% rather disagree and 6% disagree entirely).

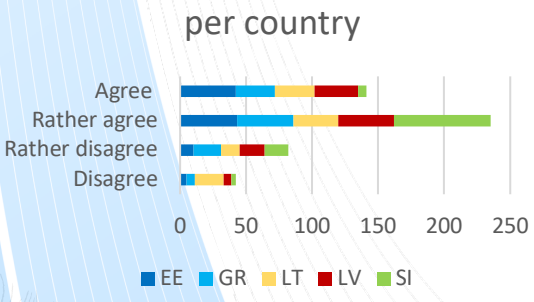
	EE	GR	LT	LV	SI
Agree	45	56	40	37	17
Rather agree	42	37	30	39	74
Rather disagree	12	5	12	17	7
Disagree	1	2	18	7	2



Ability to take up an initiative

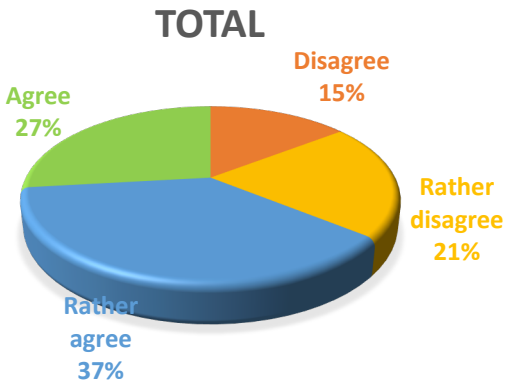
75,2% of the students agree with this proposal (28,2% agree entirely and 47% rather agree). 24,8% of the students do not agree (8,4% disagree and 16,4% rather disagree).





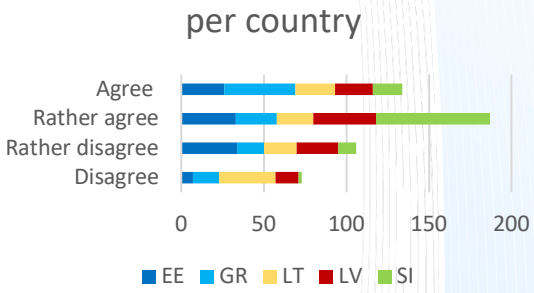
	EE	GR	LT	LV	SI
Agree	42	30	30	33	6
Rather agree	43	43	34	42	73
Rather disagree	10	21	14	19	18
Disagree	5	6	22	6	3

Wish to start private business



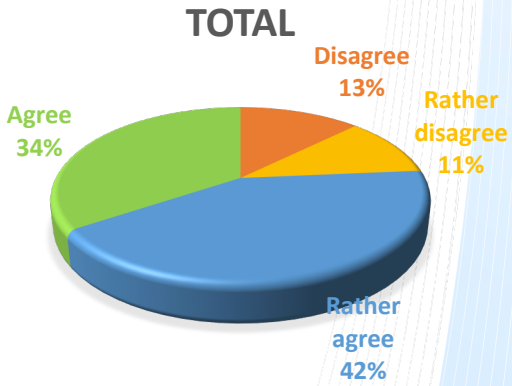
64,2% of the students responded positively to this statement (26,8% agree entirely, while 37,4% rather agree). 35,8% did not (14,6% disagree, while 21,2 % rather disagree).

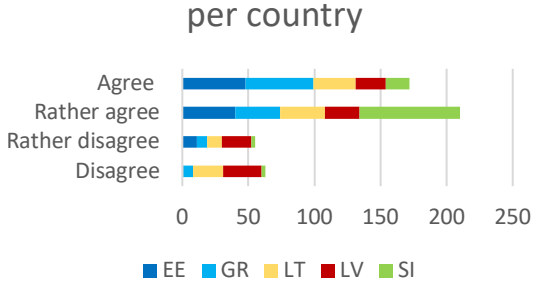
	EE	GR	LT	LV	SI
Agree	26	43	24	23	18
Rather agree	33	25	22	38	69
Rather disagree	34	16	20	25	11
Disagree	7	16	34	14	2



Team work

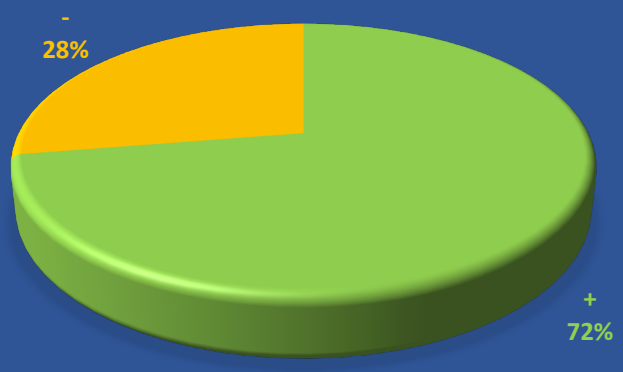
76,4% of the students agree with this statement (34,4% agree entirely and 42% rather agree) while 33,6% do not (11% rather disagree and 12,6% strongly disagree).



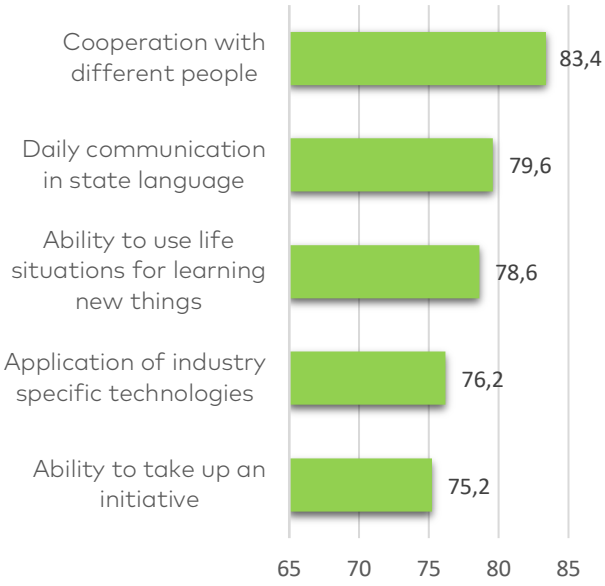


	EE	GR	LT	LV	SI
Agree	48	51	32	23	18
Rather agree	40	34	34	26	76
Rather disagree	11	8	11	22	3
Disagree	1	7	23	29	3

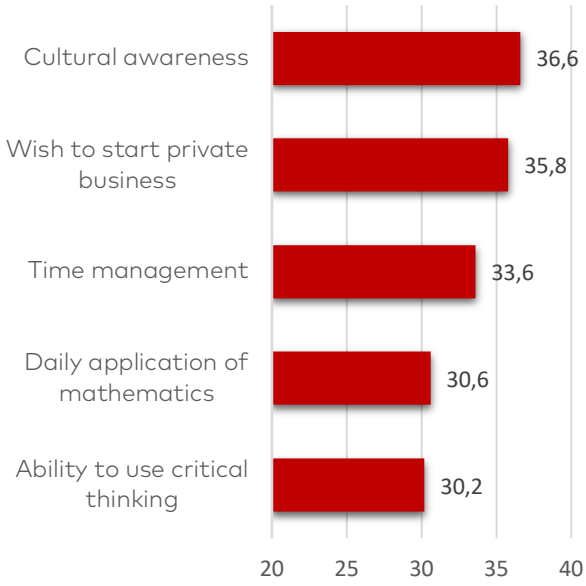
The most popular choice to all the statements given to the students, was "rather agree" (41,4%). The highest percentage, as a competency developed, was given to "cooperation with different people" (83,4%), while the highest percentage, as a competency not developed, was given to "cultural awareness" (36,6%). At the same time, the overall assessment regarding the question "if the teaching and learning process in education institutions advance the development of the above-mentioned competencies", is positive. This is clearly reflected in the following summary chart.



Top 5 competencies developed



Top 5 competencies not developed



Skills and competencies gained

Of the total 495 students who took part in the survey, 277 answered the question: "**Do skills and competencies gained during studies improve professional background?**". Of these students, 75,2% answered YES: They considered that they learn everything necessary to practice their profession. The majority finds it very important that they have not only theoretical knowledge, but also practical training because, with practice, they gain experience that will help them in their professional life. 15,8% of the students think that skills and competences gained during studies improve partly professional background or they are not sure if there is an improvement. Only 9% of the students answered NO: Mainly because the schools were closed for a long time due to COVID-19. The lessons conducted remotely didn't allow them to acquire skills and abilities to enhance their professional lives.

Some of the **most important subjects/ benefits** for the surveyed students during the vocational training programme were the following:

Skills and competencies not learned

To the question: "What professional skills and competencies that you did not learn in the study process yet needed for working in your profession?" the students considered that the most important thing they did not acquire during their studies was professional skills and competences (16,8%). Critical thinking followed with 11,6%. The diagram and table below present in detail the students' answers by country and in summary.

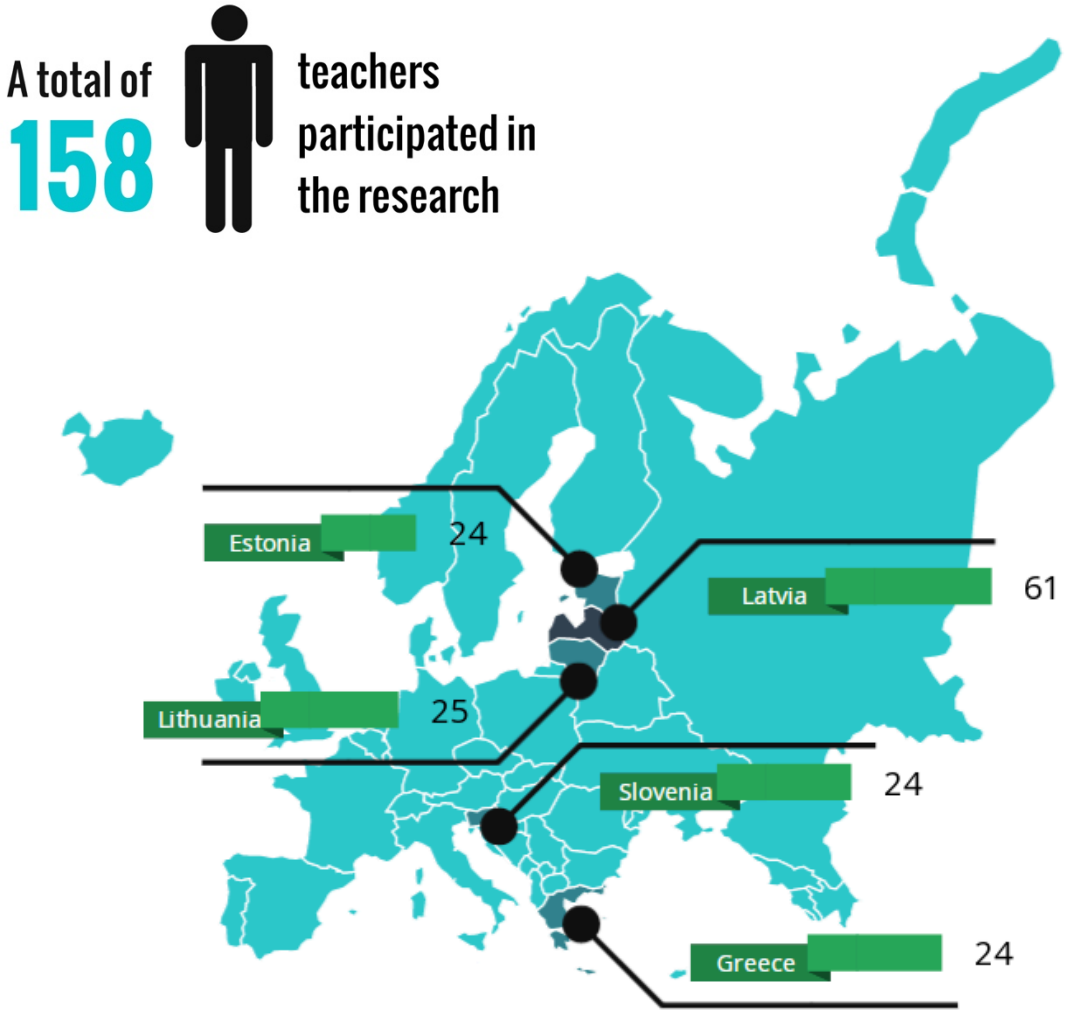
	EE	GR	LT	LV	SI	Average
Professional skills and competencies	9	11	16	37	11	16,8
Time management	11	10	9	9	15	10,8
Critical thinking	12	12	8	11	15	11,6
Problem solving	7	11	11	12	11	10,4
Communication skills	10	8	5	9	14	9,2
Foreign language skills	10	11	9	7	5	8,4
Team work	10	9	8	5	5	7,4
Mathematics	8	7	7	2	7	6,2
Information technology	7	13	11	3	13	9,4
Another	16	8	16	5	4	9,8

Conclusions

1. The majority of the students (77%) were 17 to 20 years old
2. 34% of respondents were female and 66% of respondents were male
3. The responders were from more than 26 specialities
4. 72% of the surveyed students rather agree and agree that the teaching and learning process at their educational institutions advance the development of the competencies mentioned above
5. 75% surveyed students think that skills and competences gained during studies improve professional background. 9% of respondents do not think so; 16% of respondents think that skills and competences gained during studies improve partly professional background
6. Surveyed students indicated that the most important subjects/ benefits for them during the vocational training programme were the following: critical thinking; practical activities; teamwork; new skills; professional skills and knowledge; practical knowledge; supportive teachers; certificate; practical training; logical thinking; new friends; logistics; safety; algorithms; creation of projects; programming languages; lessons learned; assembly of circuits; enrich existing knowledge; learn to work with different equipment; graphics; improve yourself; practical lessons; ICT information technology; learning theory to apply with practice; acquired qualification; photography; design; laboratory works; studies in person; scholarship
7. 16,8% of respondents noted that they did not learn professional skills and competencies during the study process; 11,6% of respondents indicated not acquired competence: critical thinking; 10,8% of respondents - time management skills; 10,4% of respondents indicated not acquired competence: problem-solving; 9,4% of respondents indicated not acquired competence: information technology.

Analysis of the results of the teachers' survey

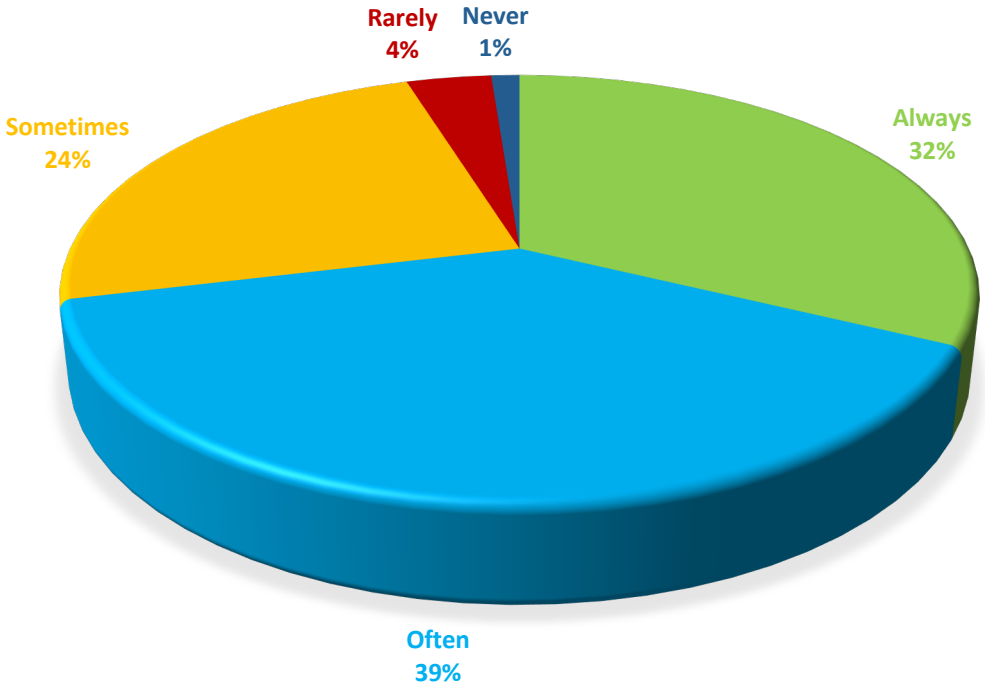
Number of participating teachers / countries



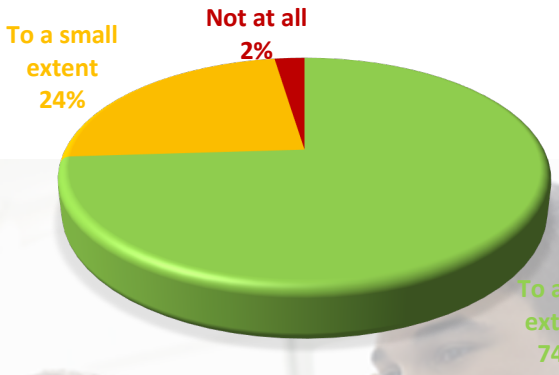
Results analysis

Usage of interactive tools

To the question "**How often do you use interactive tools (images, videos, quizzes, graphics etc.), when you teach?**" the highest percentage of teachers (95,2%) use interactive tools always (32,2%), often (39%) or sometimes (24%). Only 4,8% use them rarely (3,6%) or never (1,2%).



74% of the teachers believe that the use of interactive tools increases the interest of the students in the lesson to a big extent, 23,6% to a small extent and only 2,4% believe that the use of interactive tools does not increase the interest of the students in the lesson at all.

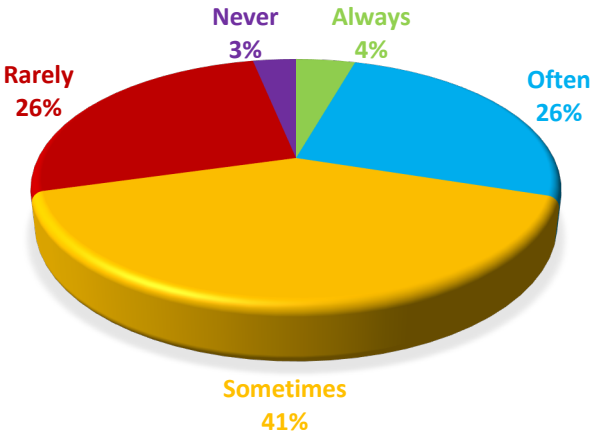


Educational techniques and teaching methods

Teachers were asked which educational techniques are more suitable for a specific teaching method. The results are listed in the table below. From the analysis of the table, we observe that some methods (Questions/answers, Discussion, Presentation) are suitable for all types of teaching, while others are suitable only for one of them (e.g. Working in pairs/groups is more suitable for the Face to face teaching method). We also notice that the friendliest method to all educational techniques is Face to face teaching (percentage of people who agree 94,3%).

	Face to face teaching			Distance learning			Blended teaching		
	Not at all	To a small extent	To a big extent	Not at all	To a small extent	To a big extent	Not at all	To a small extent	To a big extent
Working in pairs/groups	4,8	23,6	71,6	27,6	41,8	30,6	9,2	51,6	39,2
Case study	6,2	42	51,8	10,2	47,2	42,6	5,8	49,4	44,8
Role play	8,4	41,6	50	17,6	53,4	29	14,4	57	28,6
Questions/ answers	3,2	19	77,8	5,8	32	62,2	6,6	33,8	59,6
Discussion	2,4	16,8	80,8	6,4	41,6	52	4	38,6	57,4
Presentation	6,6	35,2	58,2	9,2	38,6	52,2	4,2	44,4	51,4
Research	8,6	43,2	48,2	6,2	44,4	49,4	3,6	46	50,4

Homework – teaching in person

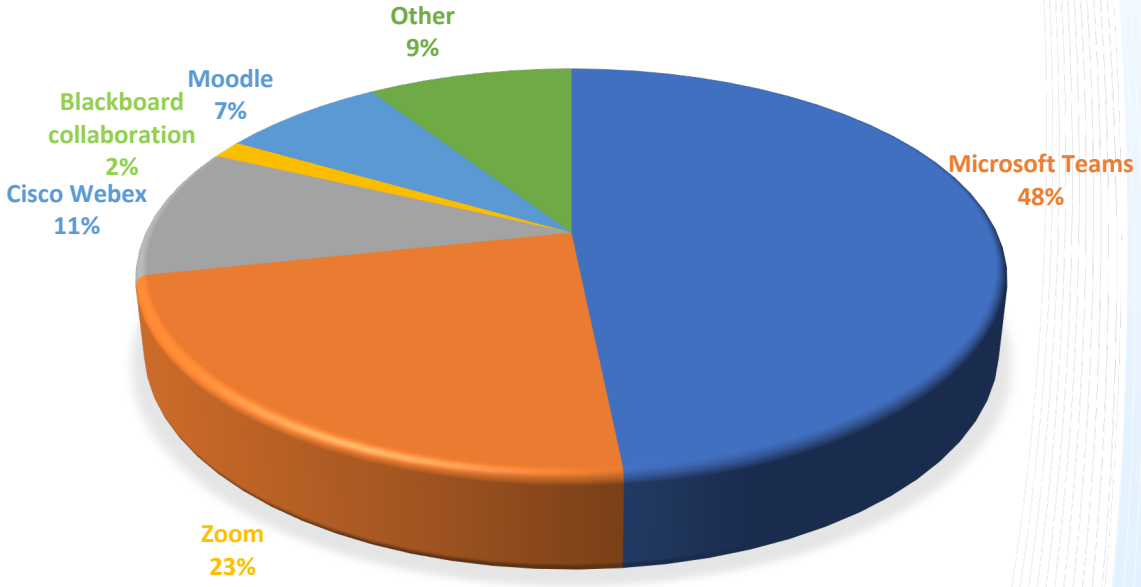


To the question "**How often do you assign homework to your students when teaching in person?**" most teachers answered "sometimes" (40,6%), while a few responded that they never assign tasks to their students (3,2%).

Usage of online platforms

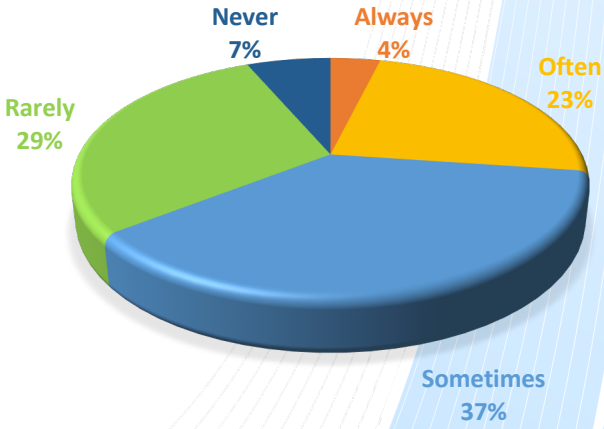
Teachers' preferences in programs or platforms, to conduct their online lessons, differ from country to country since apart from personal choice, it is often a directive of each state. The most commonly accepted platform is Microsoft Teams (48.4%), while we see that Cisco Webex is used only by teachers in Greece (state directive) and Mykoob by teachers in Latvia.

86% of the teachers have used online platforms (e-learning) to conduct a lesson

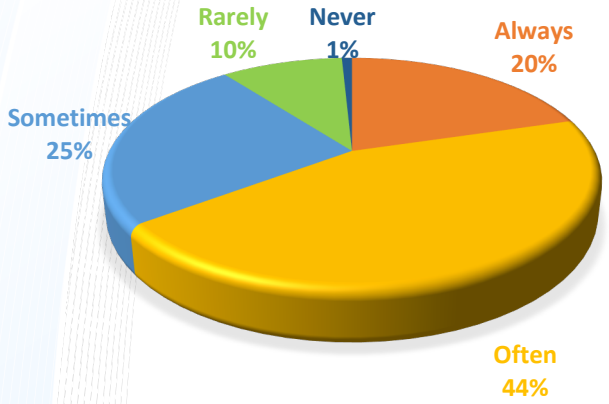


Homework – teaching online

To the question "How often do you assign homework to your students while using online platforms", most teachers answered "sometimes" (37,2%) while one in three (29,2%) rarely. About the same percentage (23,4%) does it often, while only 3,8% always and 6,4% never.



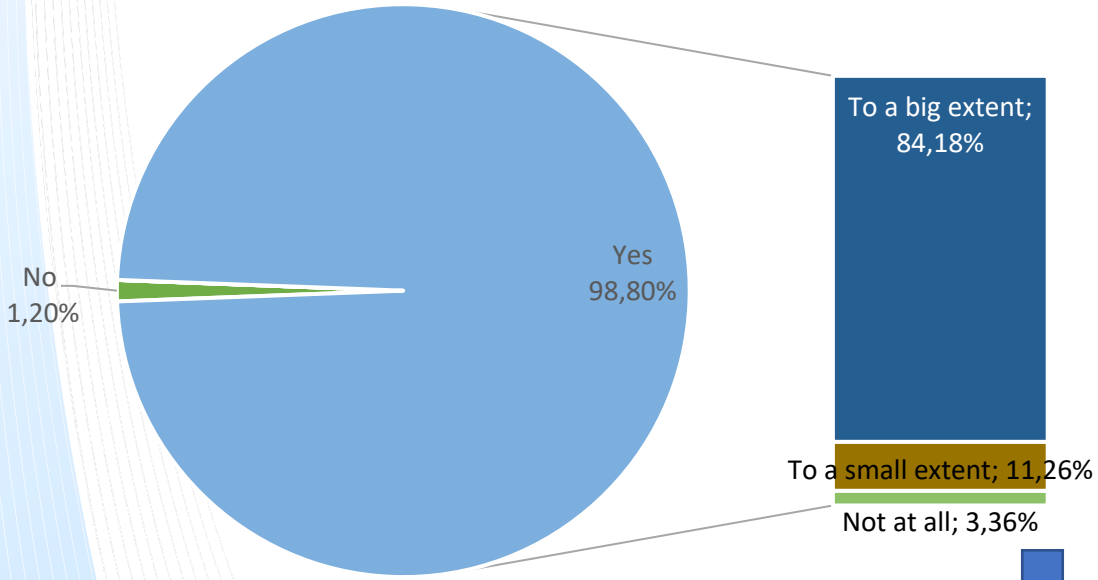
Encouraging students to use the internet to find information



The majority of teachers (89,6%) encourage their students to use the internet for research and finding information. 20.4% of the teachers always do it, 44.4% often, while 24.8% sometimes.

Practical examples

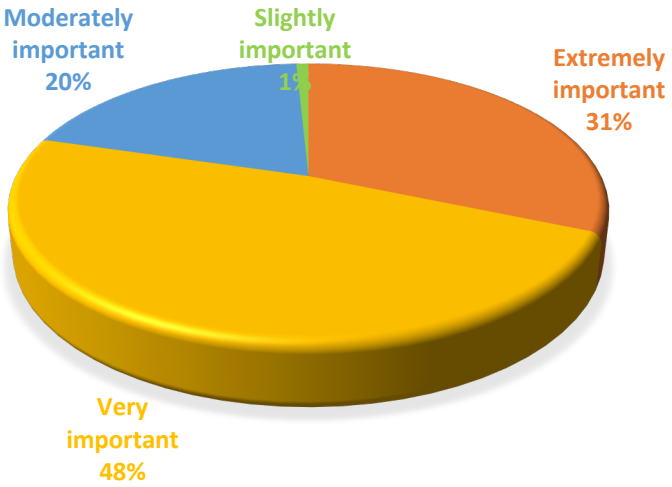
Almost all teachers (98,8%) **use practical examples in their lessons**. Of those who answered positively, 84% believe that this helps students to understand a subject better.



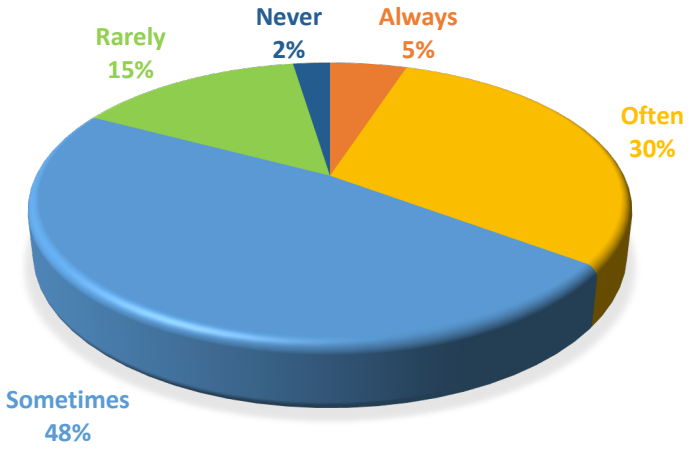
	EE	GR	LT	LV	SI	Average
To a big extent	83	92	87	72	92	84,18
To a small extent	17	4	9	23	4	11,26
Not at all	0	4	4	5	4	3,36

Encourage the collaboration between students

In general, teachers consider **the collaboration between students during the learning/teaching process** important (31,4% extremely important, 48,2% very important, 19,6% moderately important), while only 0,8% consider it slightly important.



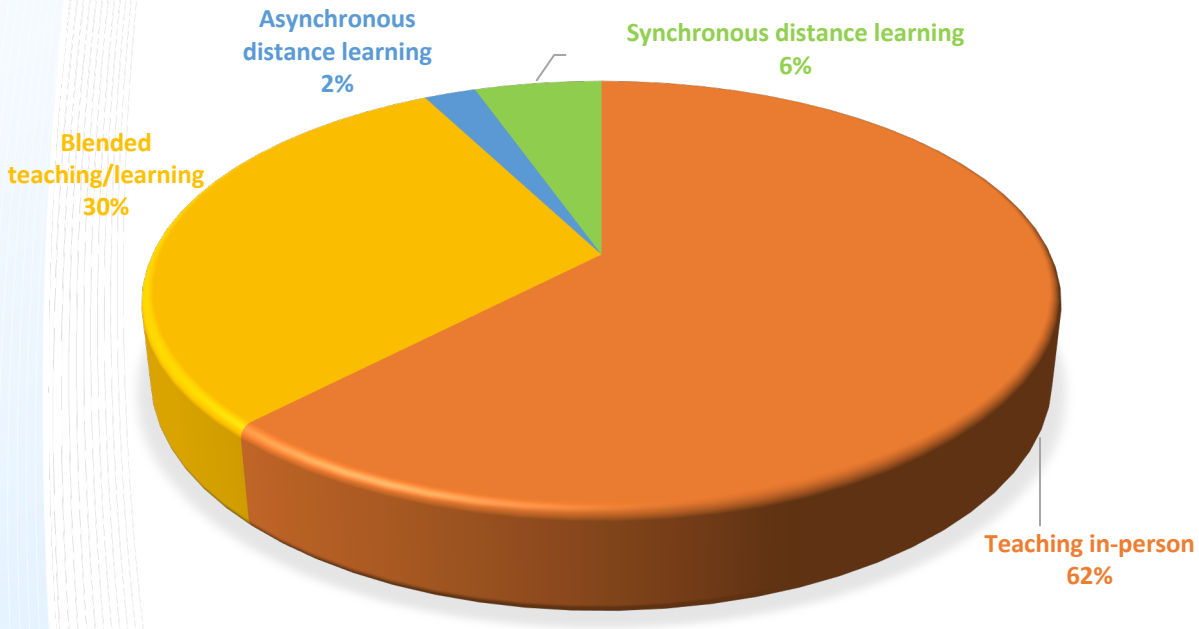
Project assignment



47,6% of teachers sometimes assign to their students projects, where teamwork is involved, to develop their collaborative skills, while 30,2% do it often.

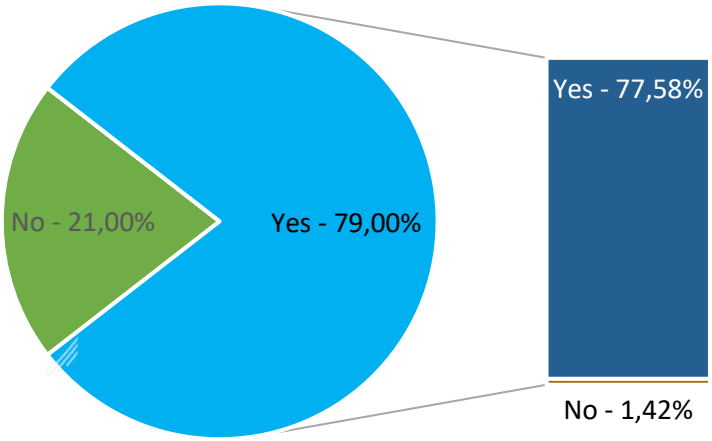
The most encouraging teaching method

To the question "**which teaching method do you think encourages the most students to participate more actively?**" most teachers answered "teaching in-person" (62,2%), while in the second place they chose "blended teaching/learning" (20,2%). In their opinion, distance education does not encourage students to actively participate in the educational process (5,4% in synchronous distance learning and 2,2% in asynchronous distance learning).



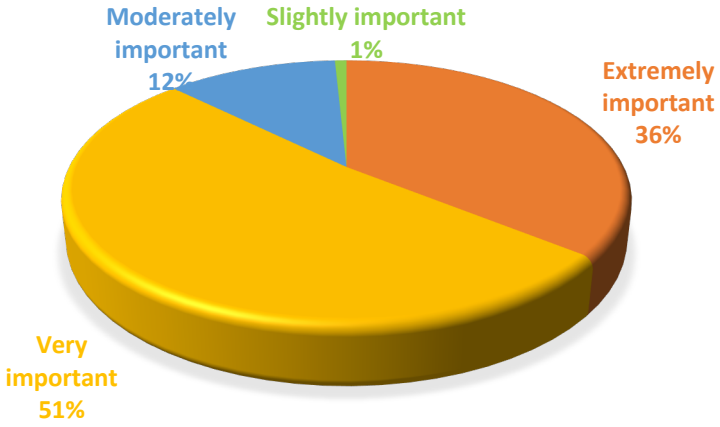
Asking for feedback

To the question "**Do you ask for feedback from your students regarding your teaching methods and their effectiveness?**" 21% of the teachers answered "No", while out of 79% who answered "Yes", 98,2% (77,58% of the total) answered that "they would adapt their teaching methods accordingly" and only 1,8% (1,42% of the total) "no".

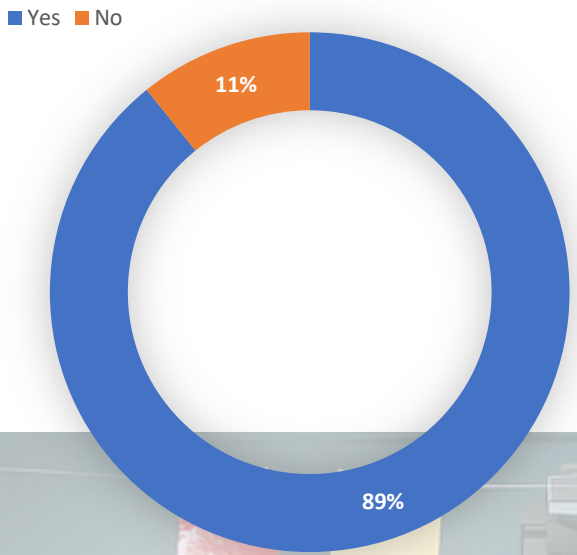


Personal contact between teachers and students

35,8% of the teachers who participated in the research "consider the personal contact between teachers and students during the learning/ teaching process" extremely important, while 51,6% very important. In general, we see that the vast majority of teachers (99,2%) consider (albeit to a different degree) the personal contact between teachers and students necessary.

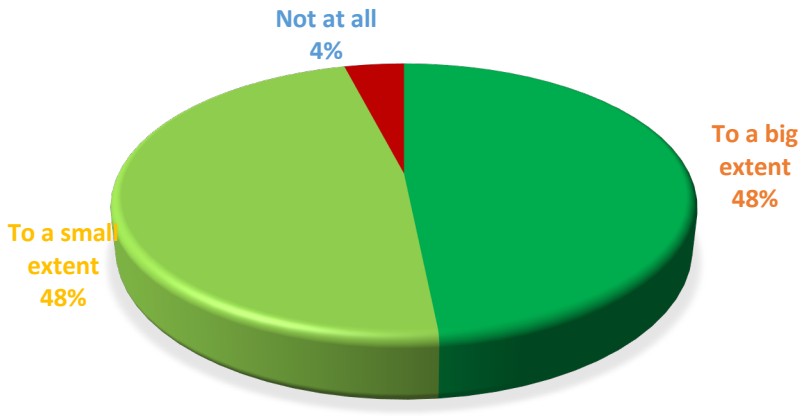


Combination between teaching in person and distance learning



88% of the teachers "think that it is possible to combine teaching/ learning in person with distance teaching/ learning". On the other hand, 12% believe that such a thing is not possible.

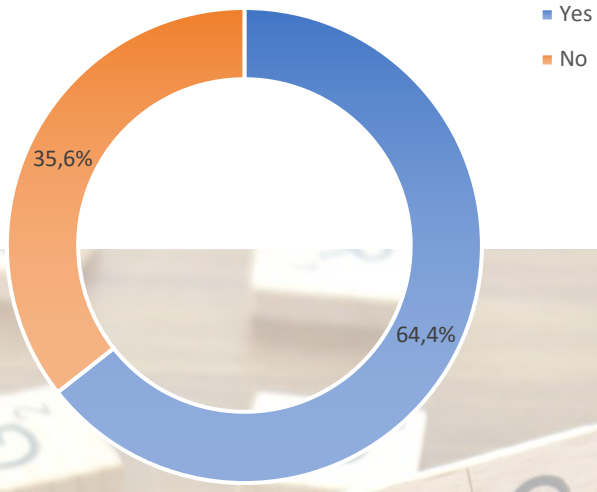
Implementation of blended teaching



96% of the teachers believe that they know how to blend (merge) together the individual ingredients of blended teaching (face to face teaching, online teaching, the use of various interactive tools in the class, independent study, simulations, assessment and feedback, one on one coaching) to make the blended lesson consistent and effective (48,4% to a big extent and 47,6% to a small extent) and only 4% do not know how to do it.

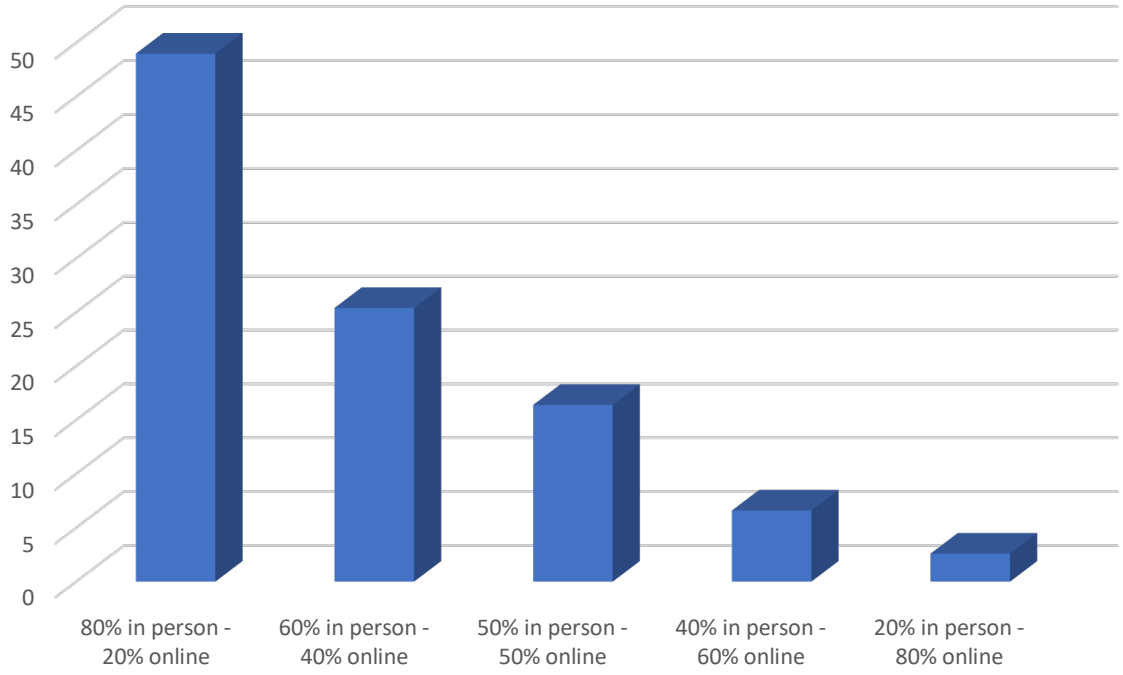
Training on blended teaching

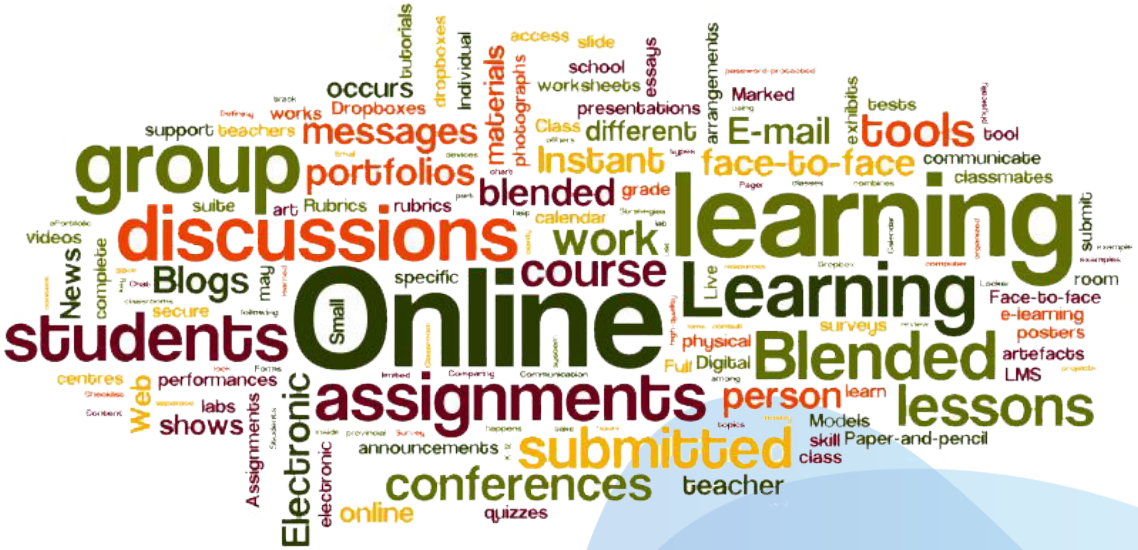
64,4% of the teachers believe that they need training on how to make lessons based on blended teaching, while 35,4% do not.



Teaching in person VS teaching online

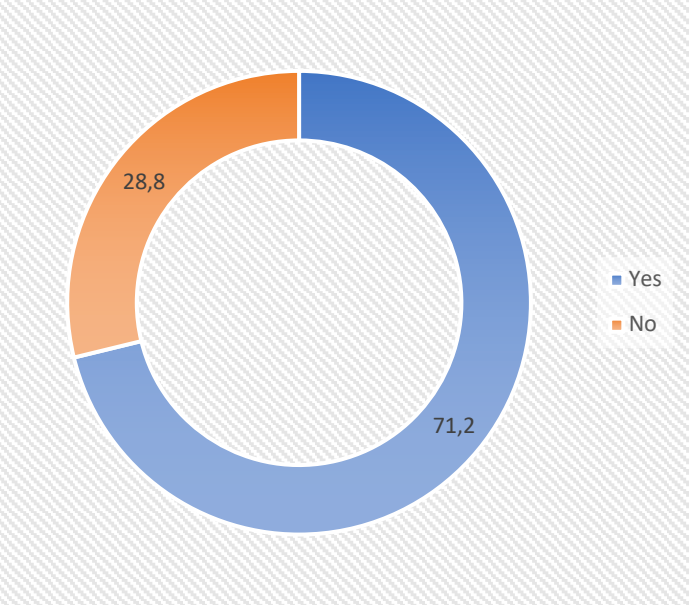
If the teachers had to design a blended teaching/learning course, 49% would choose for it to be 80% in-person and 20% online, 25,4% to be 60% in-person and 40% online, while 16,4% to be 50% in-person and 50% online. On the other hand, only 9,2% would choose to use online-distance learning more than in-person teaching (6,6% 40% -60% and 2,6% 20% -80%).

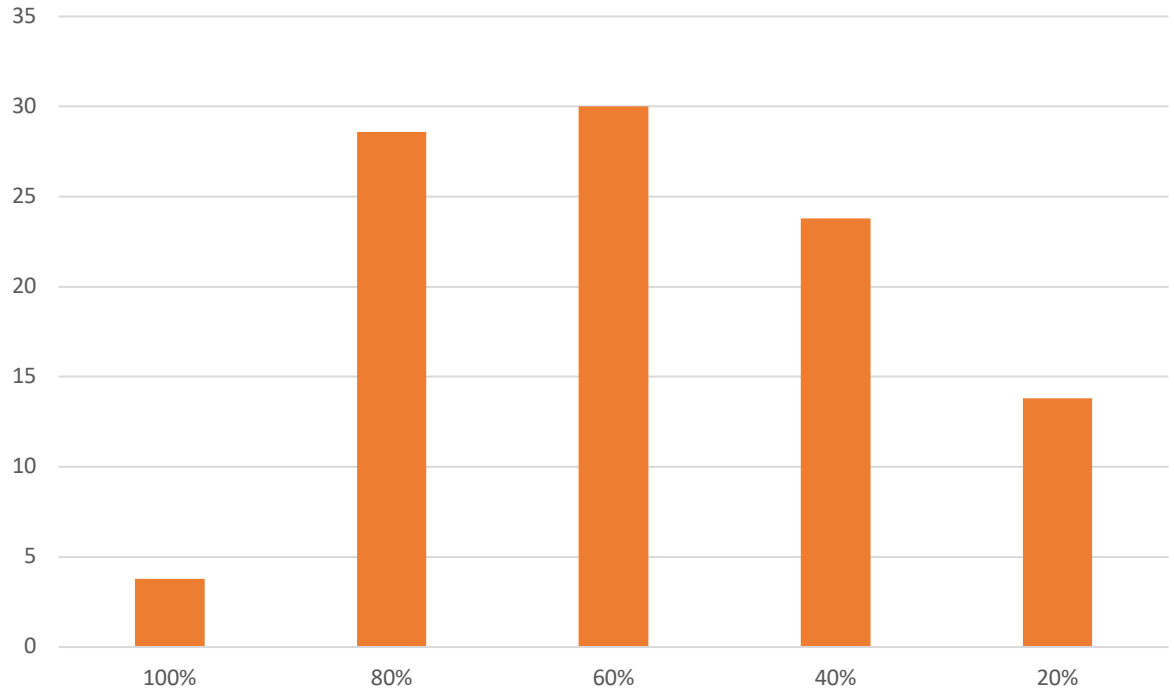




Student's responsibility

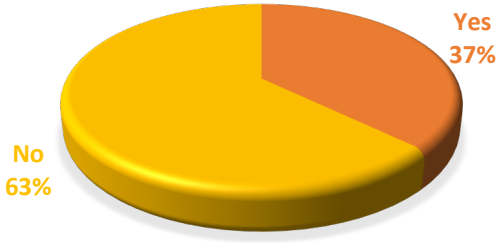
According to the teachers' opinion (71,2%), being able to attend a course at his/her own time and convenience (time, place, path, pace), improves a students' performance and efficiency.



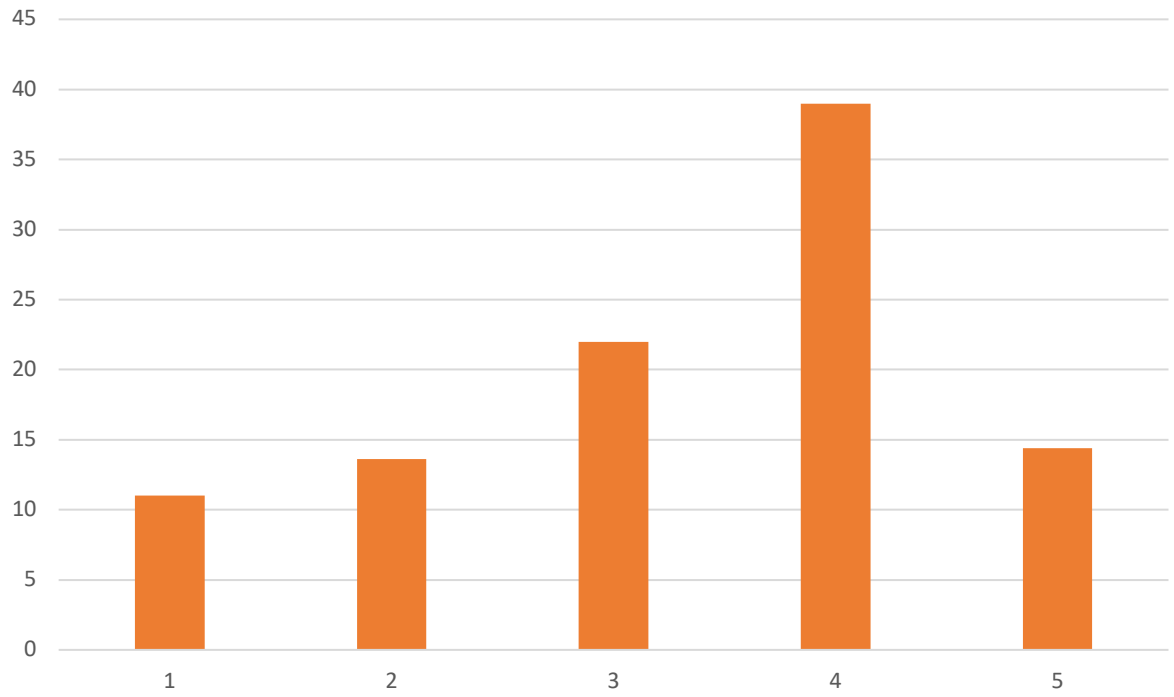


The degree of the improvement of the performance and efficiency ranges from 40% to 80%.

Role of the teacher



When asked if **distance education reduces the role of the teacher in the educational process**, 62,8% believe that it does not reduce it, while 37,2% believe that it does. Of this 37,2%, the highest percentage (39%) believe that distance education reduces the role of the teacher by 40%, while 60% believe that it reduces it by 22%.



Factors that affect the quality of educational process

To the question "**what factors do affect the quality of educational process?**", the teachers had to note the 5 factors that they considered most important between three categories (family, VET school and individual factors) and 19 choices in total. **The five factors that teachers in all countries singled out are**:
[family] financial resources available to households / welfare resources available to households
[family] education level of parents
[VET school] quality of teaching
[individual factors] correctly chosen profession (student like what he/she learns)
[individual factors] motivation of the students

While they consider the following factors quite important:
[family] educational resources available to the household
[VET school] curriculum quality
[VET school] preparing for a career in science at school
[VET school] amount of IT equipment, educational licenses for training in relation to the size of the school
[individual factors] personal effectiveness

Conclusions

1. The majority of teachers (71%) use interactive tools when they teach (32% always and 39% often)
2. Surveyed teachers believe that the usage of different interactive tools increases the interest of the students for the lesson
3. Teachers think that the most suitable educational techniques (to a big extent) for the specific teaching methods are the following: research as an educational technique is more suitable in blended teaching, presentation is more suitable almost in all teaching methods. Discussions, questions/answers, and role play are more useful in face to face teaching. A case study is more suitable in distance learning. Working in pairs/groups as an educational technique is suitable in all teaching methods
4. The majority of teachers assign homework sometimes and rarely
5. The majority of surveyed teachers (86%) have conducted the lessons through the use of online platforms (e-learning)
6. The majority of teachers (20% of respondents –always and 44% of respondents – often) are suggesting to their students to use the internet for research and finding information
7. Almost all surveyed teachers (99%) use practical examples in their lessons. The implementation of practical examples in lessons is an essential component of the teaching and learning process. The practical examples can be very useful for students developing a better understanding of necessary topics in the lessons, as well can create an understandable connection between theory and a real-life situation
8. The majority of teachers indicated that the collaboration between the students during the learning/teaching process is very important for 48 % of respondents, extremely important for 31% of respondents. Teachers know that collaboration skills are necessary for students 'lives and in labor market. Nevertheless, 48% of surveyed teachers assign sometimes to their students projects where teamwork is involved, to develop their collaborative skills, 15% of surveyed teachers assign to their students projects rarely

9. Data analysis underlines teaching in person method as one of the most suitable methods as well blended teaching/learning and synchronous distance learning as a method has the potential
10. For the most significant part of surveyed teachers (79%), it is essential to get feedback from students that helps them to get some reflection on how are they teaching and using teaching methods in the lessons as well to make some adjustments to make better progress in their teaching
11. 51% of respondents indicated that personal contact between teachers and students during the learning/teaching process is very important and 36% of respondents indicated that it is extremely important
12. Most teachers (89%) think that it is possible to combine teaching/learning in person with distance teaching/learning
13. Almost all the teachers (96%) know about blending the individual ingredients of blended teaching to make the blended lesson consistent and effective, and even though they would like to receive training on how to make lessons based on blended teaching (64,4%)
14. The majority of surveyed teachers would like to teach students more in person and less online. 91% of surveyed teachers would like to deliver lectures more than half time of lessons in real classes with students and rest time online
15. 71% of surveyed teachers think that possibility for students to attend a course at his/her own time and convenience could improve a students' performance and efficiency
16. 63% of respondents think that distance education does not reduce the role of the teacher in the educational process
17. The educational process is affected mostly by individual factors, and it is affected moderately by VET school factors. The family factors affect the educational process to a small extent
18. The teachers indicated that individual factors play the most important role in the educational process. The motivation of students is crucial in the teaching and learning process what directly affects students' willingness to learn, and consequently their learning outcomes. Personal effectiveness shows how much are students ready to be involved in the acquisition of new knowledge and skills, their capacity.

Correctly chosen profession means student like what he/she learns. When the students acquire a profession that they like they can reach better results

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