Flipped Classroom in the European Vocational Education

*Result of the survey in Czech Republic*

Context

Recent literature reveals that the full potential of ICT is often not realised in formal education, and that "only a few innovative projects manage to survive beyond the early adopter stage and become fully embedded in educational practice." (S. Bocconi, P. G. Kampylis, Y. Punie, 2012). The FlipIT Erasmus+ research project aims to integrate "flipped classroom" method into the pedagogical practice of the VET schools and training centers in order to engage a movement towards work-based, collaborative and problem-oriented learning/teaching by utilising the pedagogical potential of ICT tools.

The FlipIT consortium developed a questionnaire with 25 questions, they published it on the multilingual **EUSurvey** portal (https://ec.europa.eu/eusurvey/home/welcome) in Spanish, in Hungarian and in Czech and carried out the survey in March of 2016 by involving VET teachers from the three countries.

The aim of the survey was to reveal whether the VET teachers are open and ready to use FC methods in the classroom, do they have necessary IT-skills, does the school have sufficient equipment and IT infrastructure for teachers and students. The FlipIT consortium set hypothesises to check by the survey as follows

- H1 - Infrastructure: Schools have the requisite IT infrastructure to apply an FC model, and students have access to this equivalent infrastructure to do their homework, while studying at home.
- H2 - IT skills of teachers: The teachers have basic IT skills, but are not trained in using specific IT tools (e.g. applications for creating & editing video, or Web 2.0 tools) needed for FC methods.
- H3 - Methodology: modern pedagogical methods are known to some teachers, but that the Flipped Classroom methodology is not known, and not widely used among VET teachers in the target countries (Hungary, Spain).
- H4 – Motivation: teachers are motivated to introduce new innovative pedagogical methodologies that include the use of technologies.
- H5 – Training needs: there is a need for training covering both the pedagogical and technological aspects of using the Flipped Classroom methodology in the teachers' daily work.

The sample size and distribution among the countries is presented on the chart as follows:

Czech Republic	54
Hungary	120
Spain	360
Total	**534**
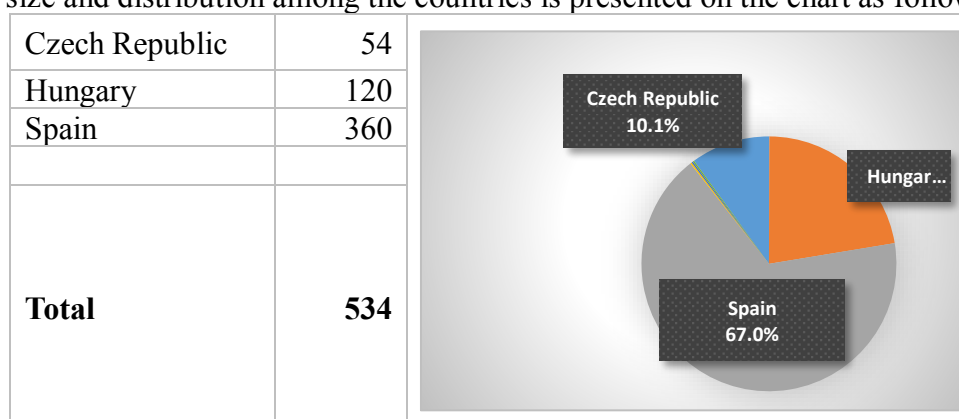
573 teachers responded for the questionnaire. Most of them are from Spain (67%), 22.3% from Hungary-120 people, and 10.1% from the Czech Republic.

1. Your country

	All answers	Share by countries
Czech Republic	54	10,1%
Hungary	120	22,3%
Spain	360	67,0%
Poland	1	0,2%
France	1	0,2%
United Kingdom	1	0,2%
Total	537	100,0%
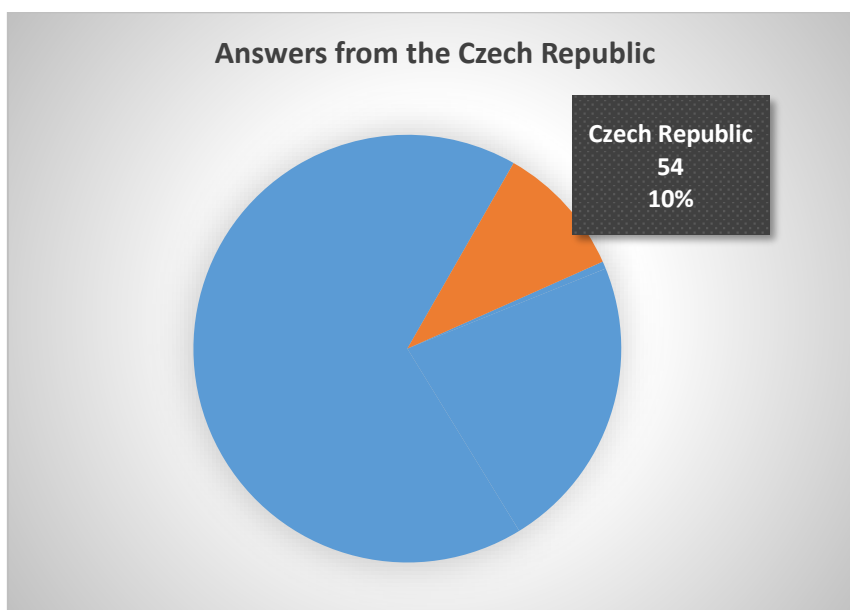
Evaluation
The Czech Republic´s share was one tenth out of the total number of 537 respondents.

2. Age group

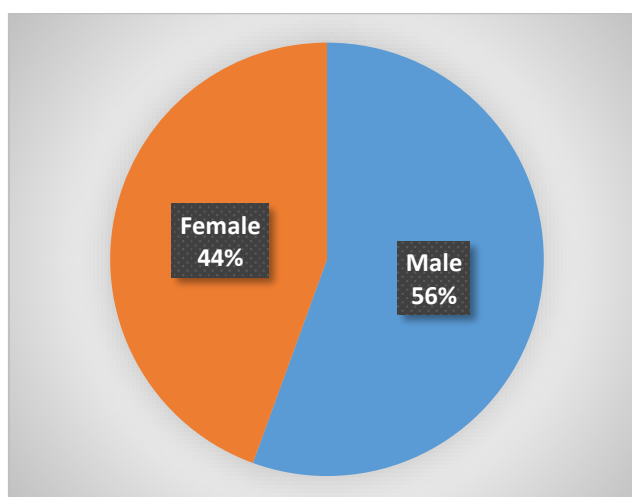| 22-28	10	19%
29-35	7	13%
36-44	19	35%
45-54	15	28%
55+	3	6%
Total	54	100%
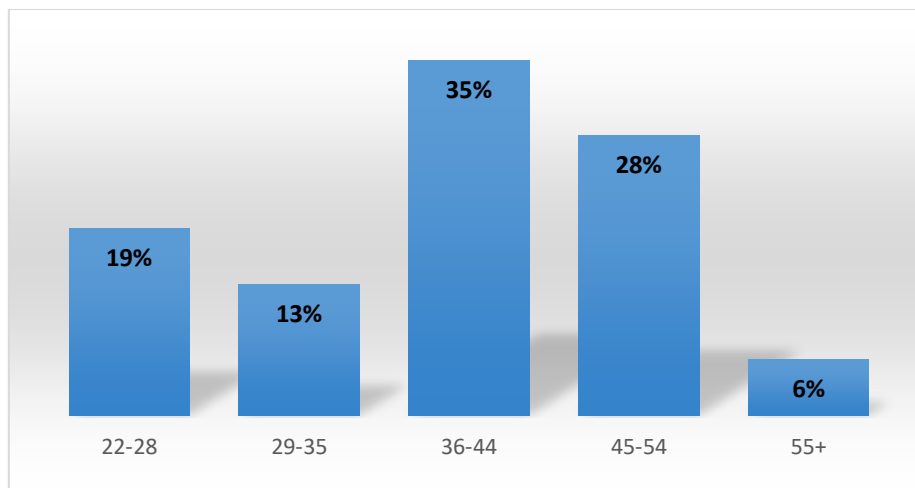
Evaluation

The majority of teachers belonged to the middle-aged group (the age of 36-44), resp. the "elderly" group (the age of 45-54).

Approximately one fifth of the responders were the youngest teachers (aged 22-28).

3. Gender

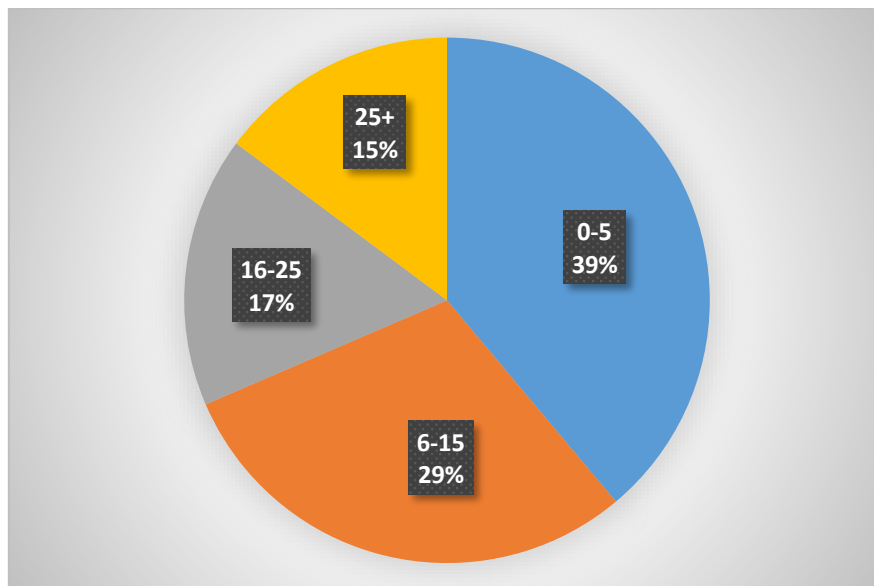|		
Male	30	56%
Female	24	44%
Total	54	100%

Evaluation

56 % out of the total were male respondents, which is the usual proportion at Czech VET institutions.

4. Teaching experience (years)

| 0-5	21	39%
6-15	16	30%
16-25	9	17%
25+	8	15%
Total	54	100%

Evaluation
Concerning the length of their teaching practice, the majority of the respondents belong to teachers with a shorter teaching experience (the teaching experience of two thirds of the respondents was shorter than 15 years).

5. Your university level

| BSc/BA	27	50%
MSc/MA	10	19%
no Uni level	12	22%
other	1	2%
PhD	4	7%
Total	54	100%
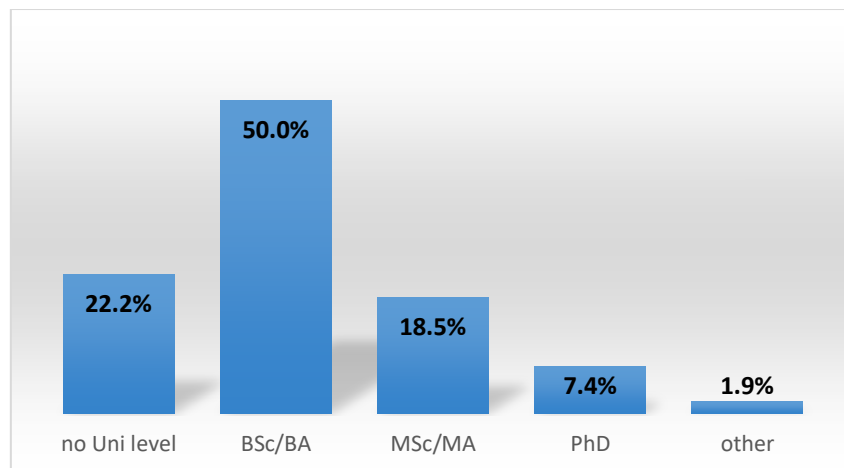
Evaluation

The respondents teach mainly at secondary vocational schools, which are practically oriented. That is why one half of the respondents had just the lowest level of university degrees (i.e. the Bachelor´s level), one fifth of the respondents did not have university qualifications at all (supervisors of practical training).

6. Your subject category?

|		
Technical Engineering	24	44%
Social Sciences	7	13%
Natural sciences	6	11%
Computer Sciences	5	9%
Arts	4	7%
Languages	2	4%
Economics	2	4%
Other, please specify	2	4%
Physical Education	1	2%
Medicine and Health	1	2%
Total	54	100%
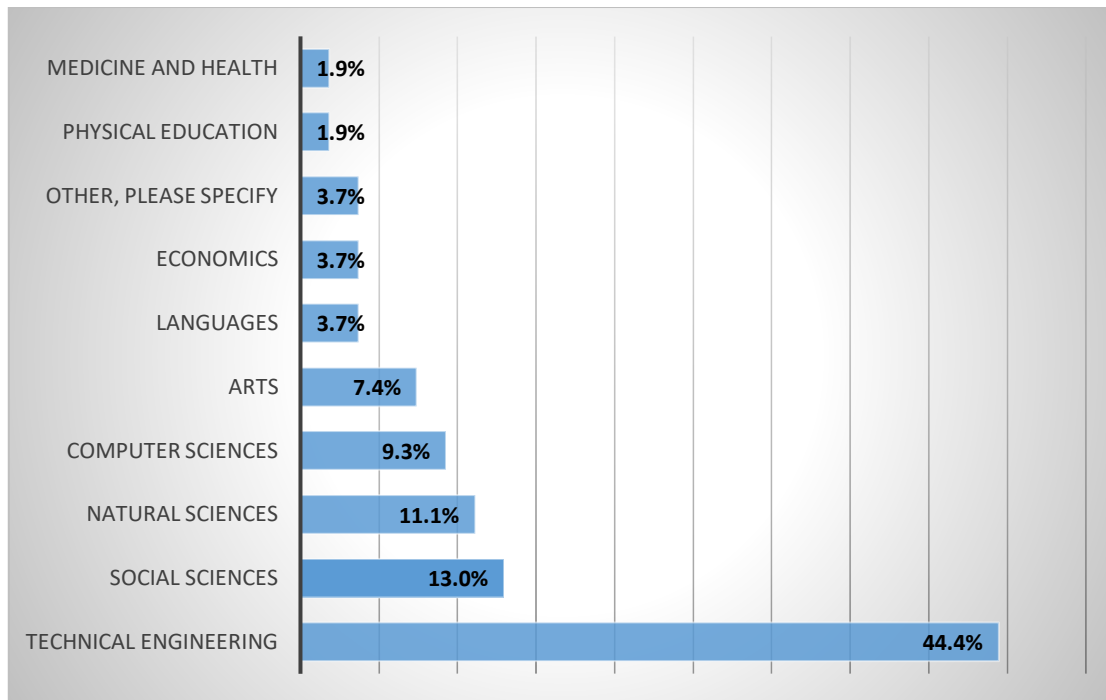
Evaluation
The majority of the respondents were from technically oriented secondary vocational schools (e.g. focusing on machinery, electro technology etc.).

7. Your school type

vocational high school	23	43%
upper secondary school	12	22%
lower vocational school	11	20%
adult VET	5	9%
primary school	2	4%
grammar school	1	2%
Total	54	100%
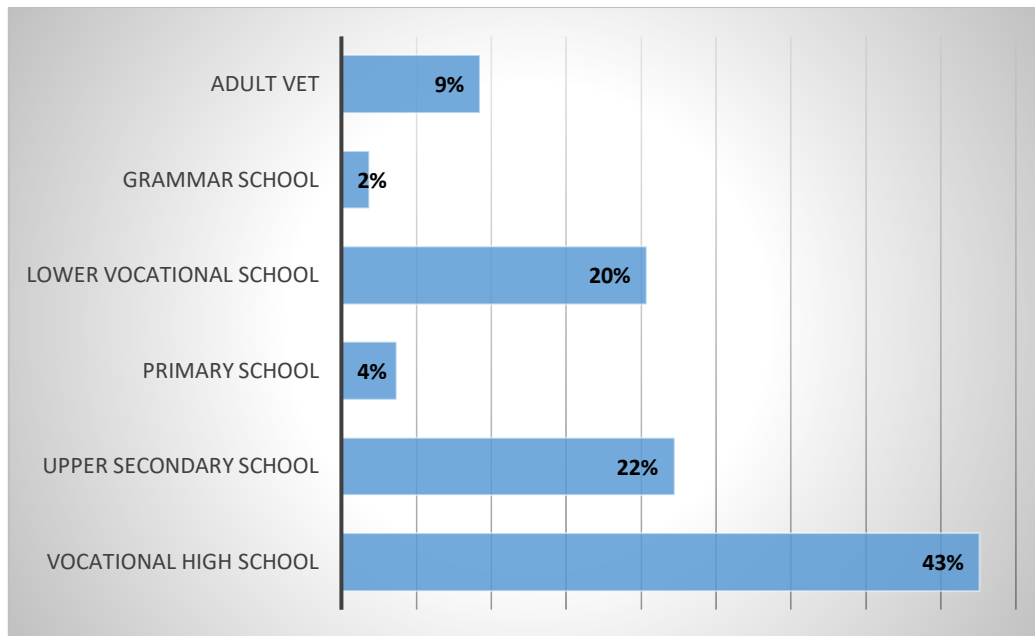
Evaluation

43 % of the respondents were from secondary vocational schools offering the complete secondary education (the "maturita" degree), one fifth of the respondents were from lower vocational schools (the school leavers receive the vocational certificate).

8. Number of students at your school
+
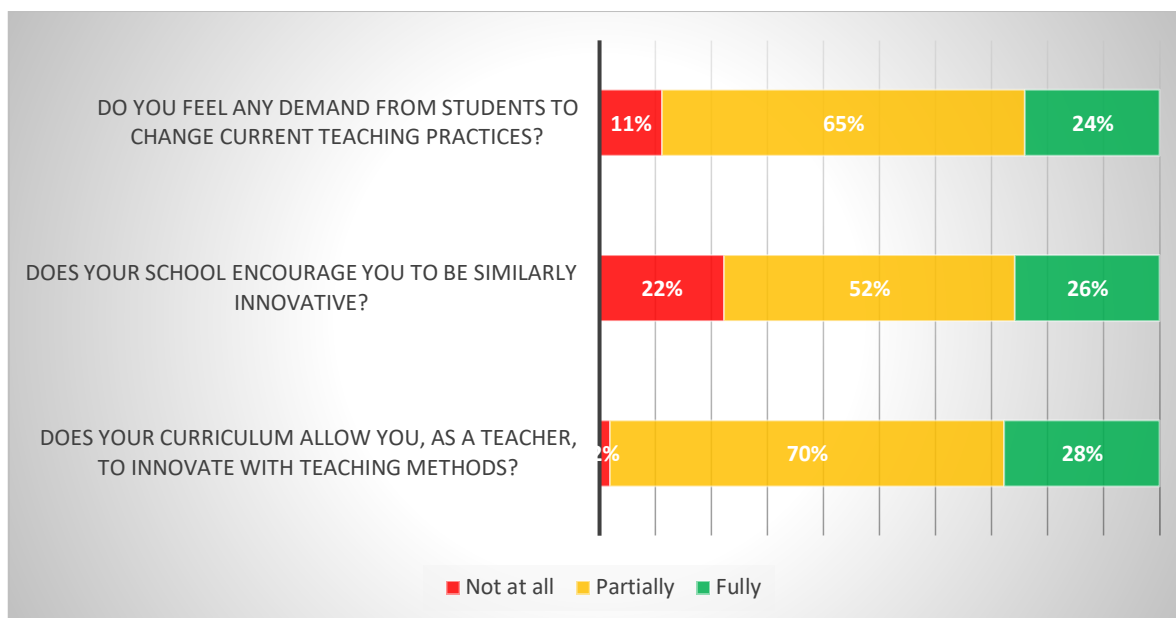## 9. Number of teachers / educators in the school

	less than 200	201-500	501-1000	1001-3000
■ 101-300			2	2
■ 51-100		9	7	
■ 21-50	4	22	5	
■ less than 20	2		1	

8. Number of students at your school
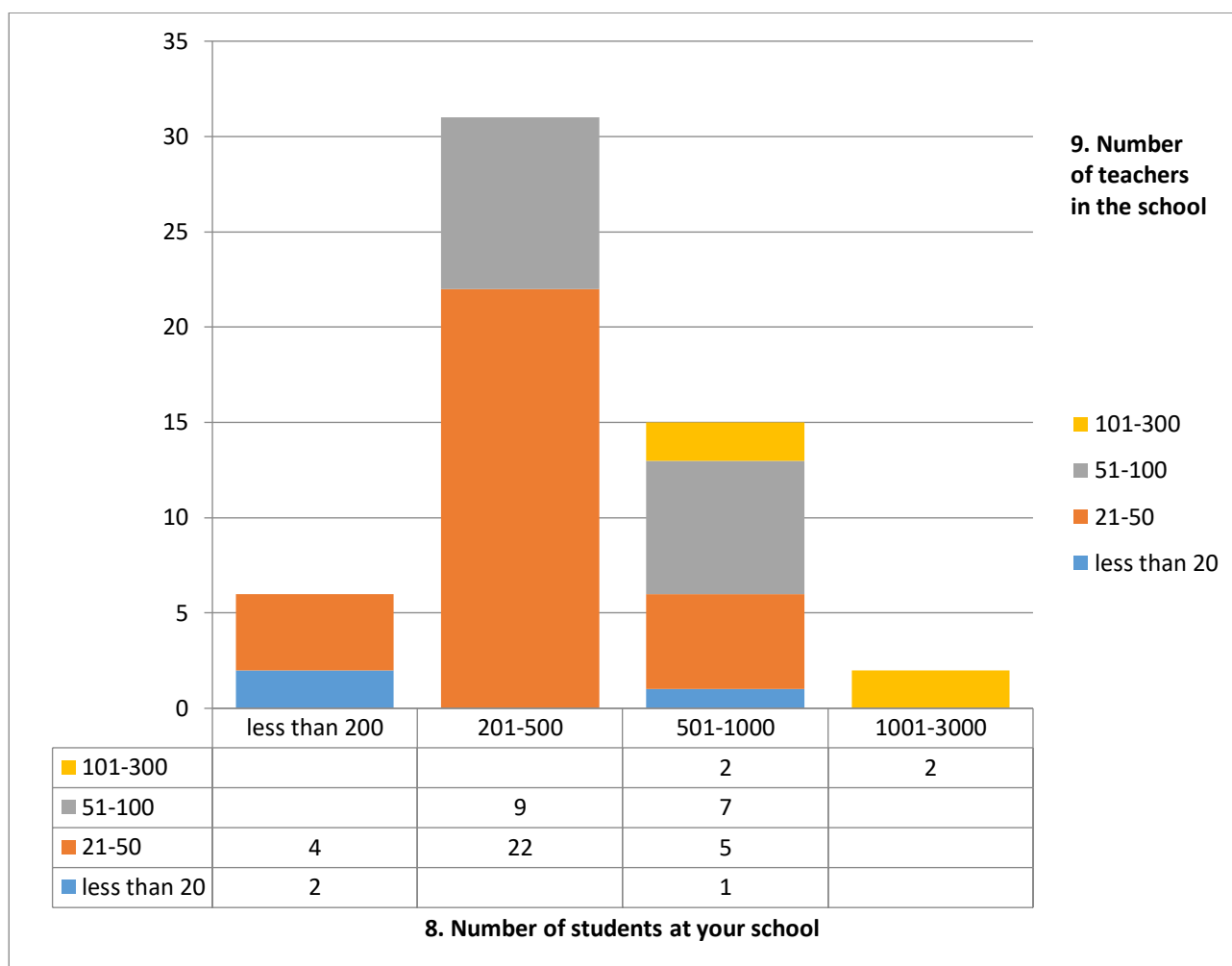
Evaluation

The respondents were dominantly from middle sized schools (concerning both the number of students and the number of teachers).

10. Conditions for Innovation in Teaching

|	Does your curriculum allow you, as a teacher, to innovate with teaching methods?	Does your School encourage you to be similarly innovative?	Do you feel any demand from students to change current teaching practices?
Fully	15	14	13
Partially	38	28	35
Not at all	1	12	6

Evaluation

The vast majority of the respondents confirmed that they have a possibility to implement new teaching methods into curricula and that they reflect their school´s efforts to innovate the ways of teaching. 70 % of the respondents perceive the demand for changes in teaching methods also as students´ demand.

10/B: If you do innovate, then

a like-minded group within your School will provide mutual support.	25	46%
you are left to do so on your own.	29	54%
Total	54	100%
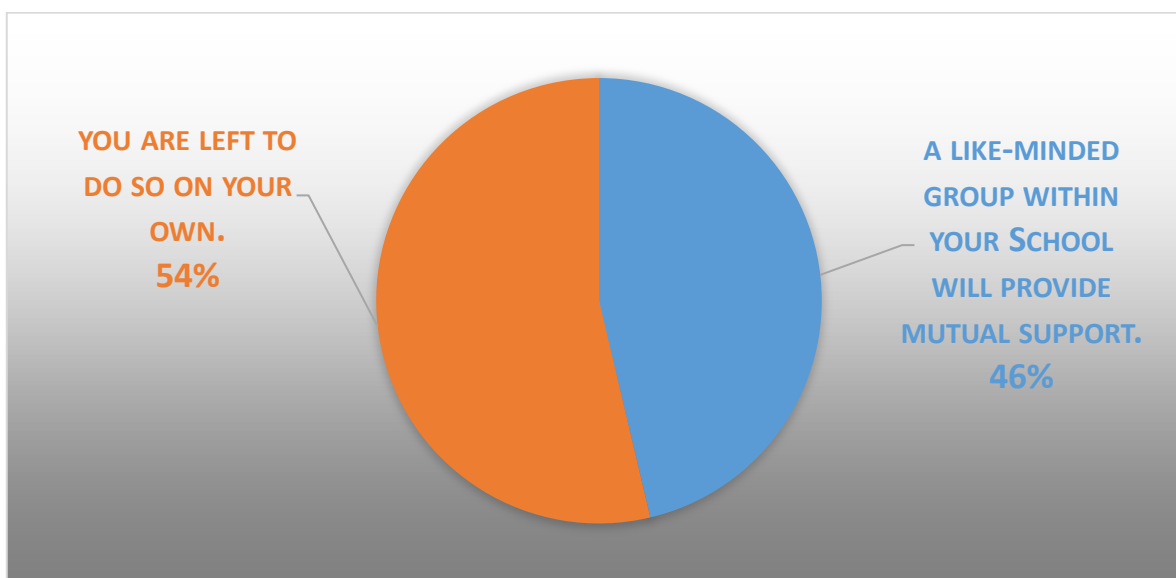
Evaluation

When applying innovative methods, a half of the respondents are supported by like-minded colleagues, the other half of the respondents apply innovations by themselves.

11: Describe any innovative techniques your use at your School!

Problem teaching
New equipment, possibilities of excursions, cross-curricular connections, time to ideas pupils
Compliance curriculum, experiential learning own
New classrooms equipment - CNC
Use of programs (PC) to improve teaching
Teaching in the form of training companies
Practical lessons, interdisciplinary links
ERASMUS - practice abroad
Production of visual aids, curriculum change
Presentation, cooperation, e-learning
E-learning
New educational resources, modernizing schools, new technology
New tools in theoretical and practical part of teaching methods, prefers a partnership approach.
Project teaching
Audio visual
Mining technology - simulators, SW components
Films, group work, projector
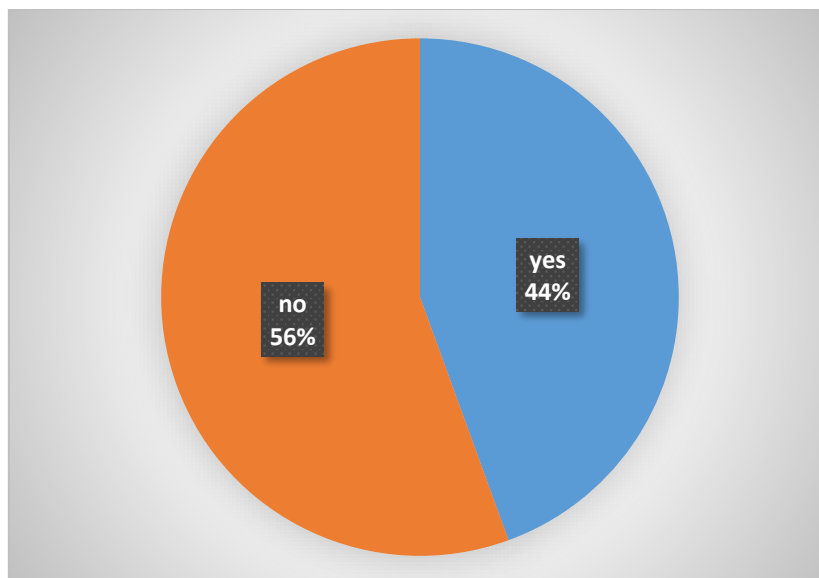Tablets
ICT, interactive blackboard, CLIL
Moodle

Evaluation

The given survey shows that the most preferred innovative methods and/or techniques are e-learning and using of new technology (e.g. interactive blackboards, CNC machinery, mining technology - simulators, SW components a software).

12. Does your School provide any online education?

| yes	24	44%
no	30	56%

Evaluation

Approximately a half of the respondents´ schools (44 %) apply on-line education.

## 13. Do you use the following pedagogical methods in your class?

	Never	Rarely, I have applied this method and I use it for an specific part of one subject	Sometimes, in some part of some subjects	Often, almost in every lesson	Always, in every lesson
Project-based learning	3	17	21	12	1
Collaborative learning	18	8	18	7	3
Cooperative learning	5	7	30	8	4
Problem-based learning	9	12	23	10	0
Inquiry-based learning	20	14	13	4	3
Frontal instruction	3	7	14	25	5
Game-based learning	7	10	17	18	2
Flipping the classroom	27	12	11	4	0
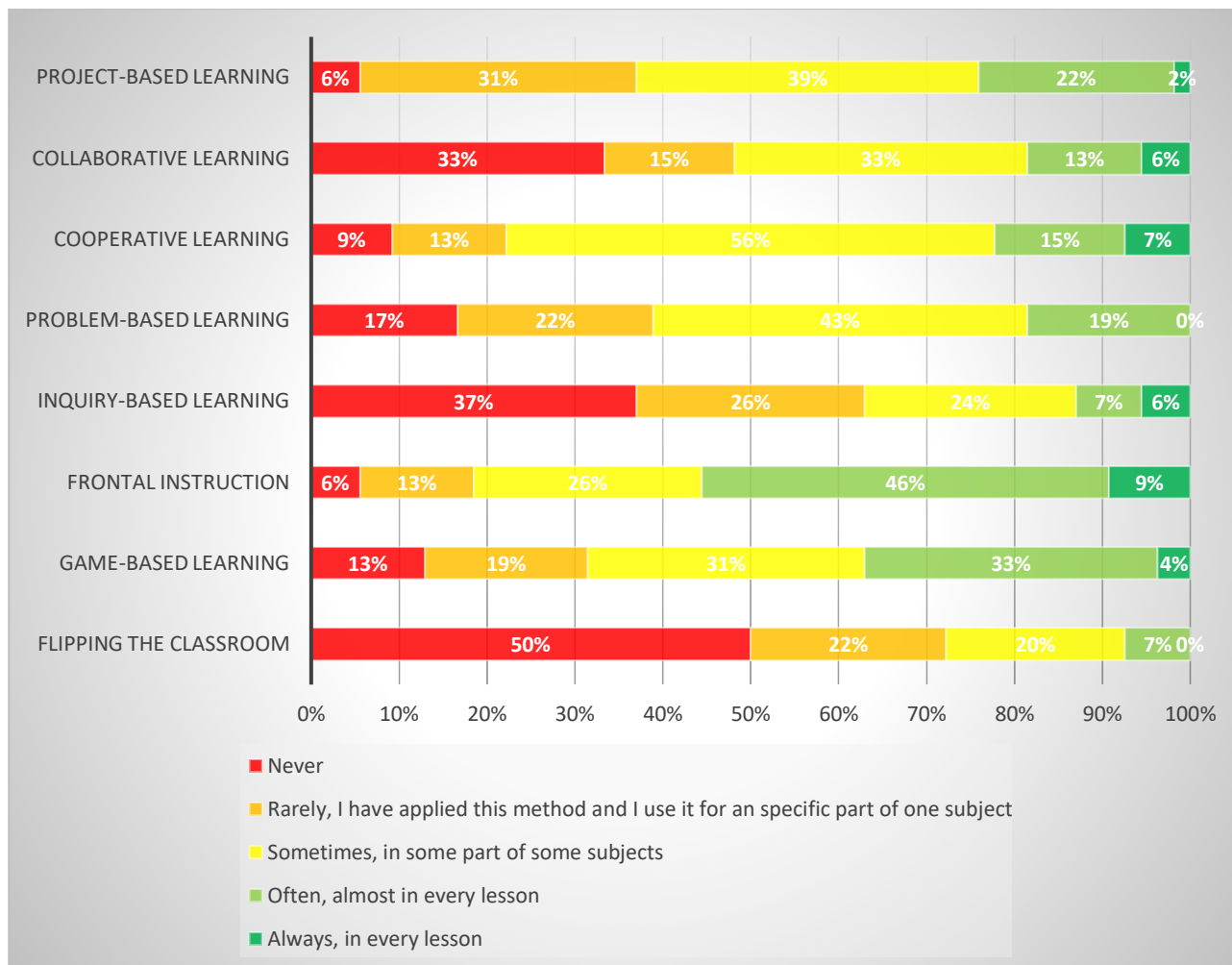
Evaluation

The general survey of the teaching methods shows that the prevailing method is frontal instruction. Sometimes, activating methods, such as project-based learning, collaborative learning, cooperative learning and problem-based learning, are used in some subjects. The model of Flipped Classroom is used minimally (but if used, then surprisingly in every lesson).
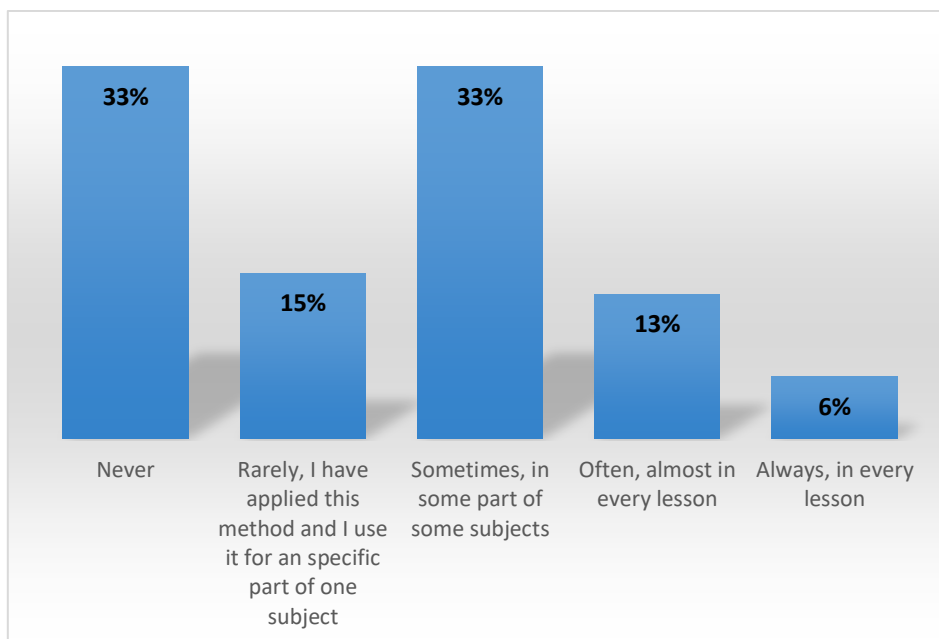
Project-based learning
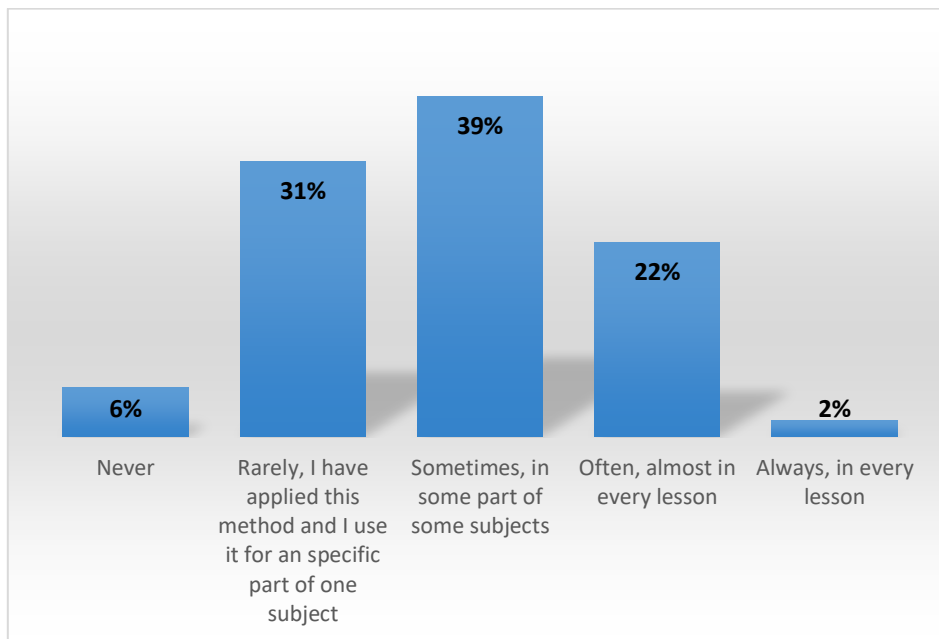
Evaluation

Project-based learning is used by more than two thirds of the respondents. It is interesting that 2 % of the respondents used project-based learning every lesson.

Collaborative learning

Evaluation

Collaborative learning is very often used by approximately one fifth of the respondents. 33 % of the respondents use this method only sometimes, the same percentage applies to those who never use this method.

Cooperative learning
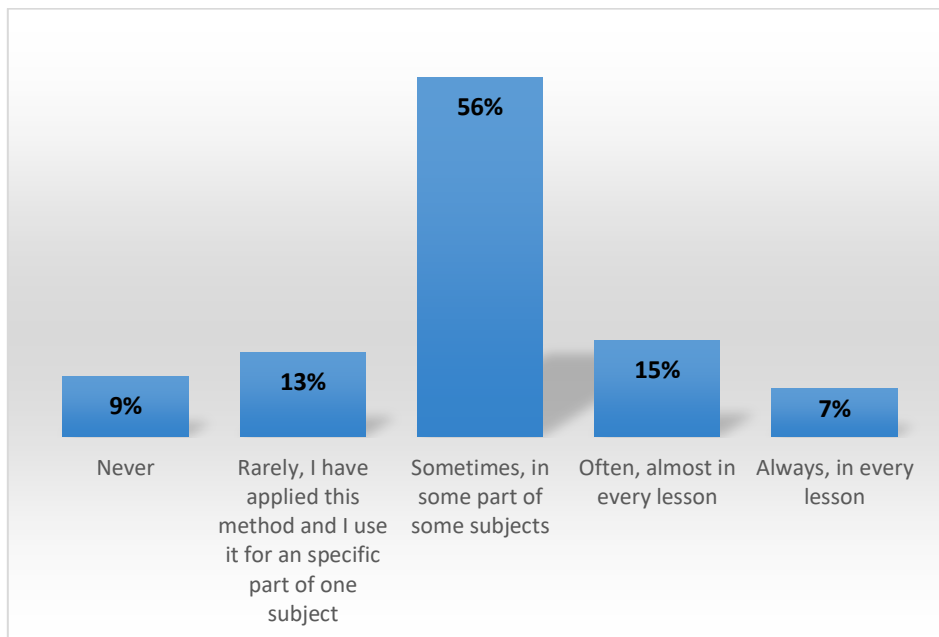
Evaluation

Cooperative learning is a very frequently used complex teaching method, which is confirmed by the above given graph. In total, this method is actively used by 78 % of the respondents.

Problem-based learning
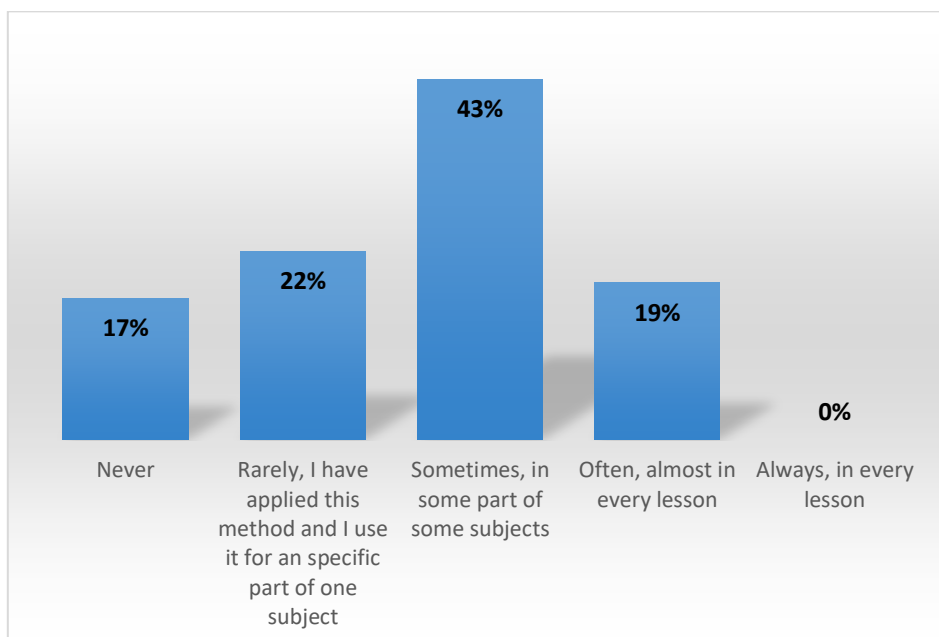
Evaluation

Problem based learning is applied by approximately two thirds of the respondents. It is rather surprising that although 39 % of the institutions are technically oriented, 17% of the respondents do not apply the method at all and 22 % of the respondents apply this method only rarely.

Inquiry-based learning
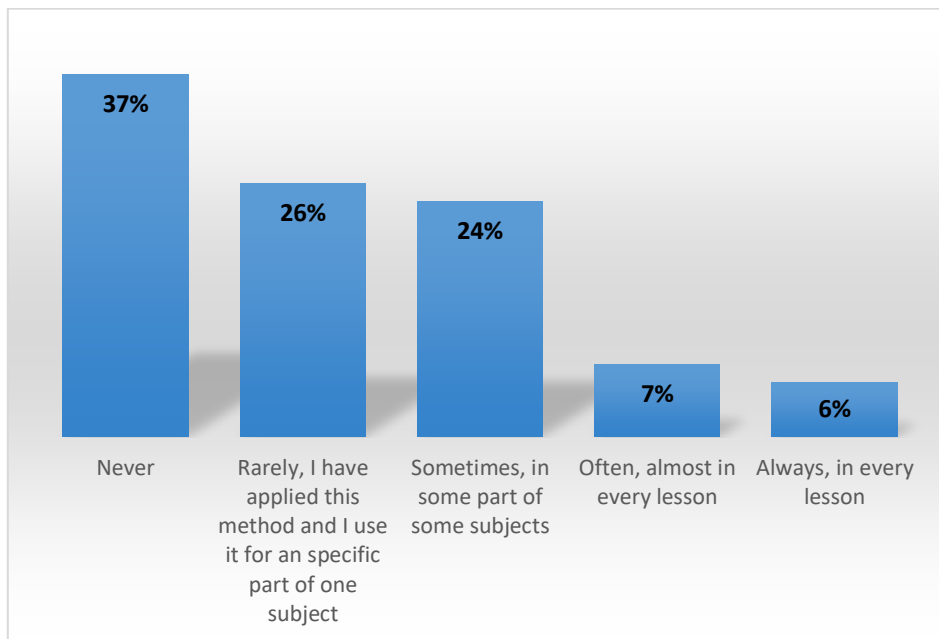
Evaluation

The preparing phase for inquiry-based learning is really challenging for teachers. That was proved by the results of the survey, which show that this method is often not applied at all or is applied very rarely. The method is more often used by only one third of the respondents.
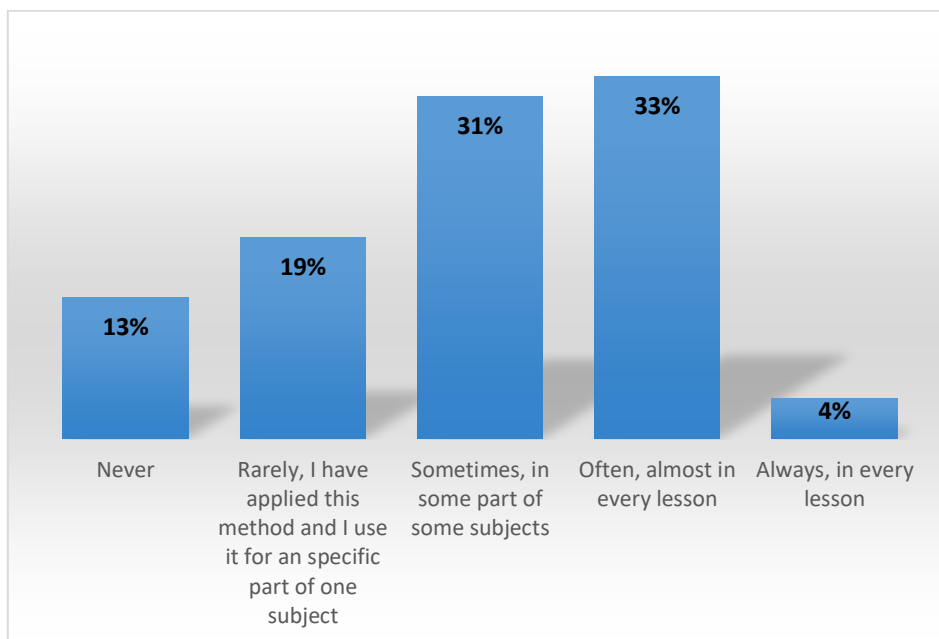
Frontal instruction
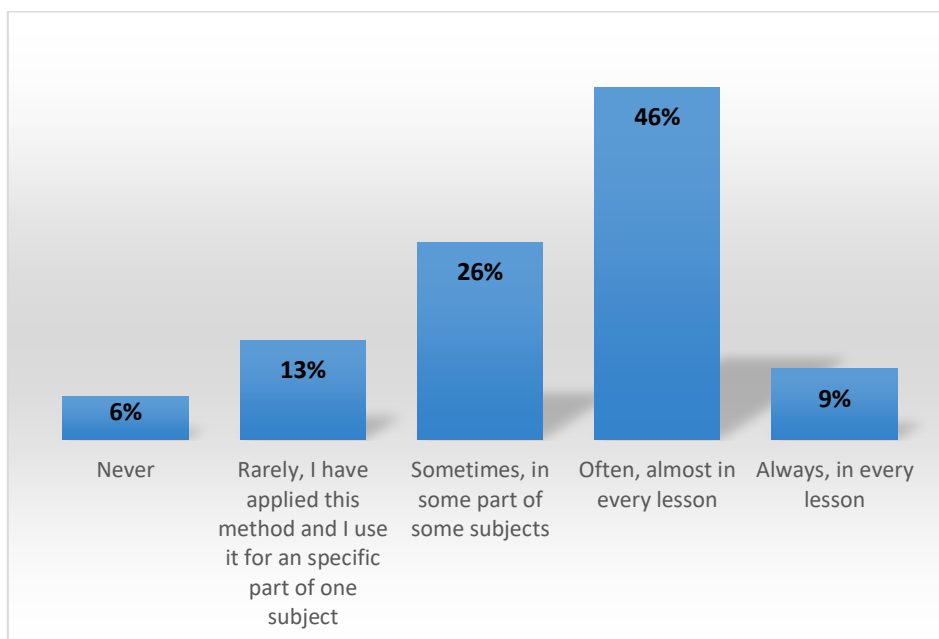
Evaluation

Frontal instruction belongs to the most frequently used teaching methods, which was proved by the survey. Only 6 % of the respondents do not apply this method, 13 % of the respondents use it only occasionally. The method is applied by a prevailing percentage of the respondents.

Game-based learning

Evaluation

Using of game elements in the teaching process makes students more active. The respondents use games in their teaching, however, games are usually not applied by two thirds of the respondents.
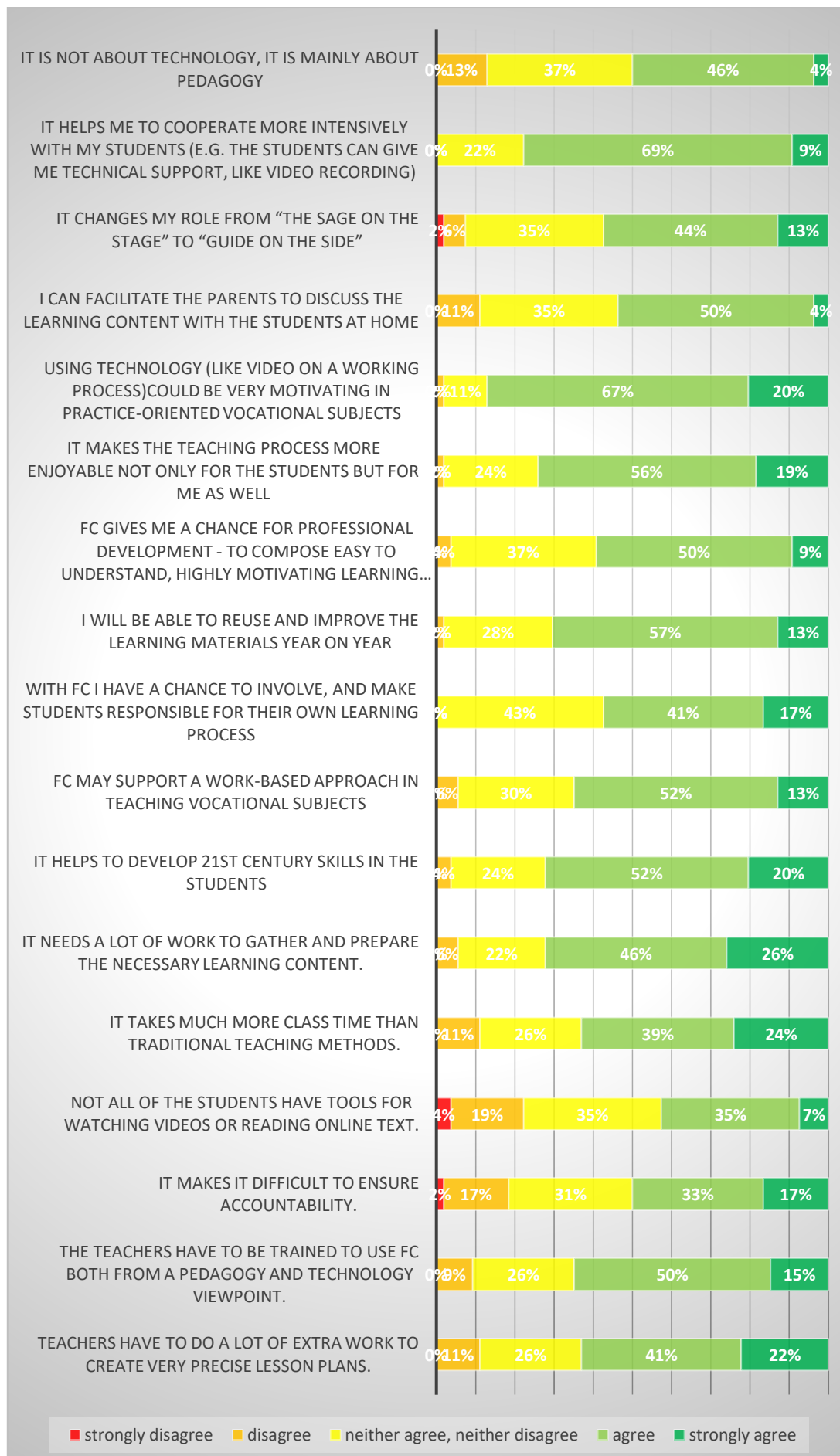
Flipping the classroom
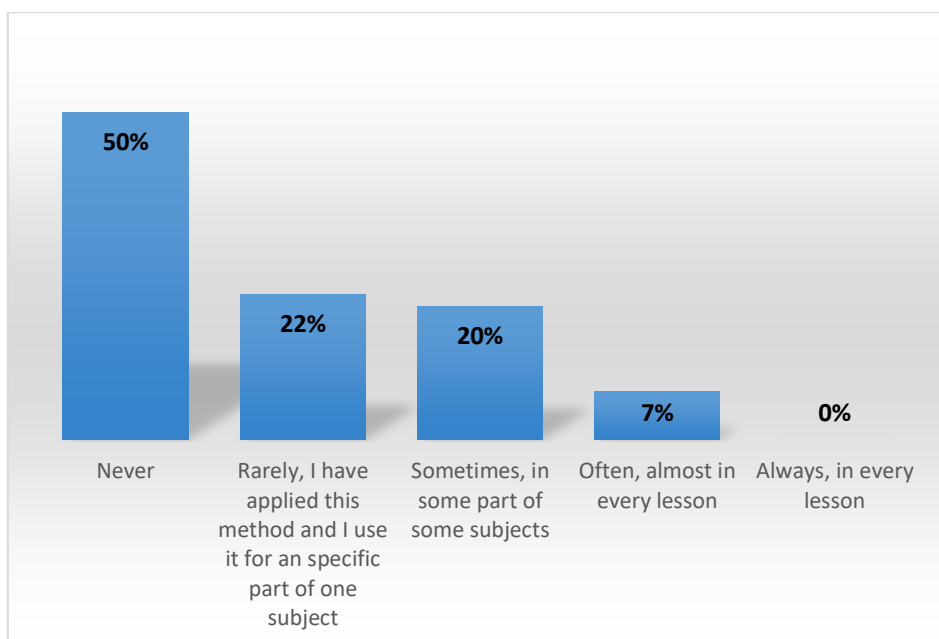
Flipping the classroom is a new method, which uses ICT, and the preparations for which are rather demanding. Based on the results of the survey, it can be claimed that 50% of the respondents do not apply the method (and probably they are even not aware of it). The method is used by 27% of the respondents, 7% of the respondents apply it frequently.

14. **Consider the following description and share your degree of agreement with the following statements:** *"Flipping (or inverting) the classroom can be described as moving from a teacher-centred learning environment to a student-centred learning environment. In the classical model the teacher in the classroom delivers the material to the students; in a flipped classroom the material is processed at home, before the lesson takes place in the school. In a flipped scenario, the students read the material (or watch the video) at home (offered or prepared by the teacher), and in the classroom they are involved in collaborative and interactive work. While videos and other technological tools can be effective in a flipped classroom, they are not required in every case to use this method. The true essence of the flip is really to focus on the student."*

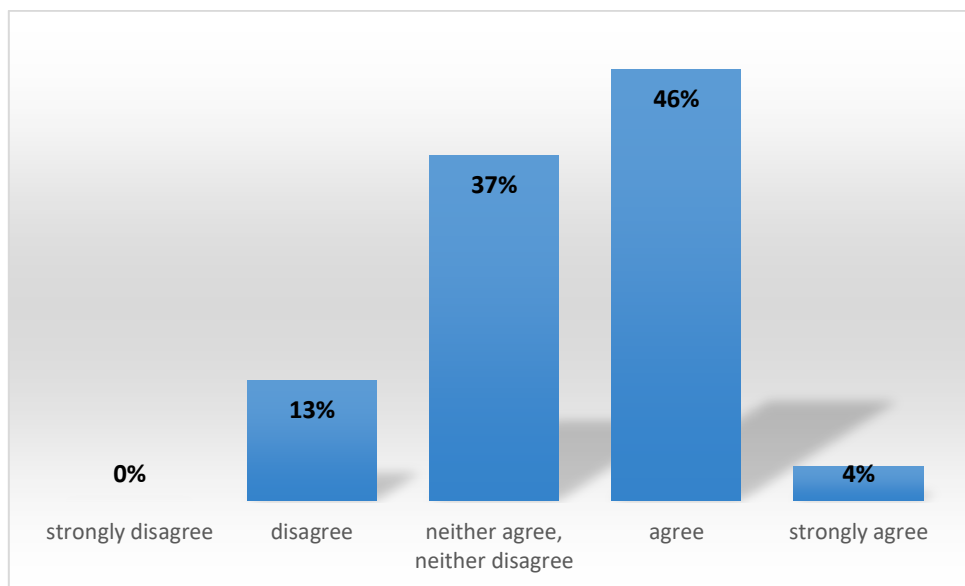|	strongly disagree	disagree	neither agree, neither disagree	agree	strongly agree
It is not about technology, it is mainly about pedagogy	0	7	20	25	2
It helps me to cooperate more intensively with my students (e.g. the students can give me technical support, like video recording)	0	0	12	37	5
It changes my role from "the sage on the stage" to "guide on the side"	1	3	19	24	7
I can facilitate the parents to discuss the learning content with the students at home	0	6	19	27	2
Using technology (like video on a working process)could be very motivating in practice-oriented vocational subjects	0	1	6	36	11
It makes the teaching process more enjoyable not only for the students but for me as well	0	1	13	30	10
FC gives me a chance for professional development - to compose easy to understand, highly motivating learning packets is a challenge what I like	0	2	20	27	5
I will be able to reuse and improve the learning materials year on year	0	1	15	31	7
With FC I have a chance to involve, and make students responsible for their own learning process	0	0	23	22	9
FC may support a work-based approach in teaching vocational subjects	0	3	16	28	7
It helps to develop 21st century skills in the students	0	2	13	28	11
It needs a lot of work to gather and prepare the necessary learning content.	0	3	12	25	14

It takes much more class time than traditional teaching methods.	0	6	14	21	13
Not all of the students have tools for watching videos or reading online text.	2	10	19	19	4
It makes it difficult to ensure accountability.	1	9	17	18	9
The teachers have to be trained to use FC both from a pedagogy and technology viewpoint.	0	5	14	27	8
Teachers have to do a lot of extra work to create very precise lesson plans.	0	6	14	22	12

| Statement	strongly disagree	disagree	neither agree, neither disagree	agree	strongly agree
IT IS NOT ABOUT TECHNOLOGY, IT IS MAINLY ABOUT PEDAGOGY	0%		13%	37%	46%	4%
IT HELPS ME TO COOPERATE MORE INTENSIVELY WITH MY STUDENTS (E.G. THE STUDENTS CAN GIVE ME TECHNICAL SUPPORT, LIKE VIDEO RECORDING)	0%			22%	69%	9%
IT CHANGES MY ROLE FROM "THE SAGE ON THE STAGE" TO "GUIDE ON THE SIDE"	2%	6%	35%	44%	13%
I CAN FACILITATE THE PARENTS TO DISCUSS THE LEARNING CONTENT WITH THE STUDENTS AT HOME	0%		11%	35%	50%	4%
USING TECHNOLOGY (LIKE VIDEO ON A WORKING PROCESS) COULD BE VERY MOTIVATING IN PRACTICE-ORIENTED VOCATIONAL SUBJECTS		11%	67%	20%
IT MAKES THE TEACHING PROCESS MORE ENJOYABLE NOT ONLY FOR THE STUDENTS BUT FOR ME AS WELL		24%	56%	19%
FC GIVES ME A CHANCE FOR PROFESSIONAL DEVELOPMENT - TO COMPOSE EASY TO UNDERSTAND, HIGHLY MOTIVATING LEARNING…	4%	37%	50%	9%
I WILL BE ABLE TO REUSE AND IMPROVE THE LEARNING MATERIALS YEAR ON YEAR		28%	57%	13%
WITH FC I HAVE A CHANCE TO INVOLVE, AND MAKE STUDENTS RESPONSIBLE FOR THEIR OWN LEARNING PROCESS		43%	41%	17%
FC MAY SUPPORT A WORK-BASED APPROACH IN TEACHING VOCATIONAL SUBJECTS		30%	52%	13%
IT HELPS TO DEVELOP 21ST CENTURY SKILLS IN THE STUDENTS	4%	24%	52%	20%
IT NEEDS A LOT OF WORK TO GATHER AND PREPARE THE NECESSARY LEARNING CONTENT.		22%	46%	26%
IT TAKES MUCH MORE CLASS TIME THAN TRADITIONAL TEACHING METHODS.		11%	26%	39%	24%
NOT ALL OF THE STUDENTS HAVE TOOLS FOR WATCHING VIDEOS OR READING ONLINE TEXT.	4%	19%	35%	35%	7%
IT MAKES IT DIFFICULT TO ENSURE ACCOUNTABILITY.	2%	17%	31%	33%	17%
THE TEACHERS HAVE TO BE TRAINED TO USE FC BOTH FROM A PEDAGOGY AND TECHNOLOGY VIEWPOINT.	0%	9%	26%	50%	15%
TEACHERS HAVE TO DO A LOT OF EXTRA WORK TO CREATE VERY PRECISE LESSON PLANS.	0%	11%	26%	41%	22%

Legend: ■ strongly disagree ■ disagree ■ neither agree, neither disagree ■ agree ■ strongly agree

Evaluation
Generally it can be stated that a vast majority of the respondents agreed or even strongly agreed.

It is not about technology, it is mainly about pedagogy

Evaluation
The respondents consider the Flipping the Classroom method as a pedagogical method (and not as a mere use of technologies).

It helps me to cooperate more intensively with my students (e.g. the students can give me technical support, like video recording)
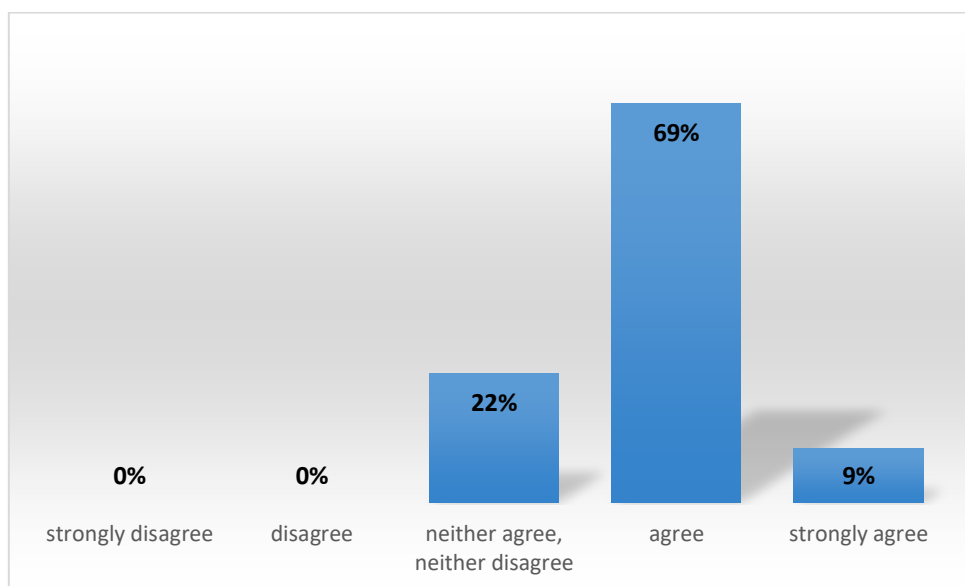
Evaluation
Concerning their cooperation with their students, the respondents perceive the Flipped Classroom method as a positive and cooperation-supporting one.

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It changes my role from "the sage on the stage" to "guide on the side"
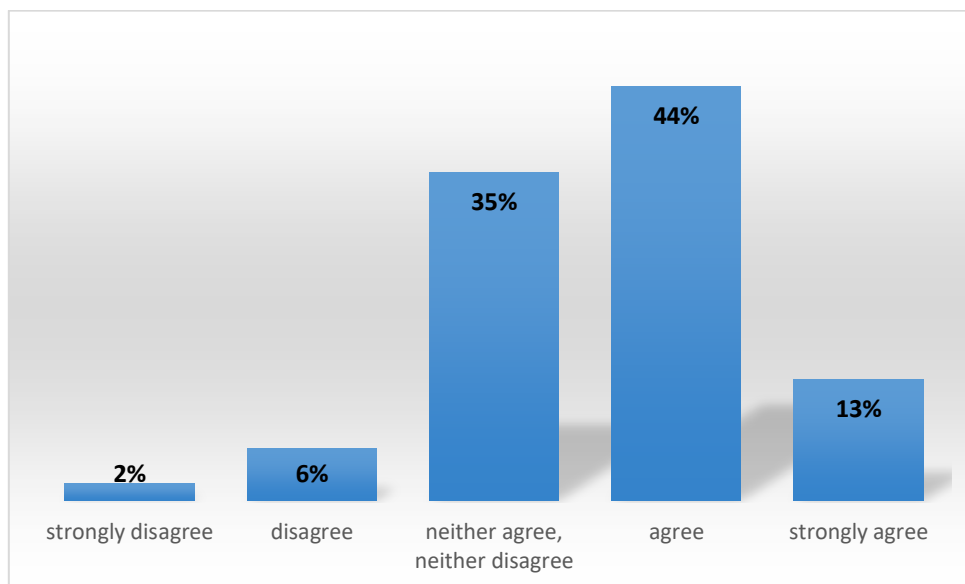
Evaluation

Approximately a half of the respondents can feel a change in their role of a teacher. However, 2 % of the respondents strongly disagree with this change.

I can facilitate the parents to discuss the learning content with the students at home
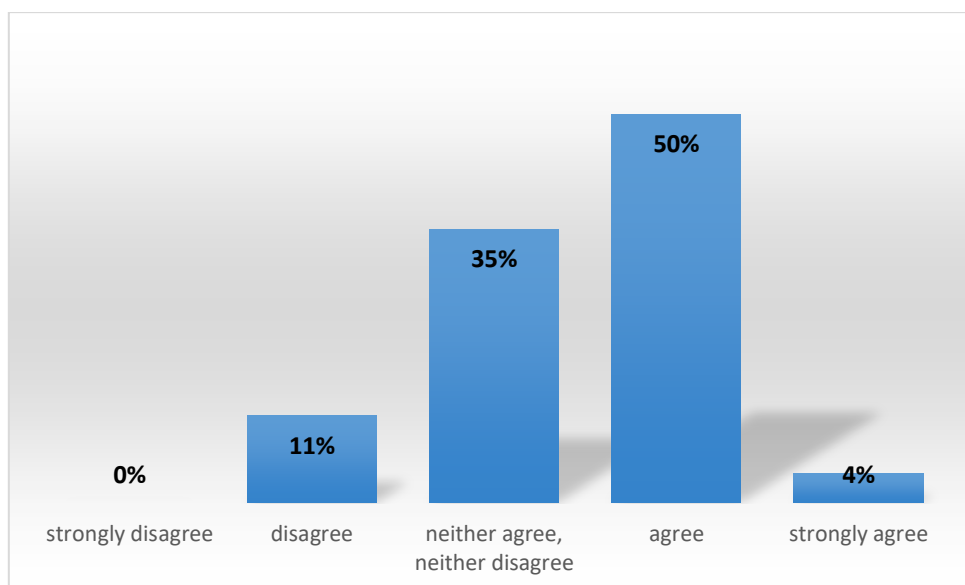
Evaluation

The respondents feel positive about a possibility for parents to discuss the issues to be studied while applying the FC method (54 %).

Using technology (like video on a working process) could be very motivating in practice-oriented vocational subjects
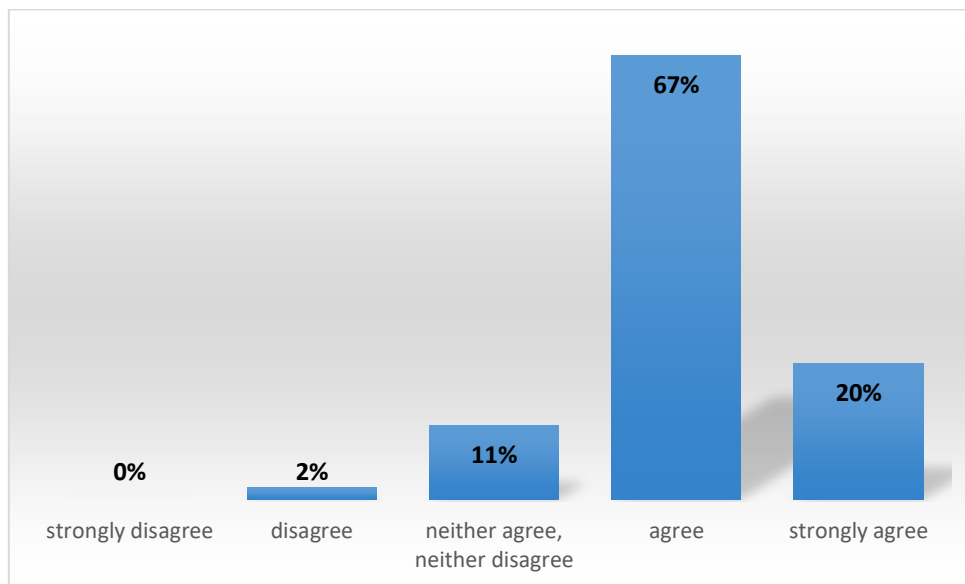
Evaluation
Using of technology is considered to be very positive by 87 % of the respondents. In our opinion, that is very effective especially in case of presenting vocational subjects.

It makes the teaching process more enjoyable not only for the students but for me as well
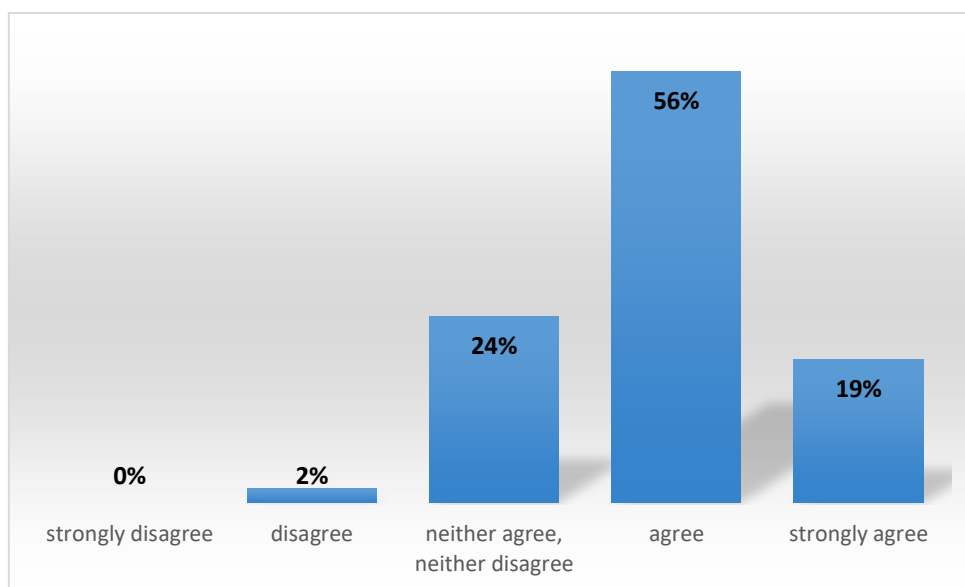
Evaluation
The FC method can make, in the opinion of nearly three quarters of the respondents, the teaching process "more pleasant" for both the teacher and students.

FC gives me a chance for professional development - to compose easy to understand, highly motivating learning packets is a challenge what I like
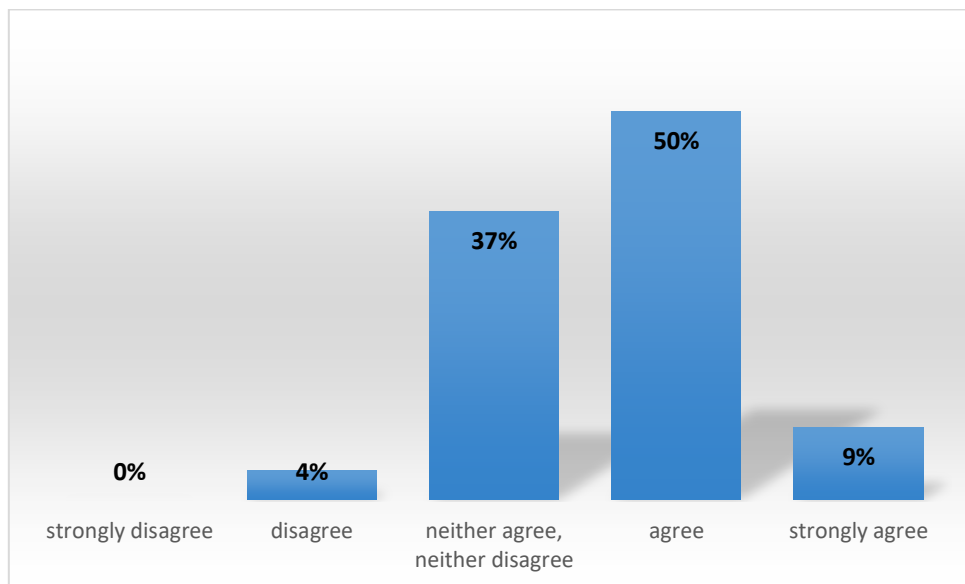
Evaluation
More than a half of the respondents (59 %) consider the FC model as a challenge linked with a chance to learn something new. The FC model is thus motivating for them.

I will be able to reuse and improve the learning materials year on year
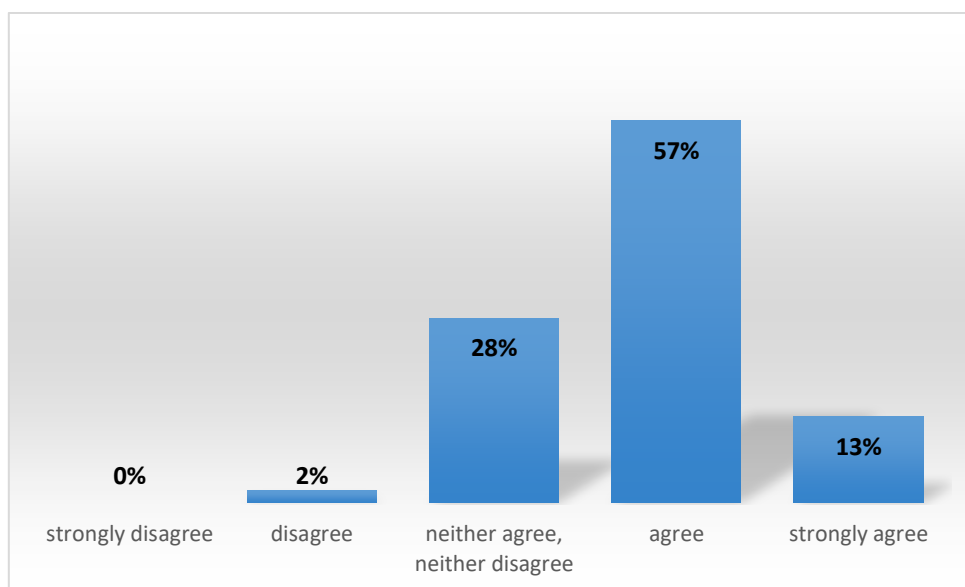
Evaluation
70 % of the respondents welcome the advantage of being able to re-use and to constantly improve learning materials.

With FC I have a chance to involve, and make students responsible for their own learning process
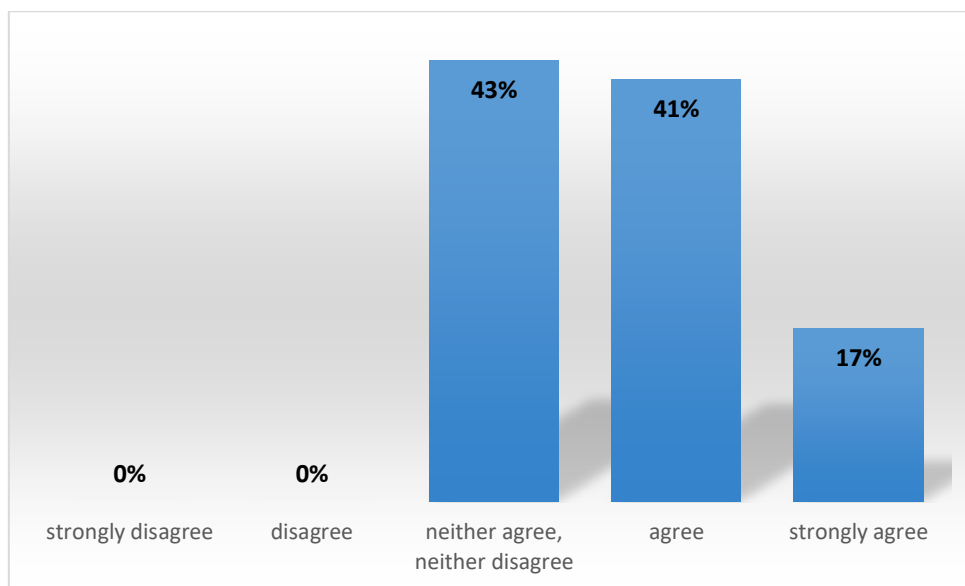
Evaluation
More than a half of the respondents agree with the statement that thanks to the FC model, students will be made more involved in the learning process and will become more responsible for their results.

FC may support a work-based approach in teaching vocational subjects
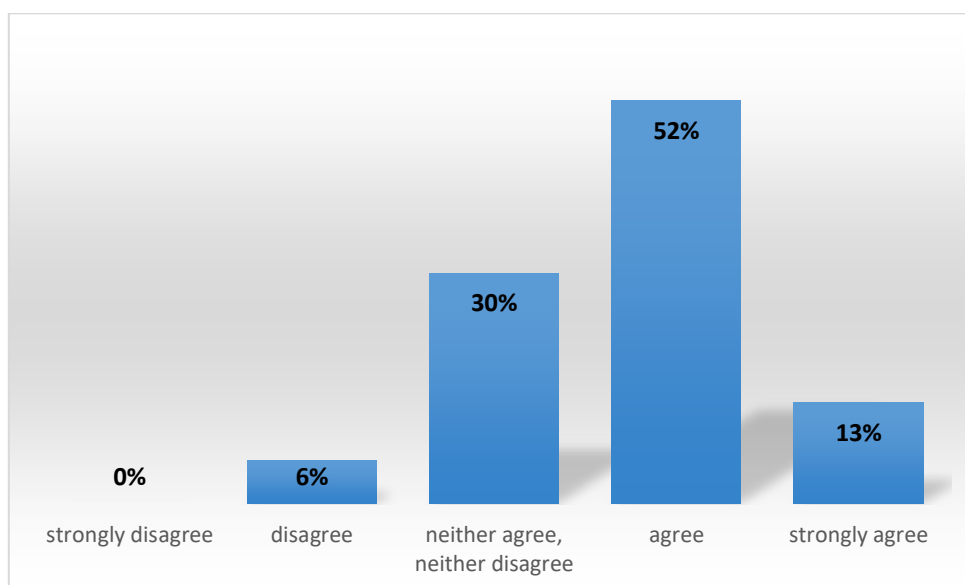
Evaluation
More than a half of the respondents consider the FC model supportive in the process of teaching vocational subjects. This support is not appreciated by only 6 % of the respondents.

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It helps to develop 21st century skills in the students
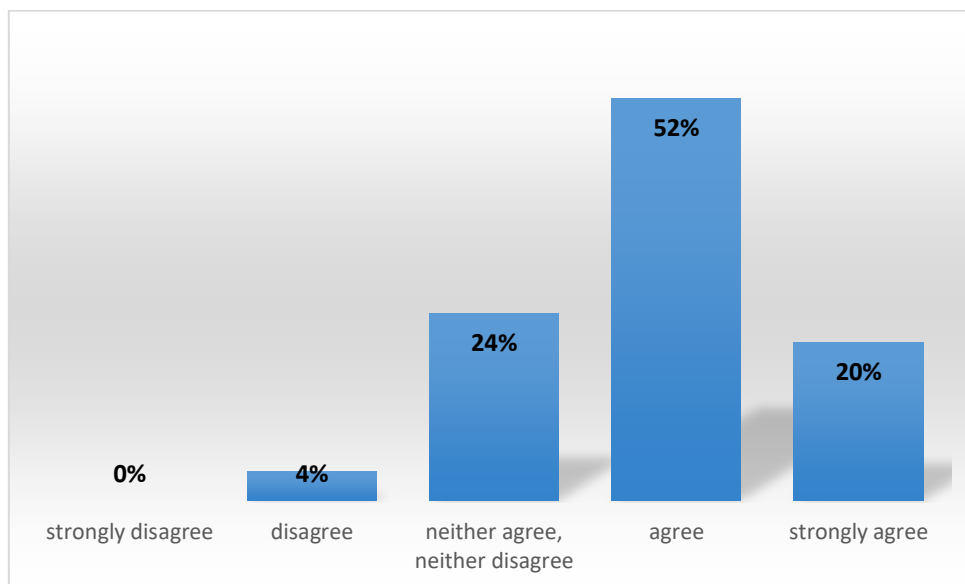
Evaluation
Nearly three quarters of the respondents consider the FC model as a possibility of further development of students´ skills.

It needs a lot of work to gather and prepare the necessary learning content.
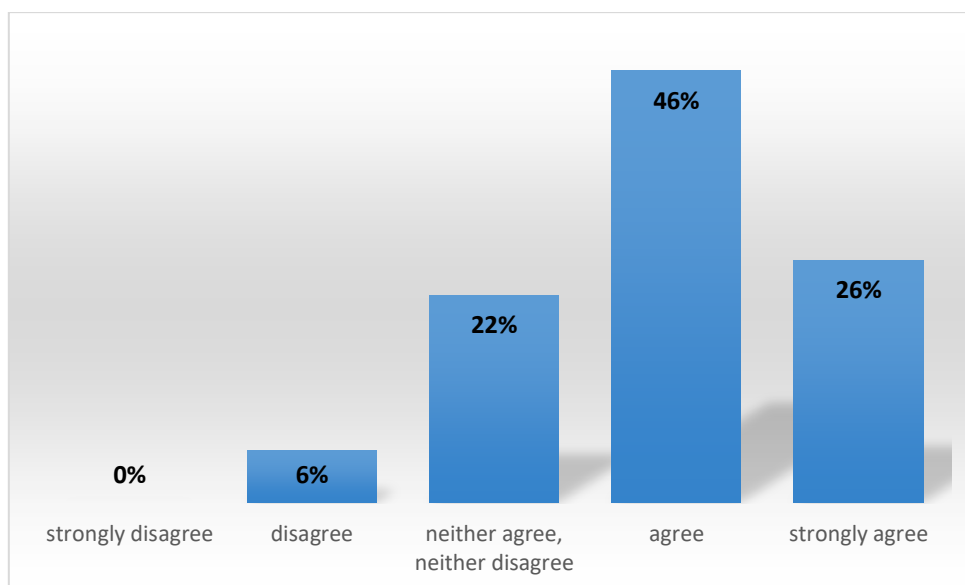
Evaluation
A majority of the respondents (72 %) realize the necessity to prepare a lot of learning materials. Only 6 % of the respondents do not think that a lot of work is necessary in the preparing phase.

It takes much more class time than traditional teaching methods.
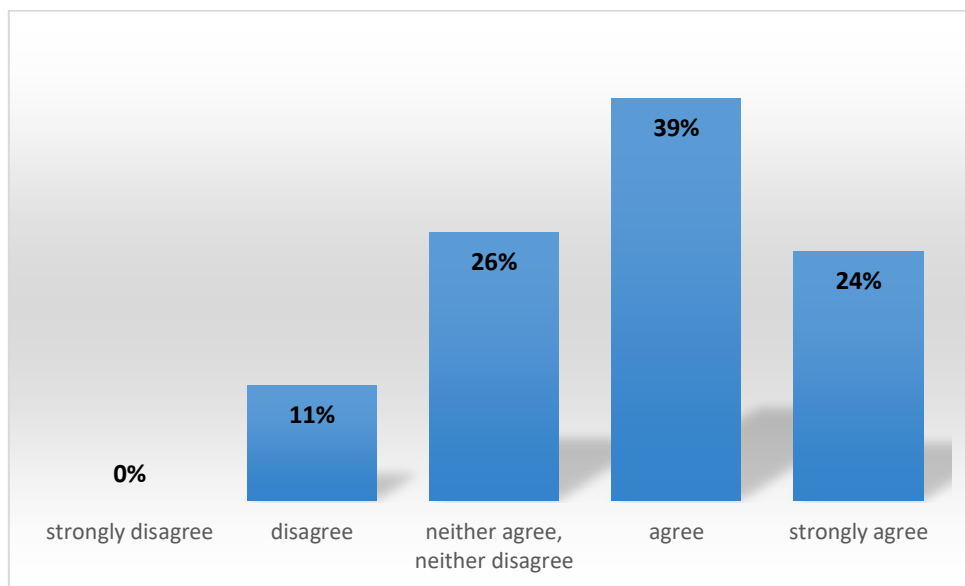
Evaluation

Only 11 % of the respondents do not think that the FC model is more time-demanding than traditional teaching methods. 63 % of the respondents realize that this model takes more class time.

Not all of the students have tools for watching videos or reading online text.
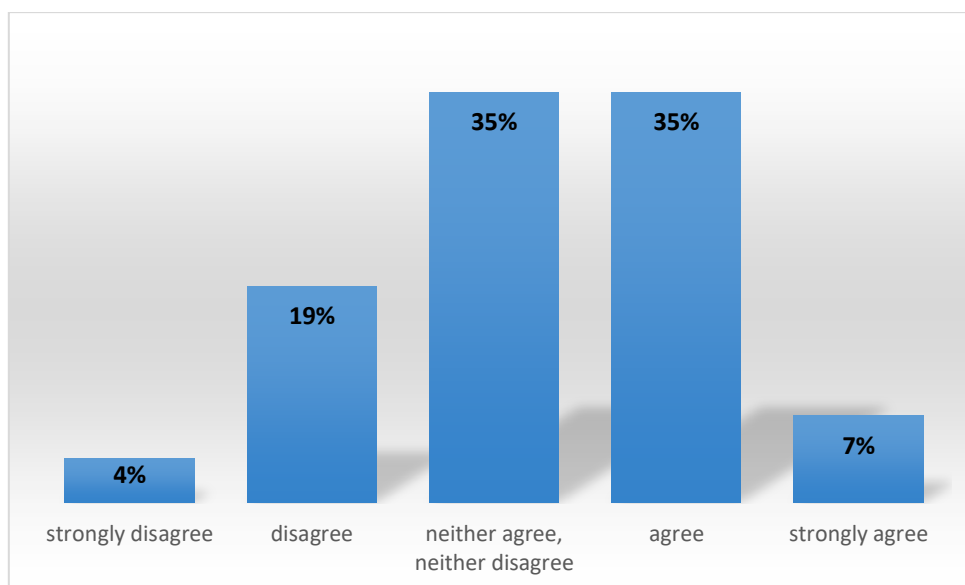
Evaluation

More than one third of the respondents (42%) think that the necessary tools are available for not all their students.

It makes it difficult to ensure accountability.
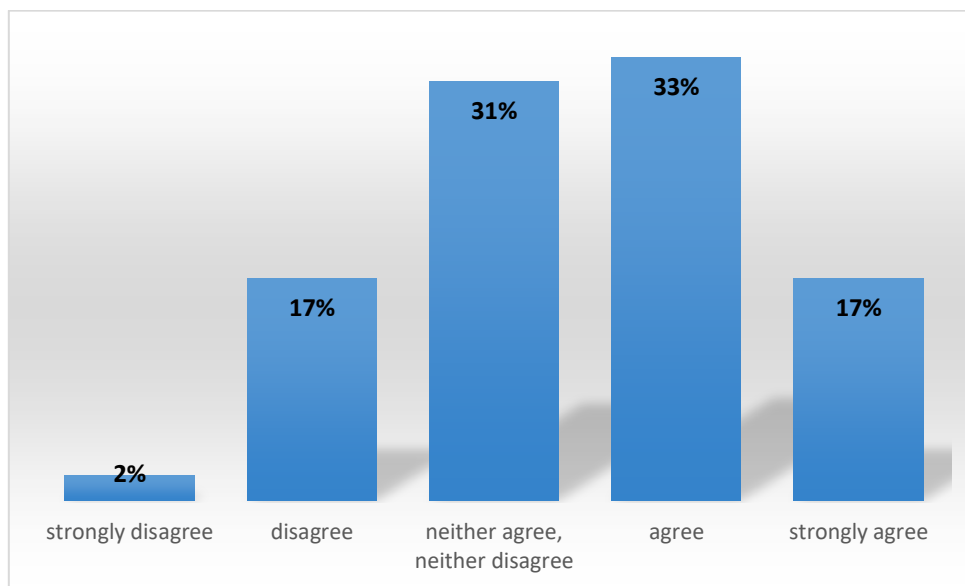
Evaluation

A half of the respondents reflect the fact that an insufficient availability of tools can have a negative impact on the accountability.

The teachers have to be trained to use FC both from a pedagogy and technology viewpoint.
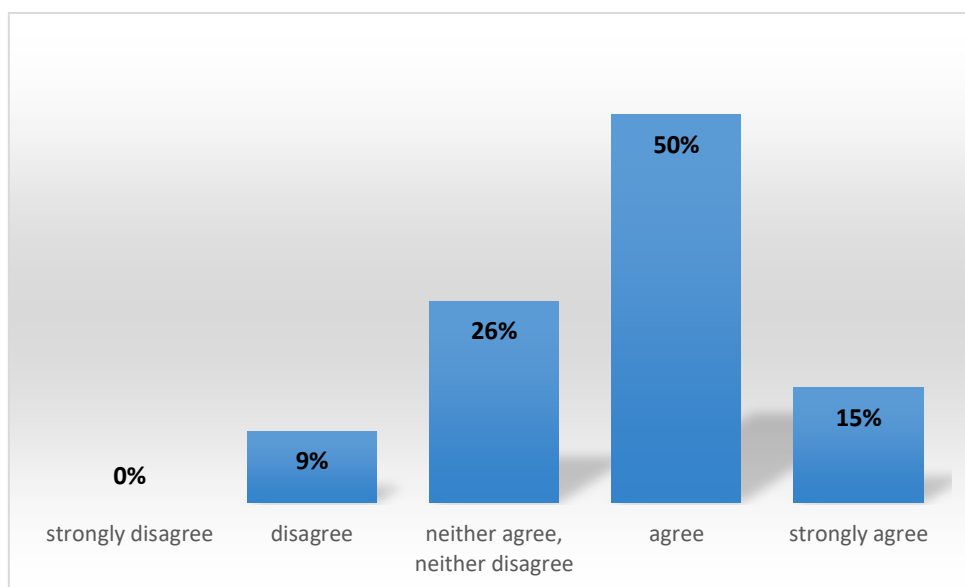
Evaluation

65 % of the respondents agree with a necessary pedagogical and technological training process focused on the FC model. 9 % of the respondents disagree.

Teachers have to do a lot of extra work to create very precise lesson plans.
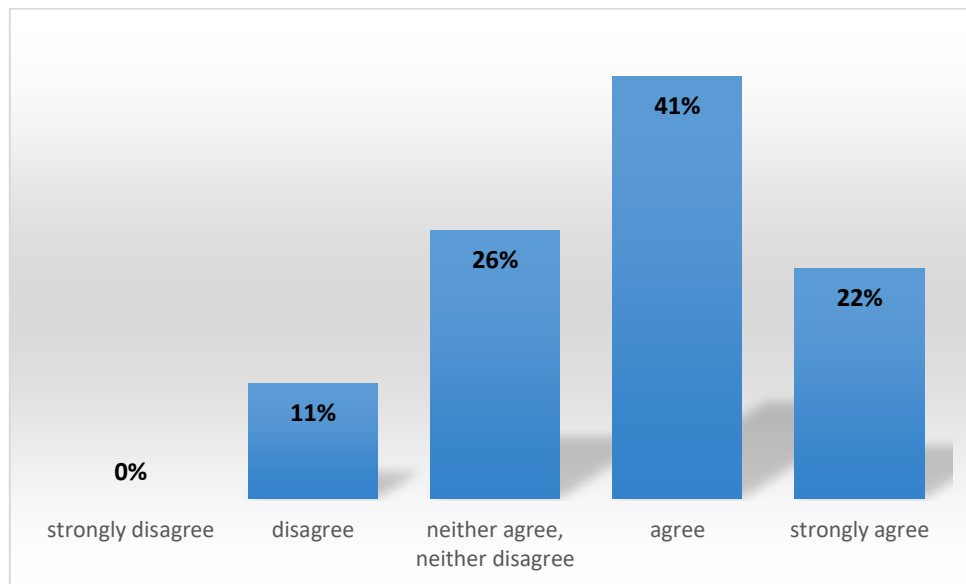
Evaluation
Nearly two thirds of the respondents feel that extra work is necessary to create very precise lesson plans for the FC model.

15. The basic aspects of class work haven't changed. In which of the following is it important to apply innovative methods, including the use of technology?

	not important at all	slightly important	somewhat important	moderately important	highly important
Mediate new information	0	0	5	25	24
Demonstrate phenomena	0	1	8	32	13
Clarify new concepts	0	0	6	33	15
Attract student attention and to motivate them	0	0	9	19	26
Improve self-study abilities	0	2	11	28	13
Deeping knowledge and practice	0	0	6	28	20
Assessment of students' performance	0	1	19	25	9
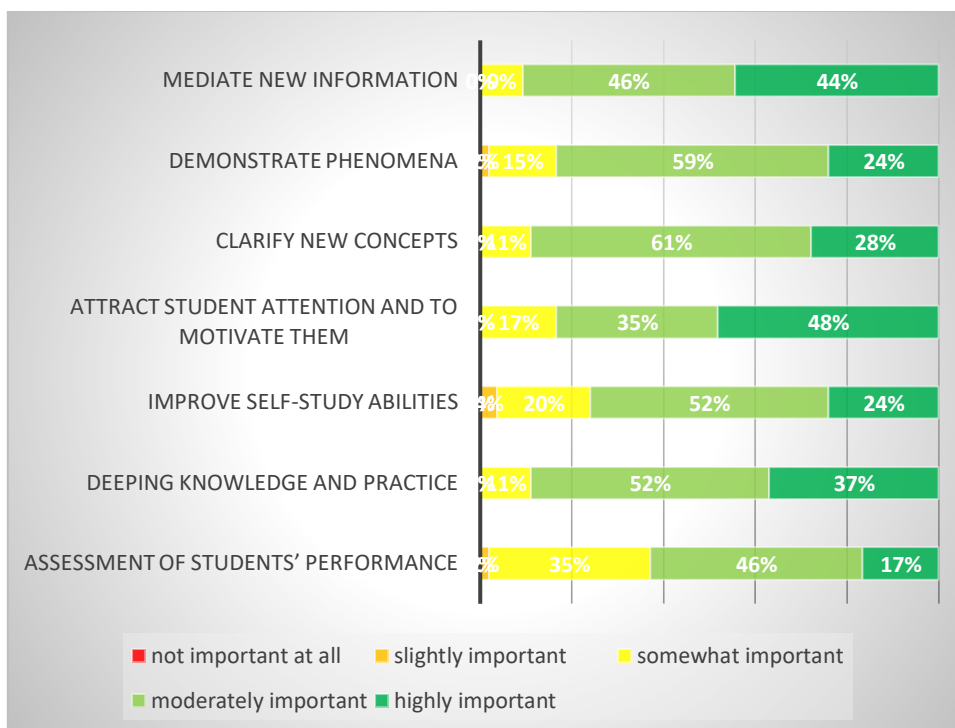
Evaluation

It is evident from the resulting graph that agreement with the necessity of the application of innovative methods is prevailing in case of all the items.

Mediate new information
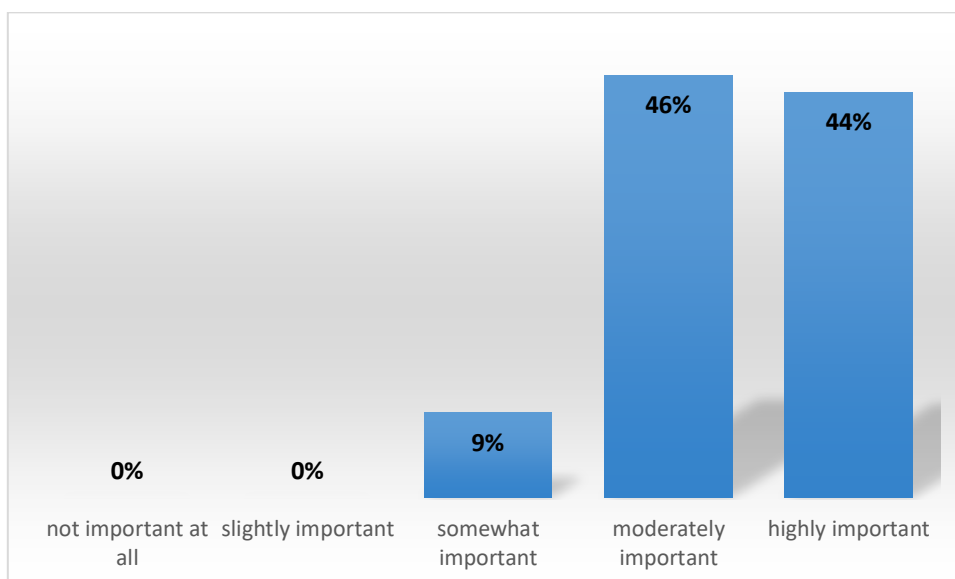
Evaluation

A vast majority of the respondents agree with the importance of using of innovative methods and technologies while mediating new information.

Demonstrate phenomena
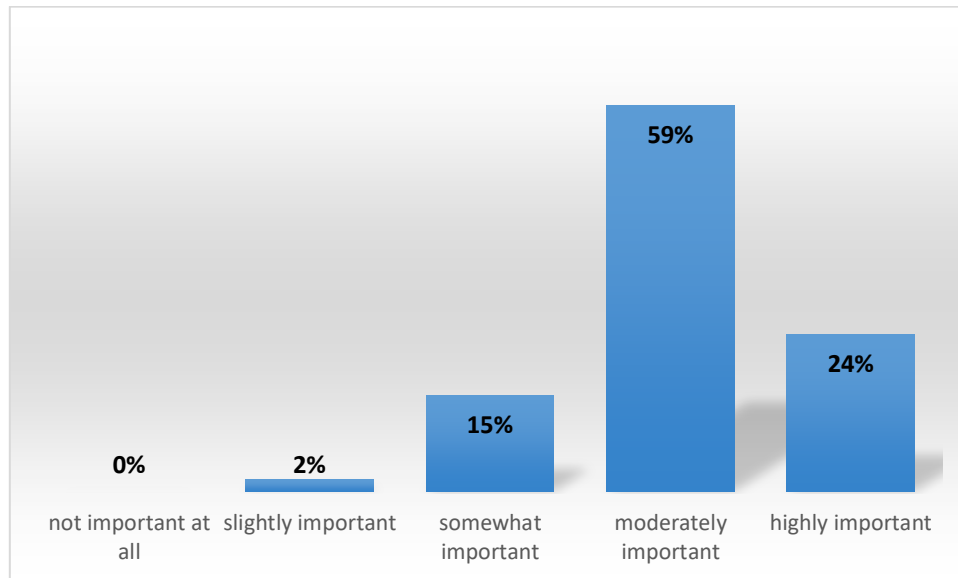
Evaluation

83 % of respondents consider innovative methods to be important also for demonstrating of phenomena.

Clarify new concepts
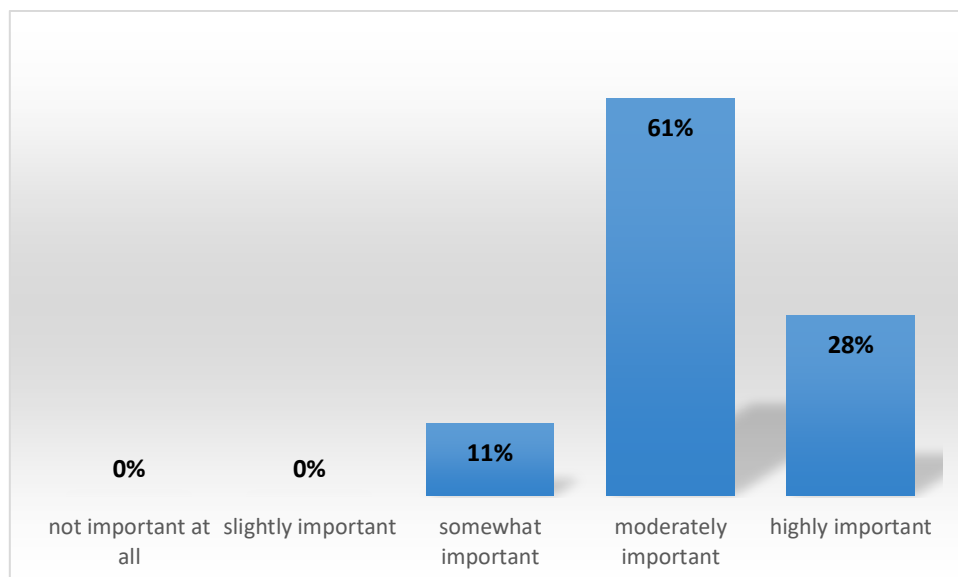
Evaluation

Nearly all the respondents (90 %) can see the necessity of innovative methods also in case of clarifying of new concepts

Attract students´ attention and to motivate them
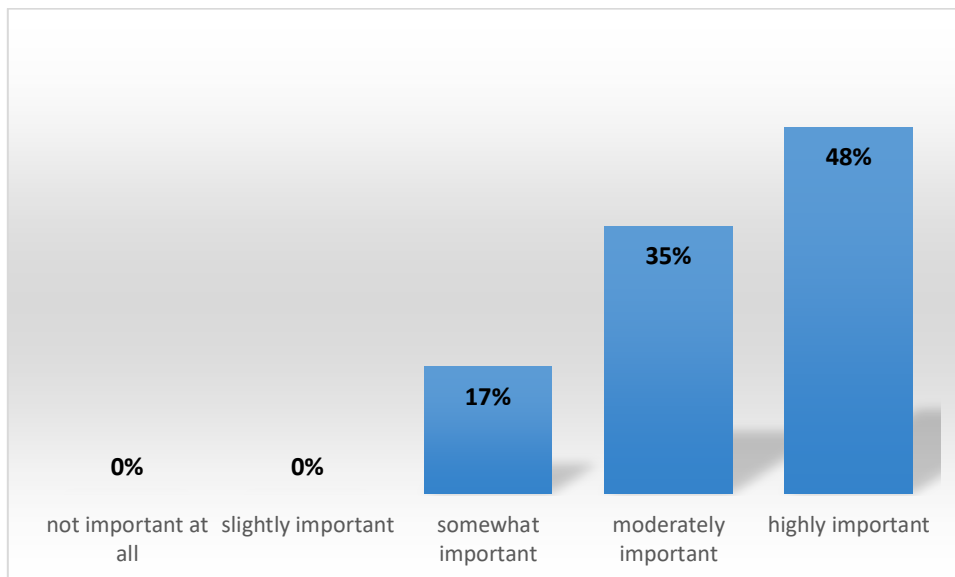
Evaluation

According to a majority of the respondents, implementation of innovative methods can be important for drawing students´ attention and for motivation of students.

Improve self-study abilities
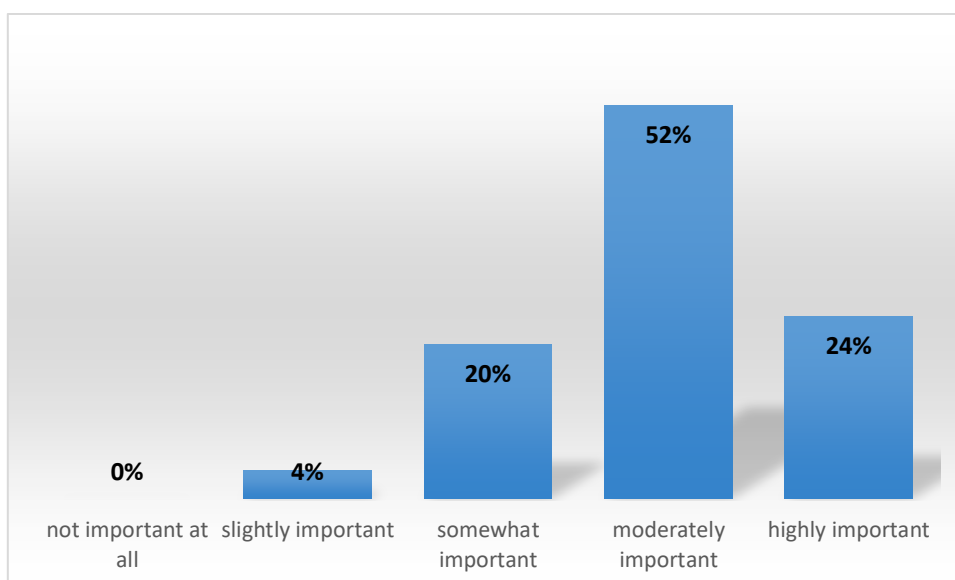
Evaluation

24 % of the respondents claim that innovative methods can be very important, other 52 % of the respondents consider them as important for improving of self-study abilities.

Deepening knowledge and practice
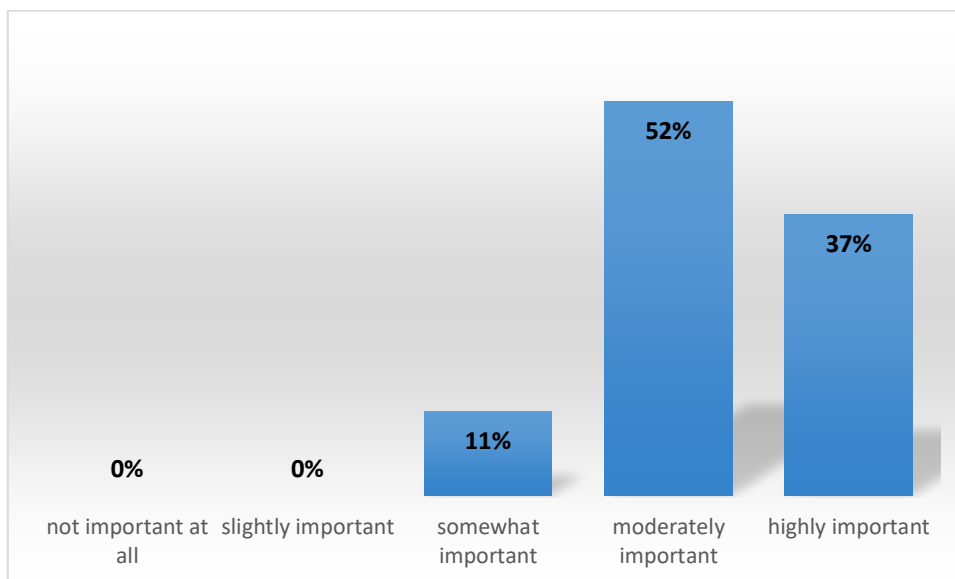
Evaluation

A vast majority of the respondents (89 %) consider innovative methods as important for deepening the knowledge and improving practice.

Assessment of students' performance
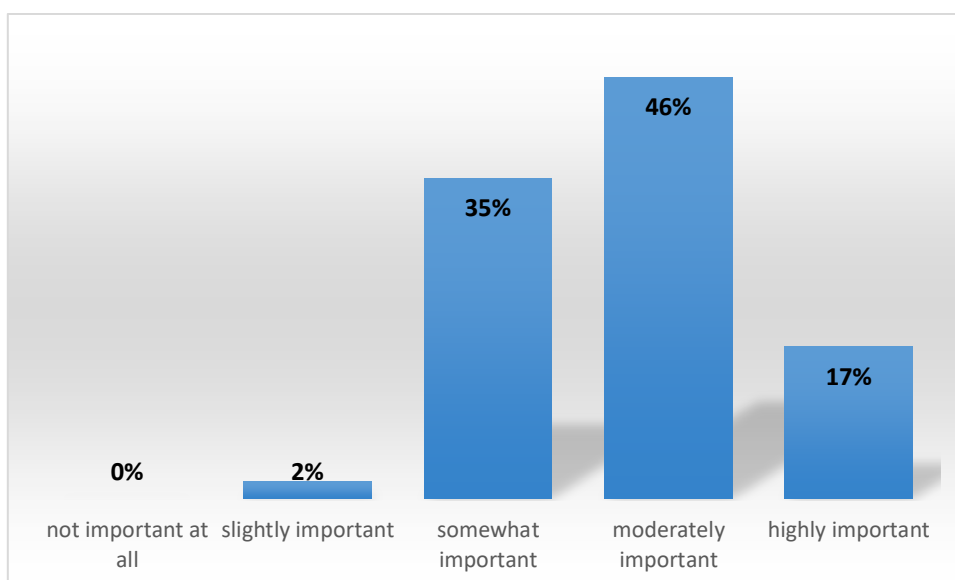
Evaluation

Over a half of the respondents consider innovative methods and technologies as important also for assessment of students' performances. Only 2 % of the respondents consider these just as slightly important**.**

16. With your impressions of the advantages and disadvantages of an FC methodology, rate the

following:

	strongly agree	agree	neither agree, neither disagree	disagree	strongly disagree
It helps to address the needs of 21st century students	6	25	21	2	0
I need training on the pedagogical background of FC	4	36	12	1	1
I need training on ICT tools	4	30	13	5	2
I believe that preparing for FC will contribute to my professional development	7	26	16	5	0
The leadership of the school appreciates efforts to introduce new methods	2	21	20	10	1
I am not convinced about FC's pedagogical value	0	7	26	18	3
My students are not comfortable with change	1	8	26	16	3
I do not agree with technological pushes in the classroom	2	10	27	12	3
Parents are sceptical about methods unknown to them.	0	15	29	9	1
Not interested, I'm overloaded	2	6	17	23	6
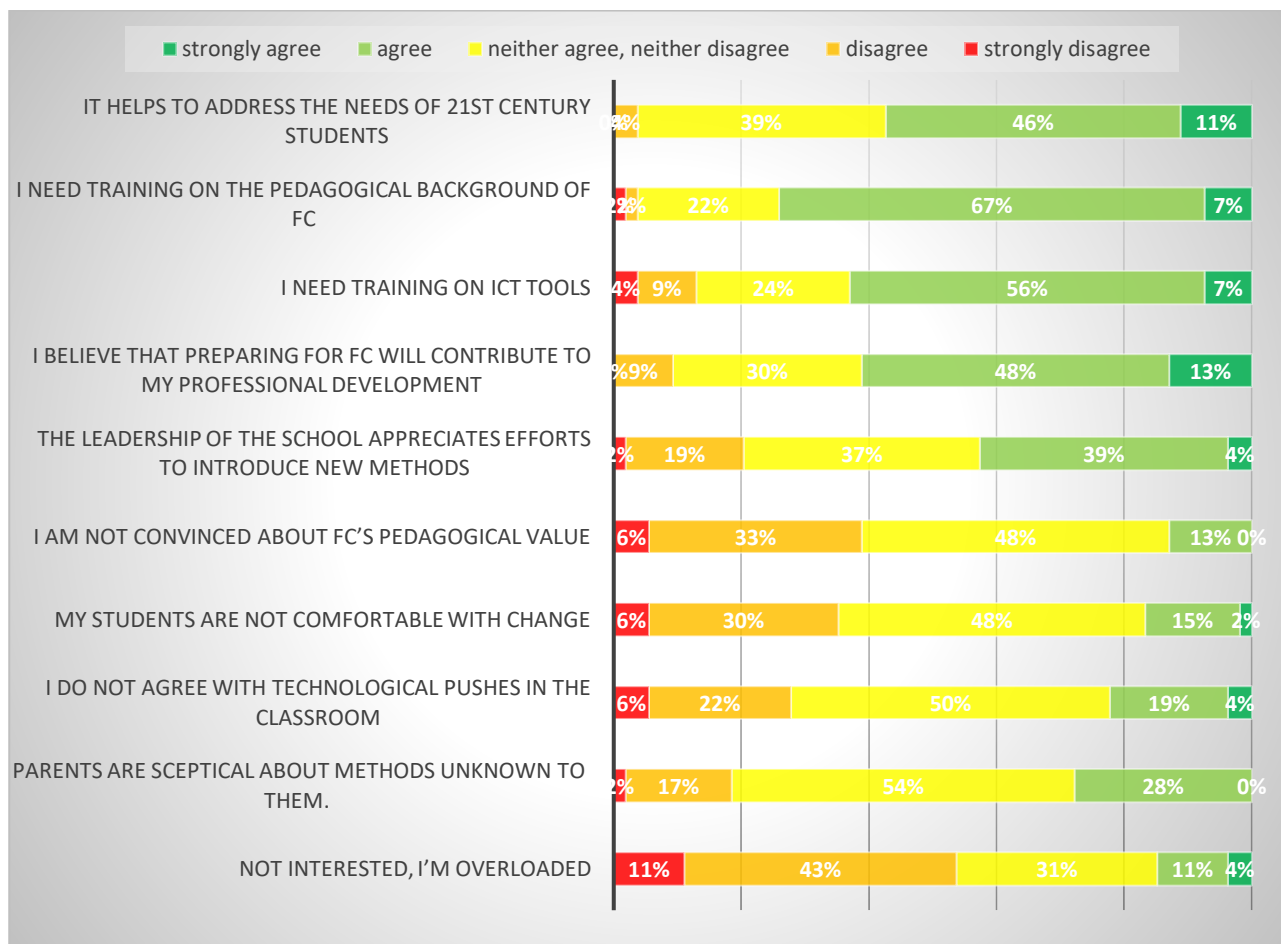
Evaluation

The above given graph can lead to the conclusion that most of the respondents would like to be trained in the FC (concerning both the sphere of pedagogy and that of IT).

It helps to address the needs of 21st century students
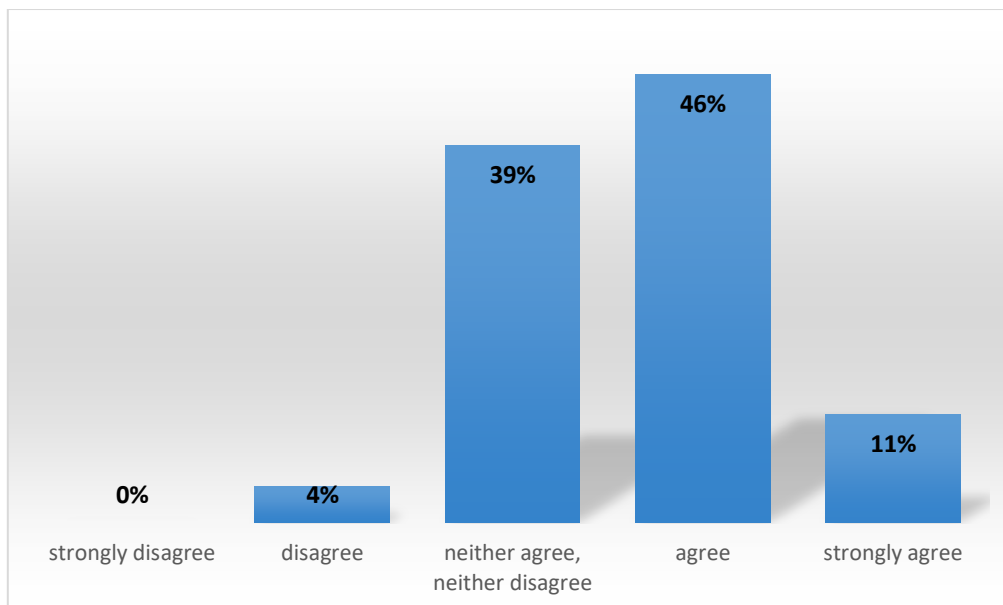
Evaluation
The FC is seen as helpful for meeting the needs of the 21st century´s students by more than a half of the respondents. Only 4 % of the respondents do not share this opinion.

I need training on the pedagogical background of FC
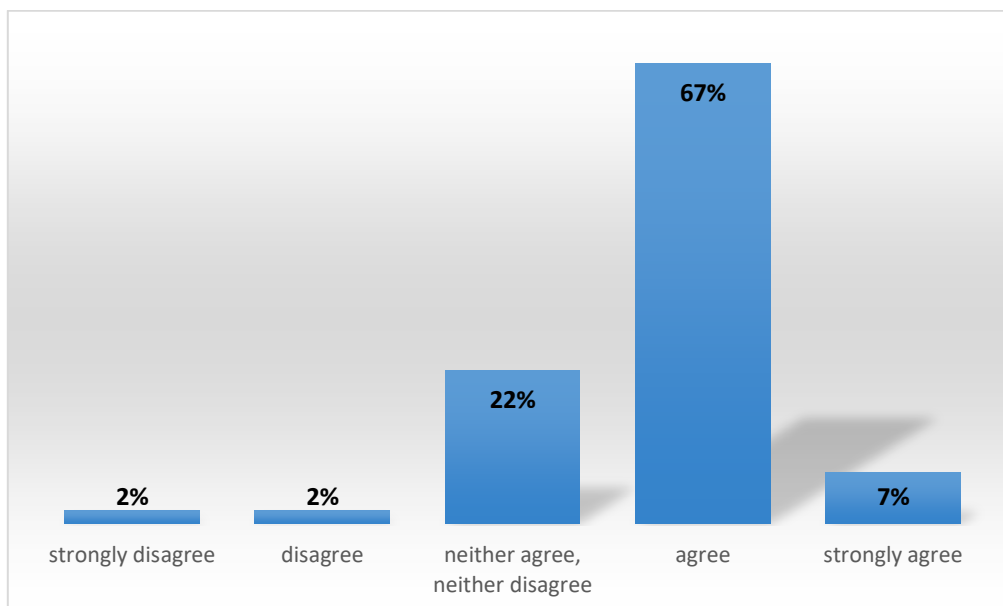
Evaluation
It is interesting that the answers cover the whole scale. 74 % of the respondents feel that teachers need further pedagogical training focused on the FC. However, 4 % of the respondents do not share this opinion.

I need training on ICT tools
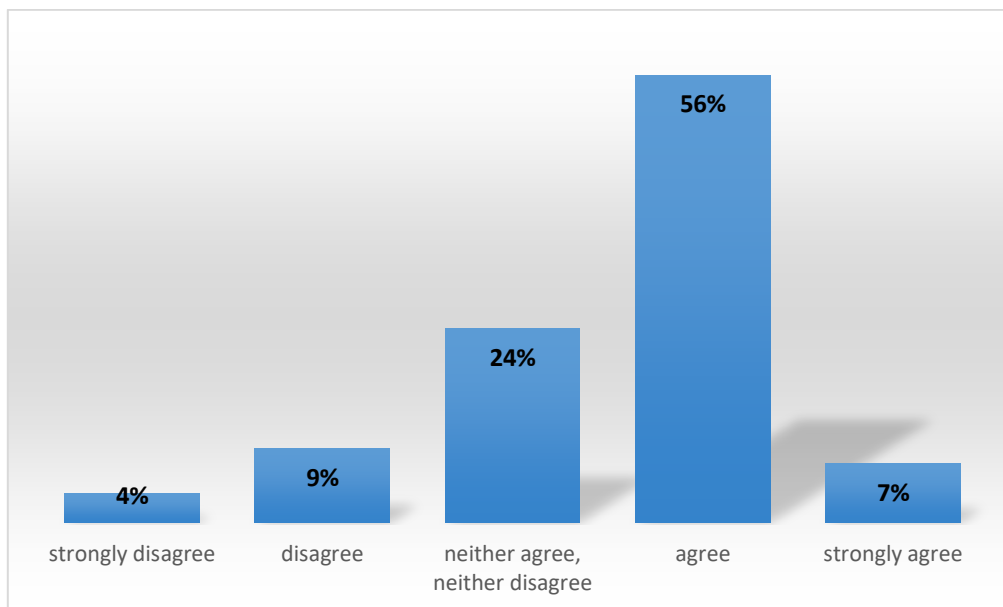
Evaluation

The reactions to this statement depended on and are in accordance with the respondents´ qualifications in the ICT sphere. The prevailing opinion is that teachers need training in ICT tools, 11 % of the respondents feel that no more training is necessary for them.

I believe that preparing for FC will contribute to my professional development
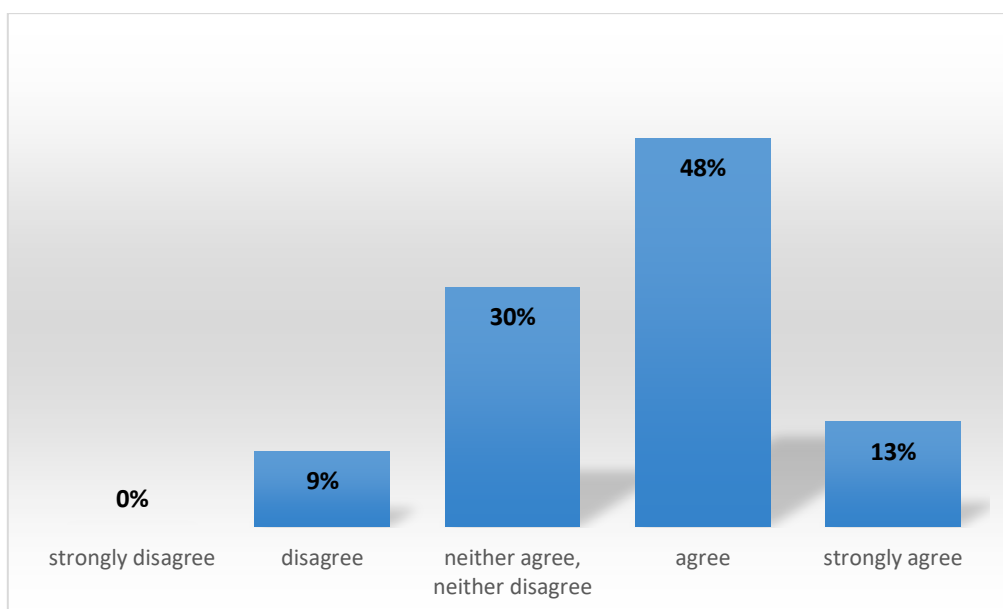
Evaluation

A half of the respondents suppose that the FC model will contribute to a personal development. It is interesting that 9 % of the respondents do not reflect that.

The leadership of the school appreciates efforts to introduce new methods
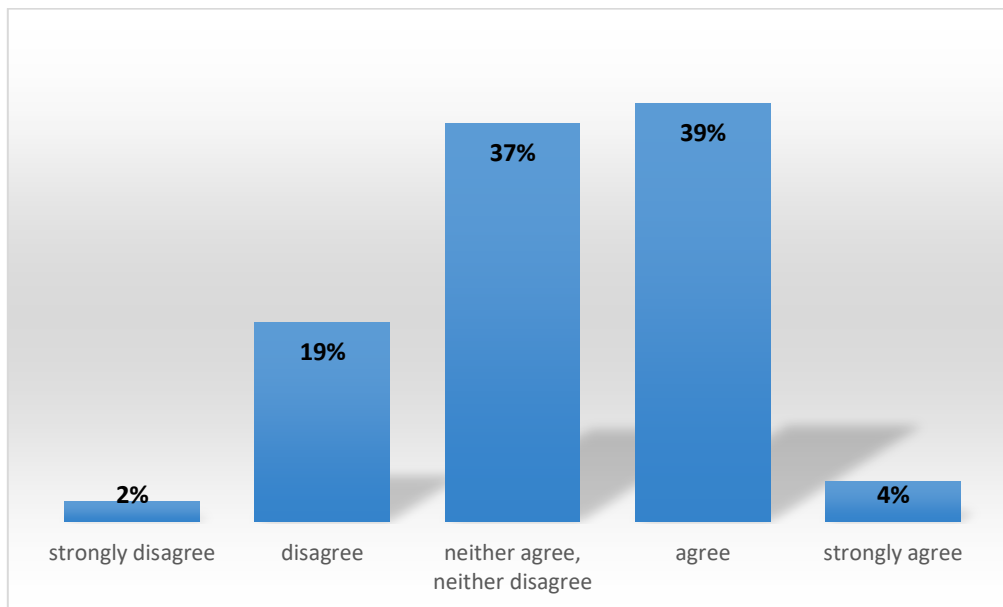
Evaluation
The perception of being appreciated by the leadership of the school is rather controversial. 43 % of the respondents suppose a positive reaction, 21 % of the respondents do not expect a positive appreciation expressed by the leadership of the school.

I am not convinced about FC's pedagogical value
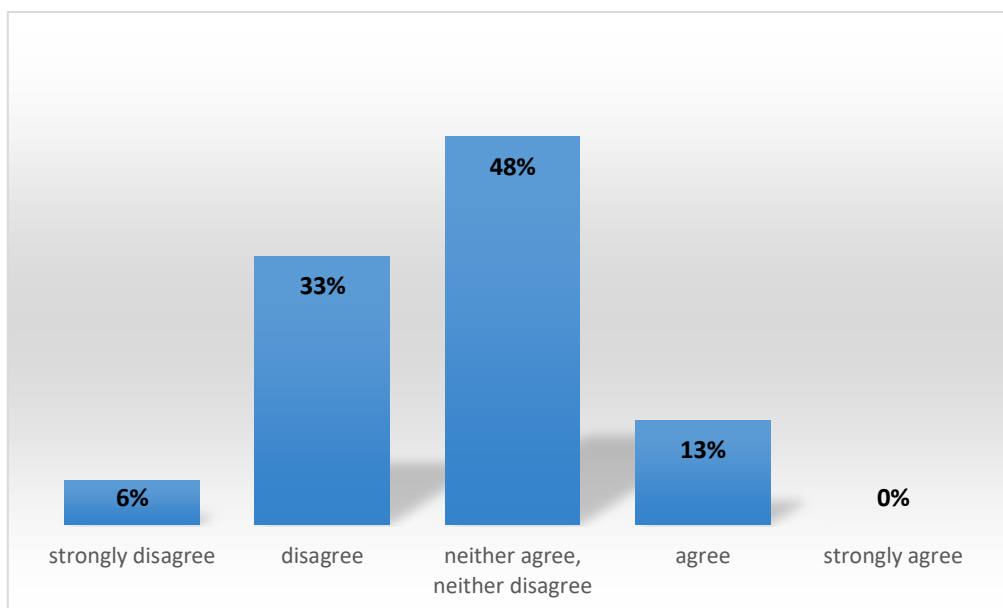
Evaluation
More than a third of the respondents evaluate the FC's pedagogical value positively, a relatively high percentage of the respondents (48 %) have neither a positive nor a negative opinion.

My students are not comfortable with change
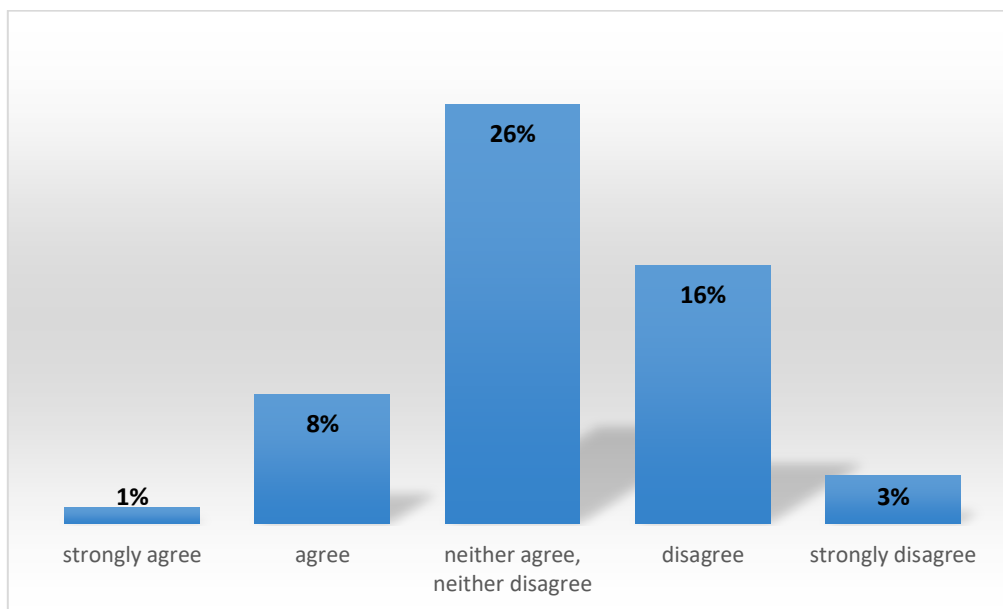
Evaluation

The opinions were quite various. Most of the opinions (26 %) were neutral, 9 % of the respondents think that students are not comfortable with changes. 19 % of the respondents think that students are ready for changes.

I do not agree with technological pushes in the classroom
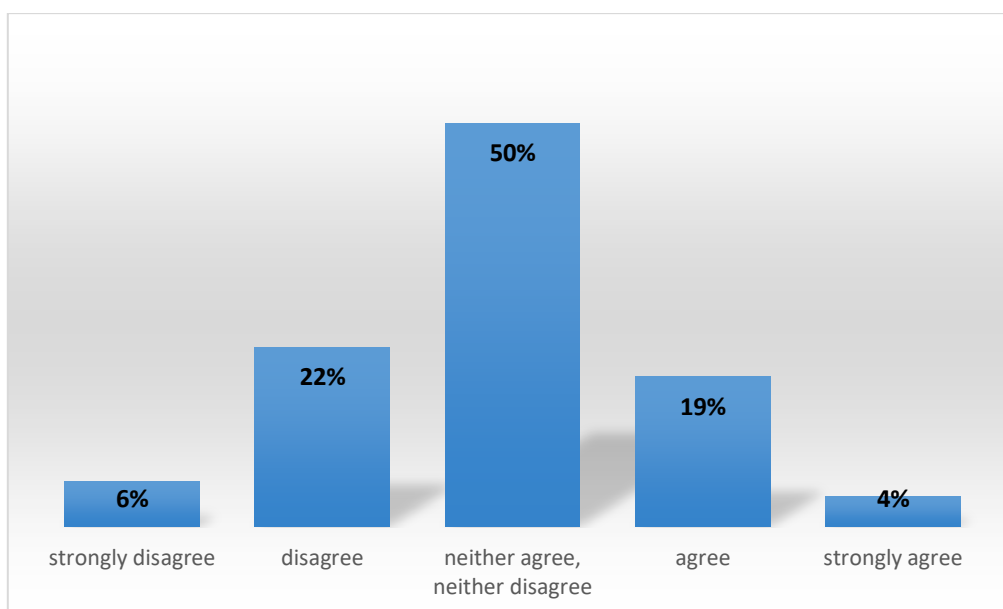
Evaluation

A half of the respondents were not able to express a clear opinion. The views cover the whole scale.

Parents are sceptical about methods unknown to them.
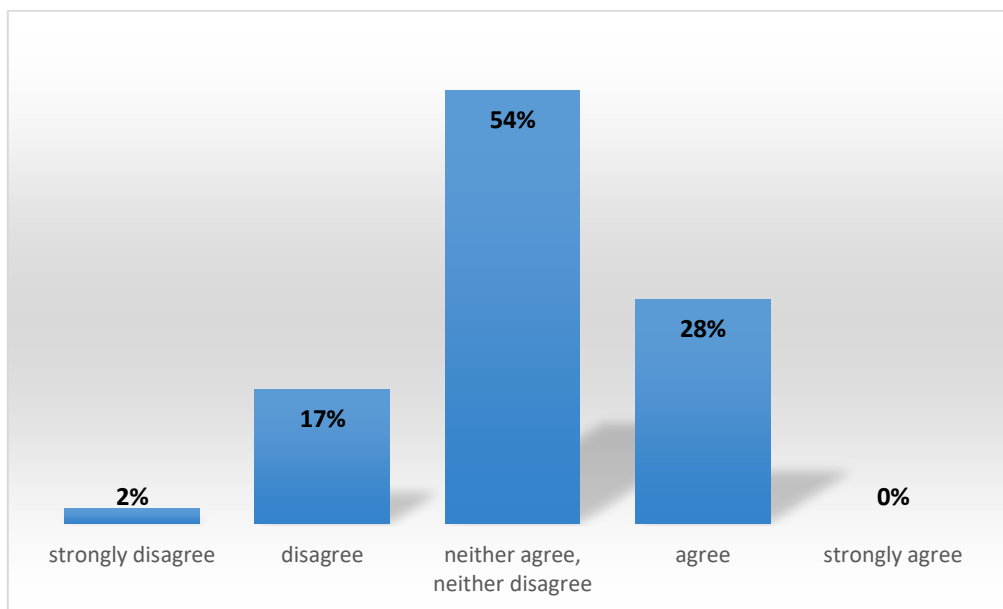
Evaluation

Again, in most of the cases there was neither agreement, nor disagreement. Parents tend to be moderately sceptical in connection with new methods (28 % against 19 %).

Not interested, I'm overloaded
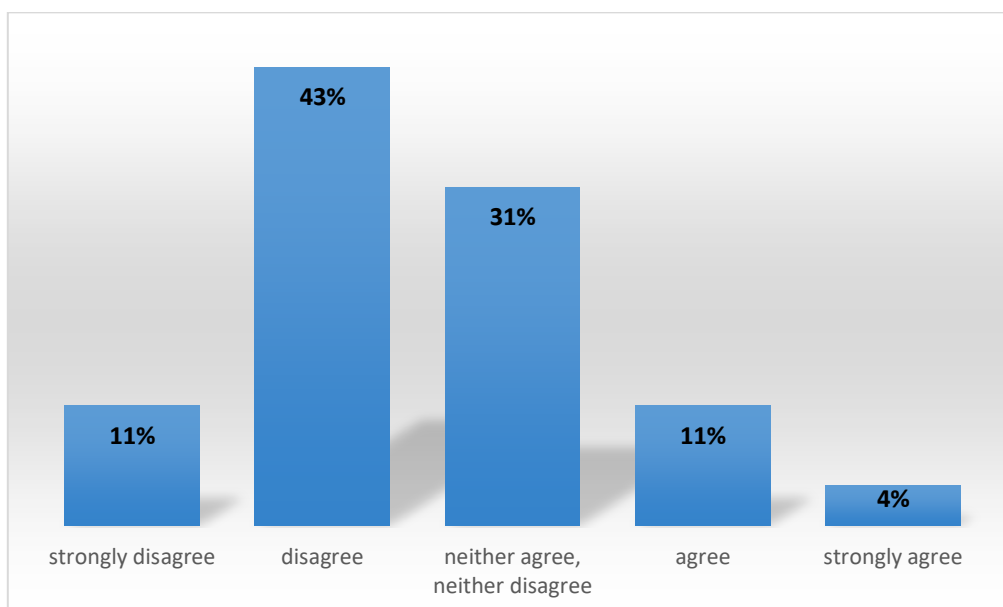
Evaluation

More than half of the respondents (54 %) do not agree with the statements that the FC is not interesting for them and that they are overloaded. However, a minority (15 %) expressed their agreement with the statements.

17. If you were to take part in an FC training course, what are the most important competences to be developed?

	not important	slightly important	somewhat important	moderately important	highly important
Preparing FC lesson plans	0	2	9	23	20
Designing class activities	0	2	8	28	16
To learn strategies to integrate in home phase with the activities in the classroom	0	2	15	26	11
Assessment of students' work in FC lessons	0	2	20	27	5
Assessment of students' processing new information at home	0	3	17	28	6
Managing the collaboration of students in class time	0	0	14	27	13
To understand a range of methods to support problem-solving team-work	0	1	14	29	10
Creating, editing storing attractive learning content, and publishing them on the web	0	7	16	22	8
To find quality, free educational applications (offline & online) for learning, practice, creating, etc.	0	4	16	24	9
Designing interesting and attractive digital presentations	0	3	13	27	9
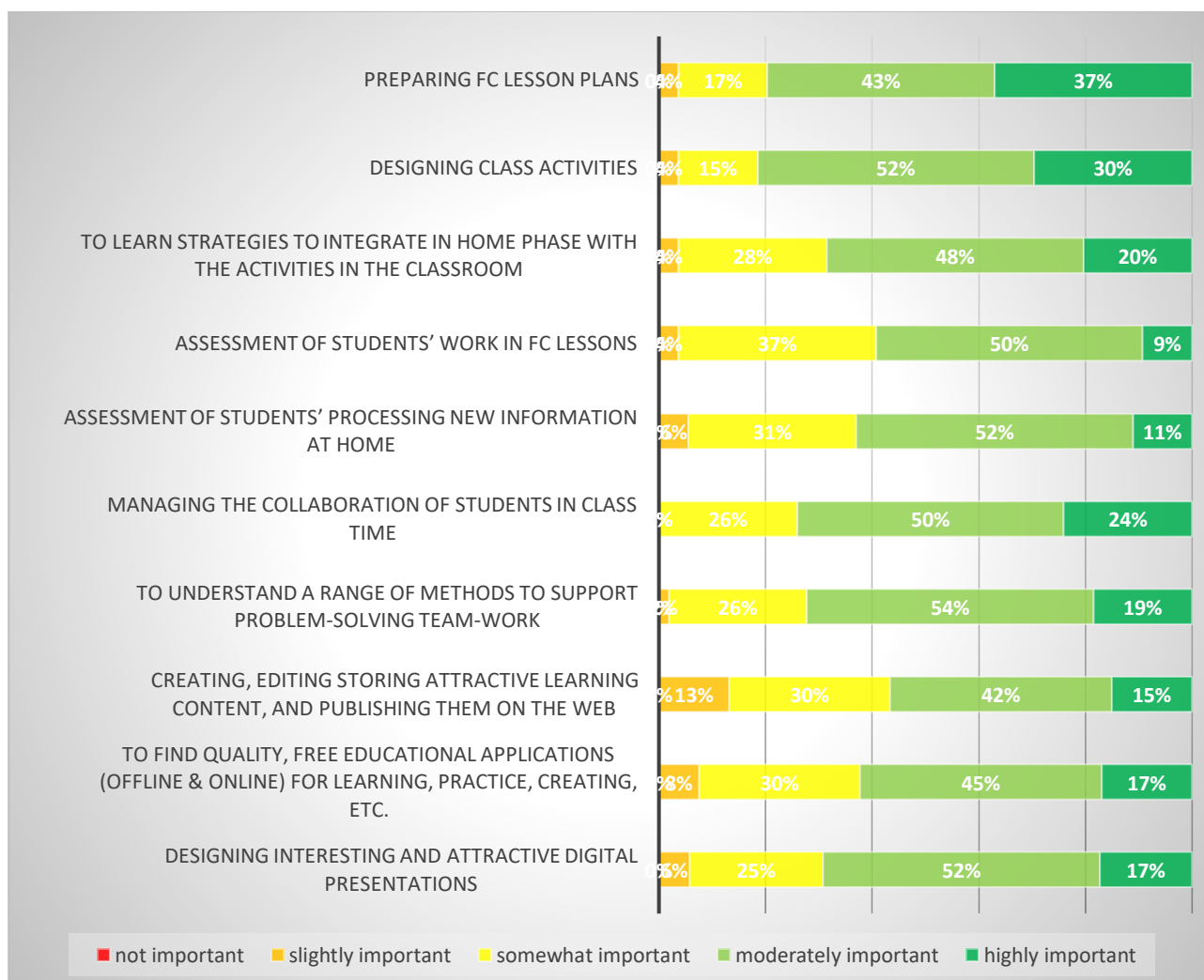
Evaluation

A major agreement with the given statements is clear from the graph. According to the respondents, all the proposed competences should be developed.

Preparing FC lesson plans
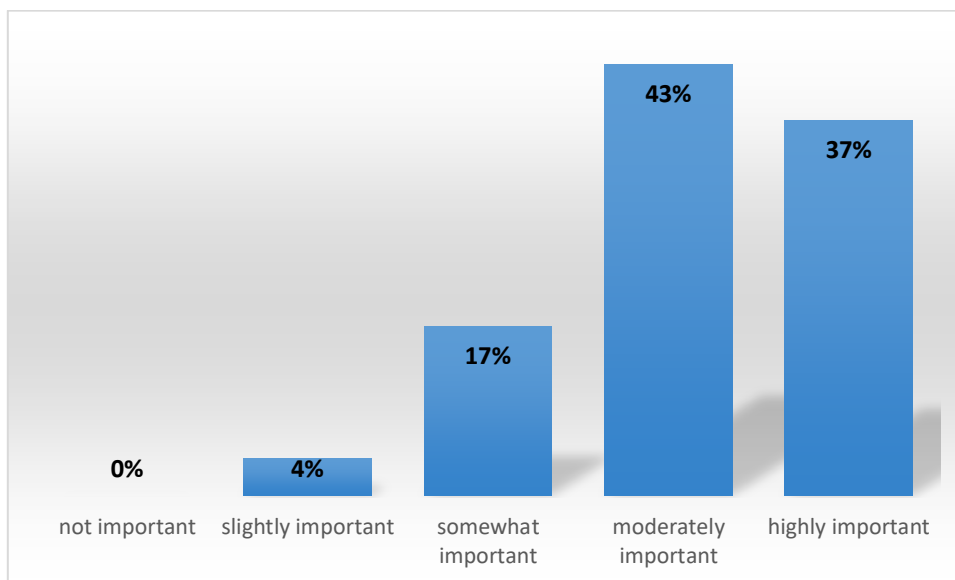
Evaluation

Three quarters of the respondents consider the preparation phase of the FC lesson plans as important or very important. Nobody stated that preparing of FC lesson plans is not important.

Designing of class activities
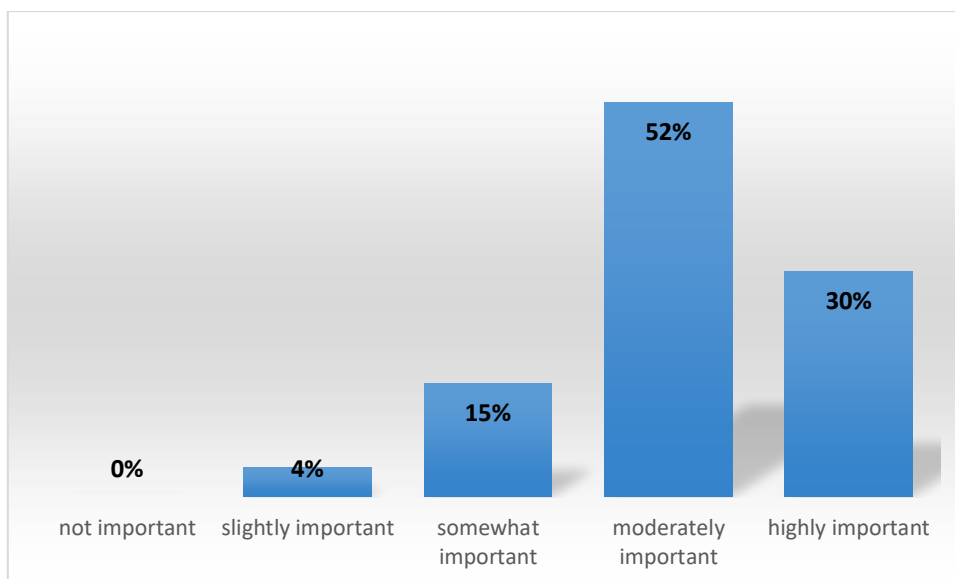
Evaluation

Similarly to the previous item, 82 % of the respondents consider designing of class activities as important.

To learn strategies to integrate in home phase with the activities in the classroom
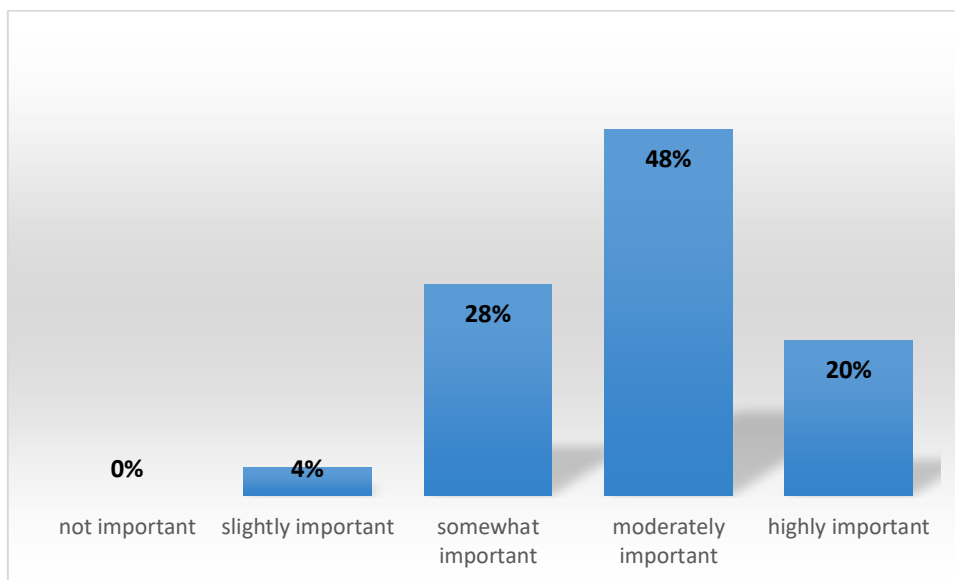
Evaluation

Learning of strategies how to integrate in home phase with the activities in the classroom is considered as important by two thirds (68%) of the respondents.

Assessment of students' work in FC lessons
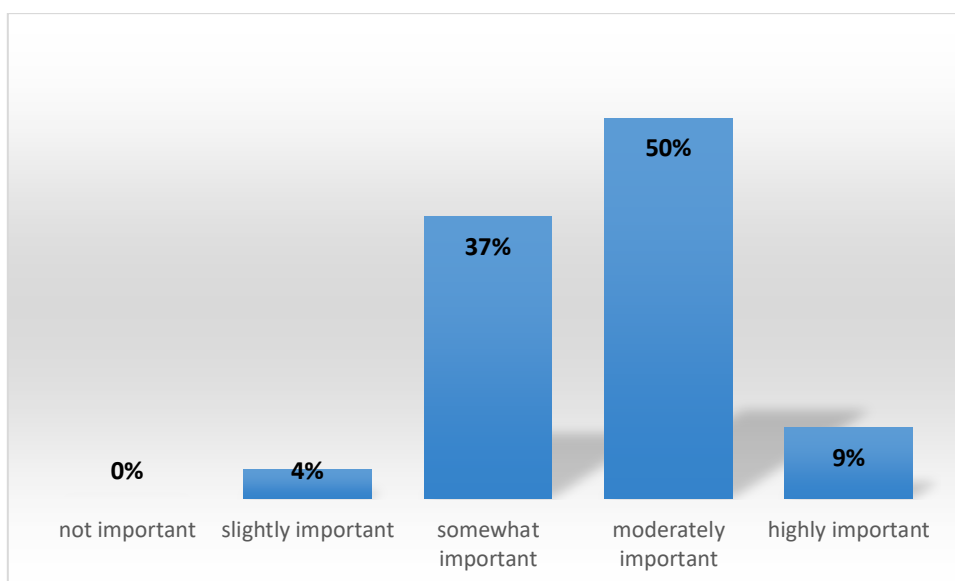
Evaluation

Generally, this item is viewed as important, assessment of students' work in FC lessons is considered to be important by 59 % of the respondents.

Assessment of students' processing new information at home
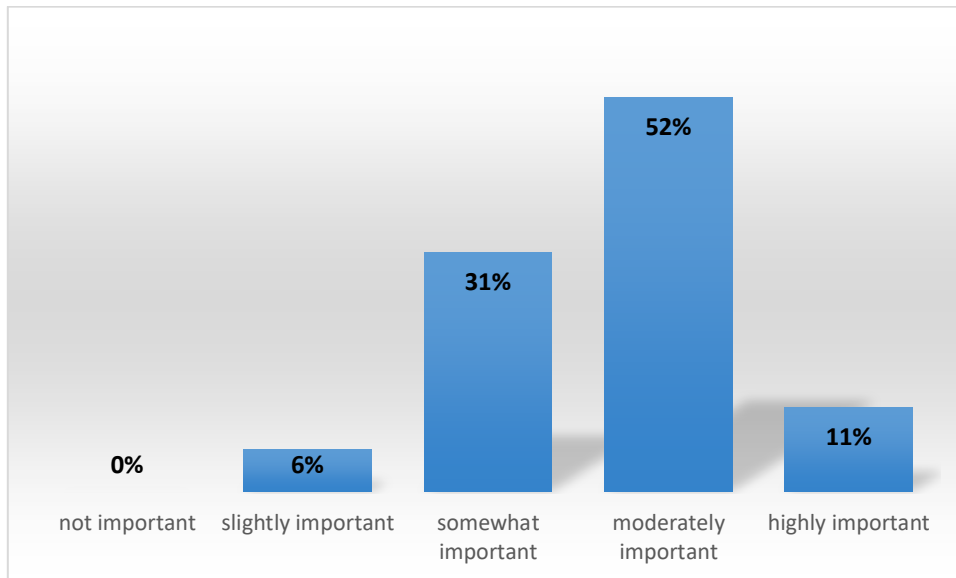
Evaluation
Similarly to the previous item, also this one is considered to be important (63 %) or somewhat important (31 %).

Managing the collaboration of students in class time
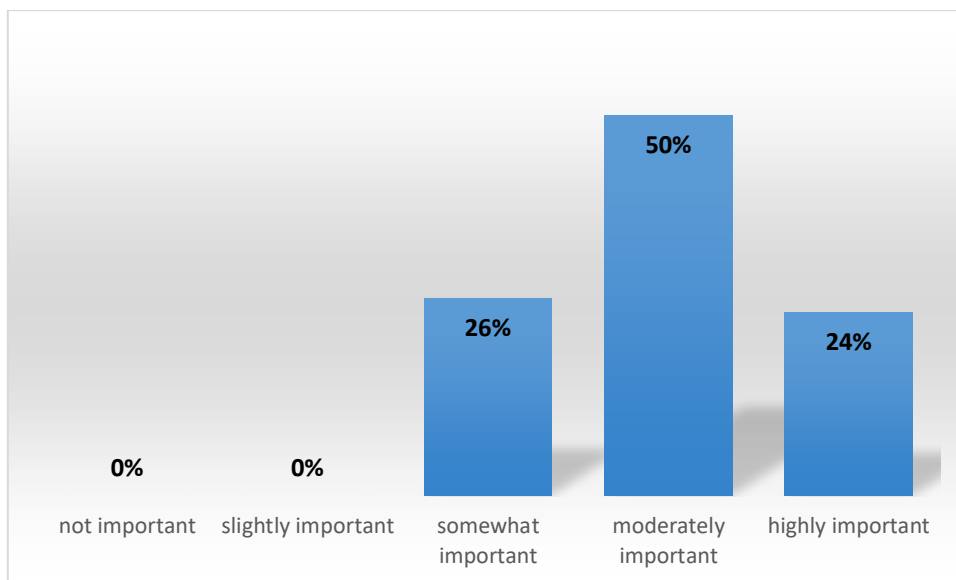
Evaluation
This item is perceived as essential, three quarters of the respondents consider it as important.

To understand a range of methods to support problem-solving team-work
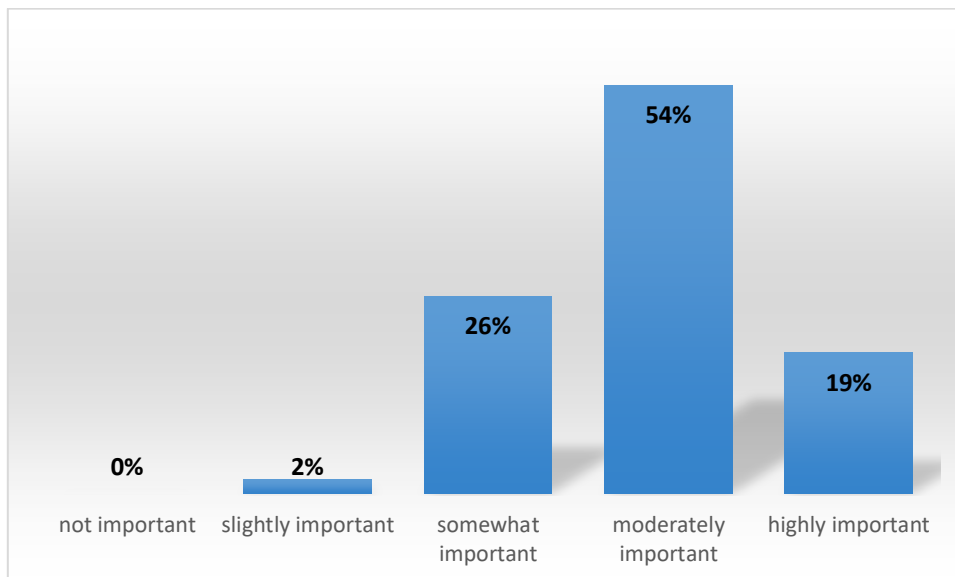
Evaluation

Understanding of a range of methods supporting problem-solving team-work is essential for the effective use of the FC method. 73 % of the respondents consider that as important, 26 % as somewhat important.

Creating, editing, storing attractive learning contents, and publishing them on the web
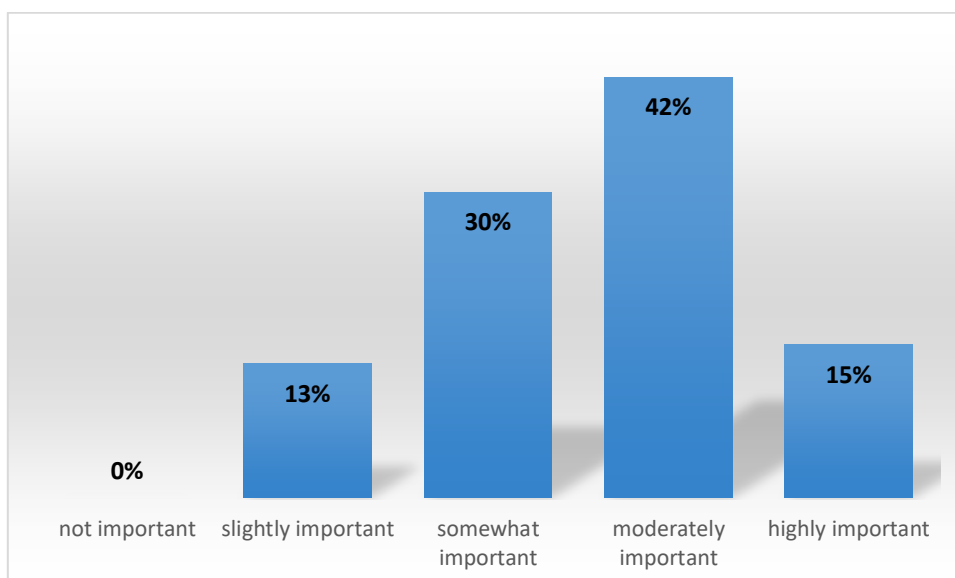
Evaluation

It is rather surprising that 13 % of the respondents consider creating, editing and storing of attractive learning contents, and publishing them on the web as only slightly important, and only a half of the respondents consider those activities as important.

To find quality, free educational applications (offline & online) for learning, practice, creating, etc.
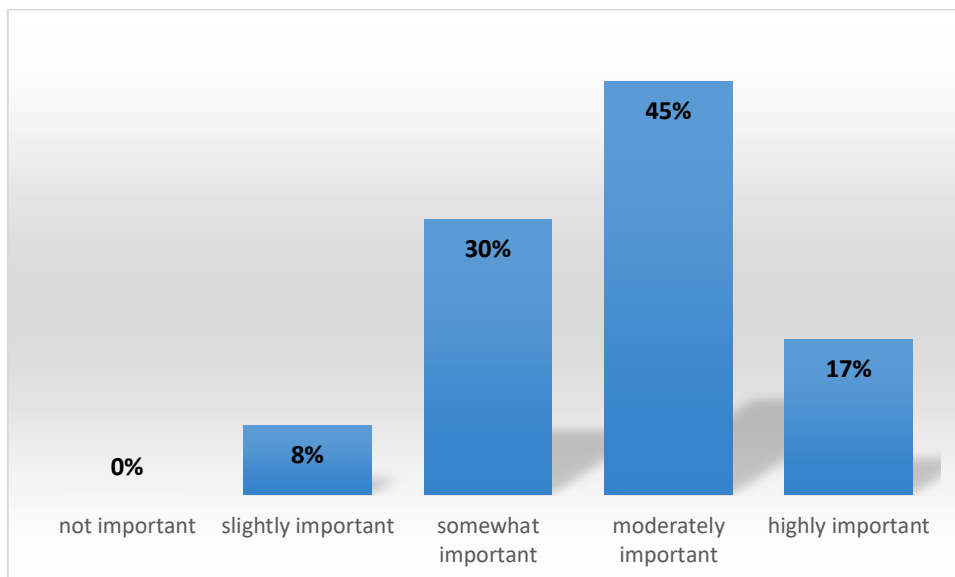
Evaluation

This item is considered as important by more than a half of the respondents. More than one third of the respondents considered it somewhat, resp. slightly important.

**Designing interesting and attractive digital presentations**
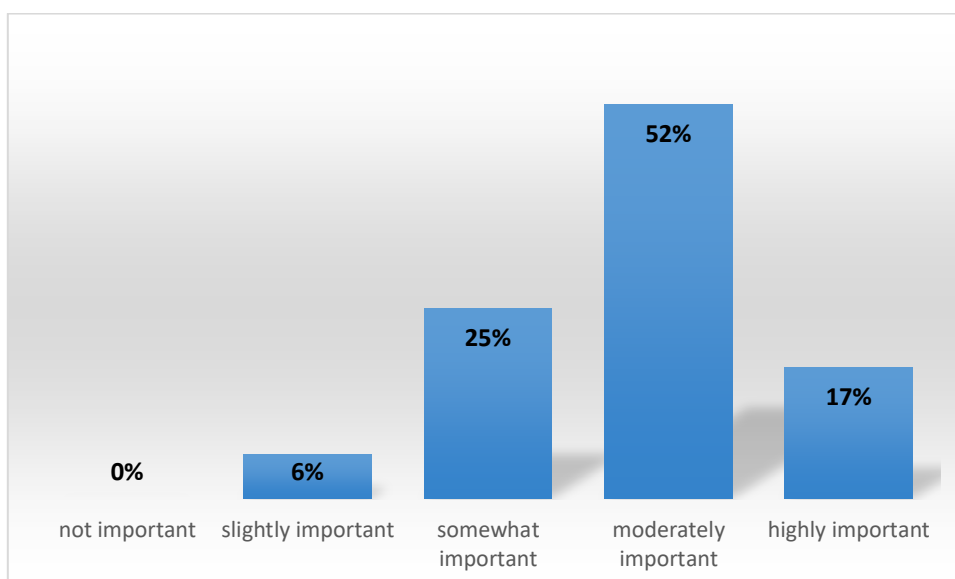
Evaluation

Designing of interesting and attractive digital presentations is considered as important by two thirds of the respondents. Nobody considers this item as unimportant.

18. What level of IT skills do you think you have?

Beginner Level	1	2%
Basic Level	26	48%
Advanced Level	19	35%
IT pro, teacher/trainer	8	15%
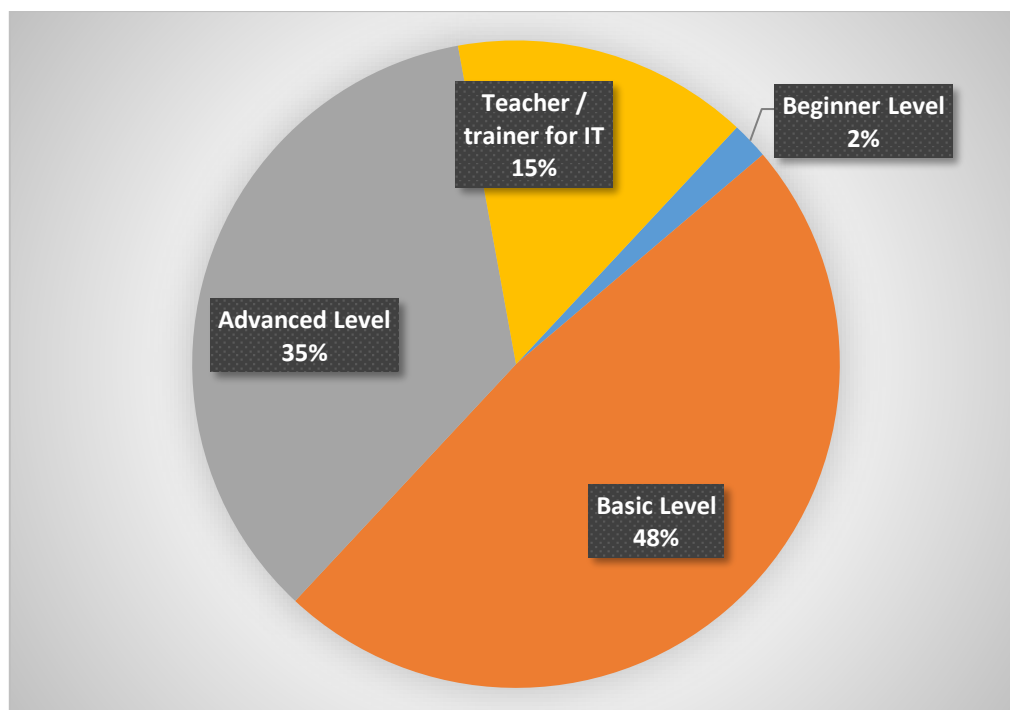
Evaluation

The respondents assessed their IT skills mainly as basic level ones (48 %). 35 % of the respondents feel advanced and 15 % of them are teacher trainers in this sphere. Only 2% of the respondent were beginners in IT.

19. Are you trained on how to create, edit and publish the following digital media?

	Not at all	Basic level	Advanced level	Professional level
Social networks	13	16	22	3
Presentations	6	16	26	6
Hypertext, embedding different media elements	13	21	18	2
Digital timelines	26	19	6	3
Concept maps	16	22	14	2
Blogs	26	16	11	1
Animations	17	23	12	2
Videos	15	22	13	4
Digital pictures	11	25	15	3

Not at all: No training, no experience
At basic level: I am self-taught or have some experience at non-professional level knowing how to use basic functionalities
At advanced level: I have received training about it or have some experience at professional level knowing how to use some advanced functionalities.
**At professional level:** I have professional training or I am a trainer knowing how to use well advanced functionalities.
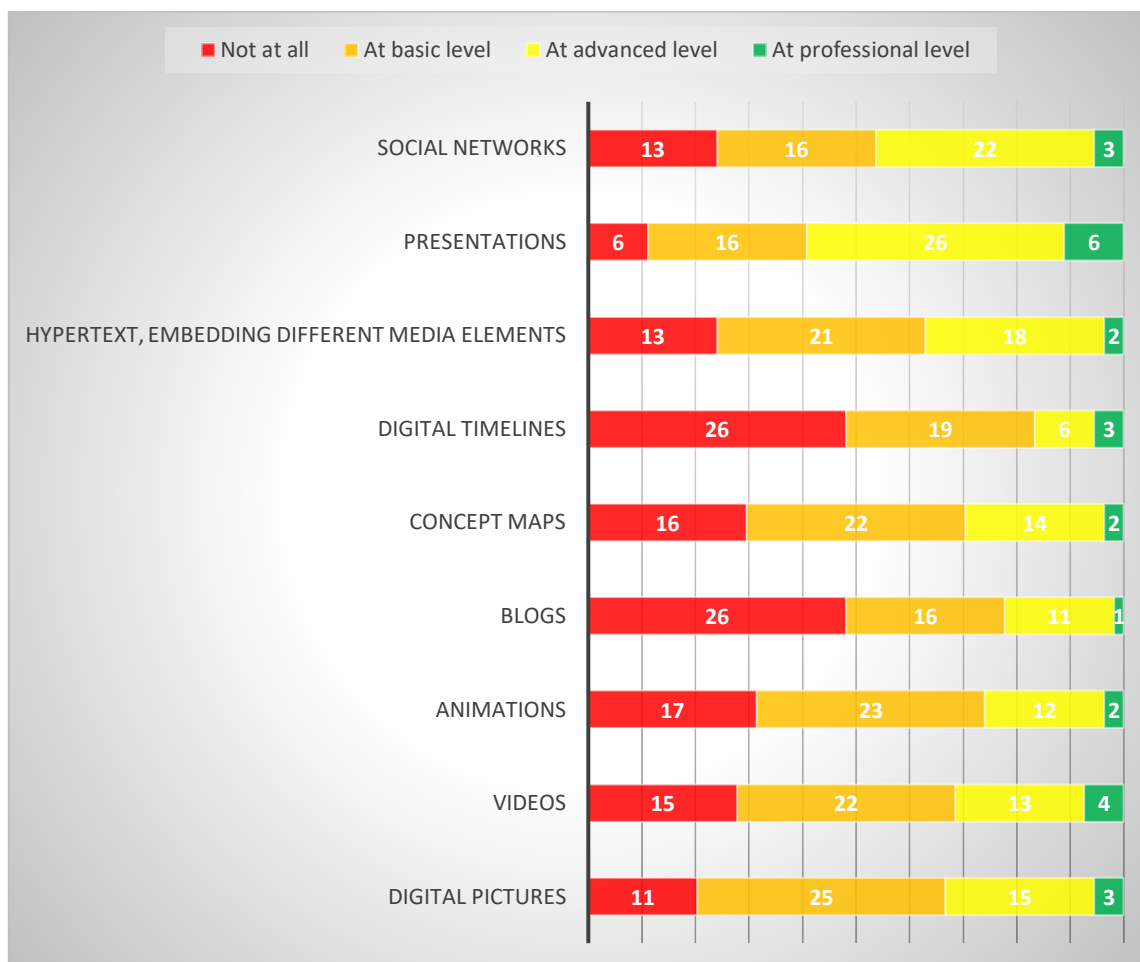
Evaluation

The graph reflects the concrete work with digital media. Some of the respondents are not experienced in working with digital media at all. The smallest experience was claimed in the sphere of using of digital timelines and blogs, and then animations. The highest amount of experience was claimed in the sphere of presentations.

20. Does your school provide the following tools?

	PC with internet	digital camera	drawing tablet	tablet
I have my own	3	8	4	7
Not at all	3	10	31	27
Yes, always, for all teachers	40	18	6	6
Yes, but difficult to get it	8	18	13	14
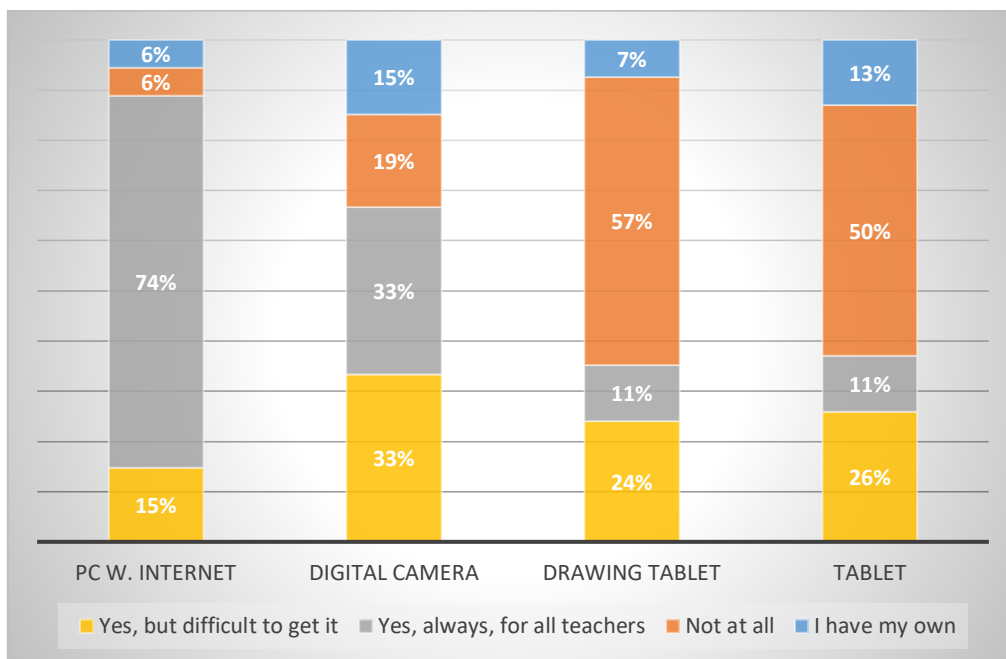
Evaluation

The given tools are used by the respondents. The most usual and the best accessible is the PC connected to Internet. The least accessible are drawing tablets.
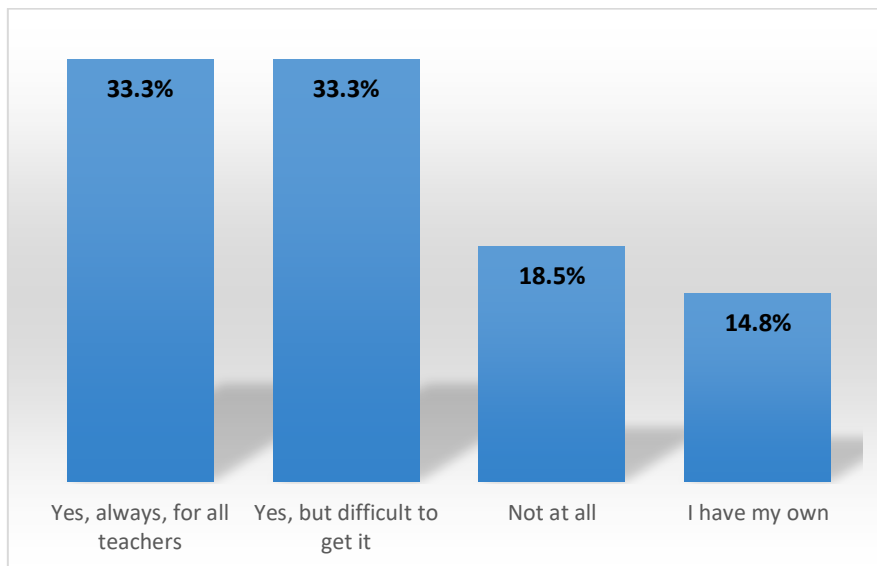
Computer with Internet access
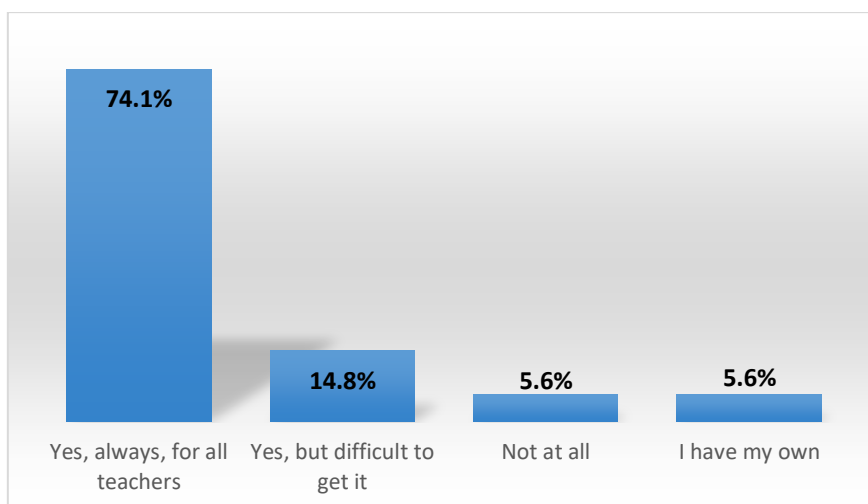
Evaluation

Nearly three quarters of the respondents claim that all the teachers have access to a PC with internet. Only 5.6 % of the respondents use their own PC.
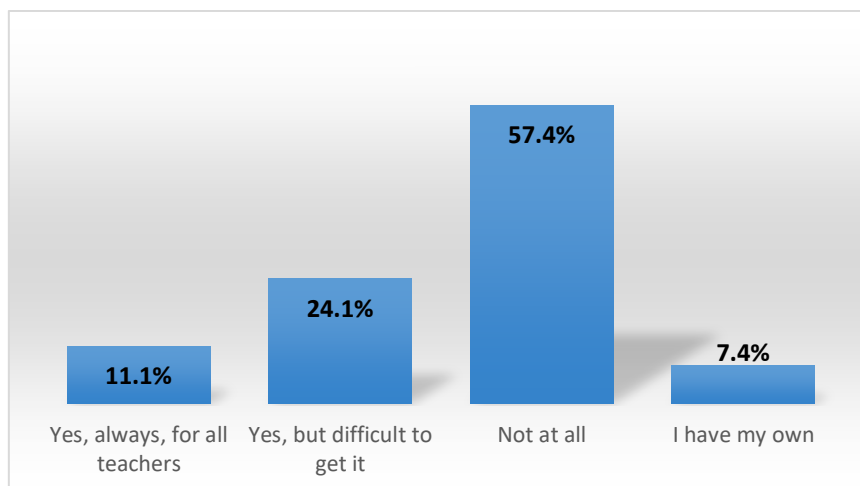
Digital camera

Evaluation
One third of schools make digital cameras available for all the teachers, the situation is problematic at the other schools. 14,8 % of the respondents use their own digital cameras.

Drawing tablet

Evaluation
Drawing tablets are not usually used at schools. In 57.4 % of the cases they are not available at all, 7.4 % of the respondents use their own devices.

Tablet
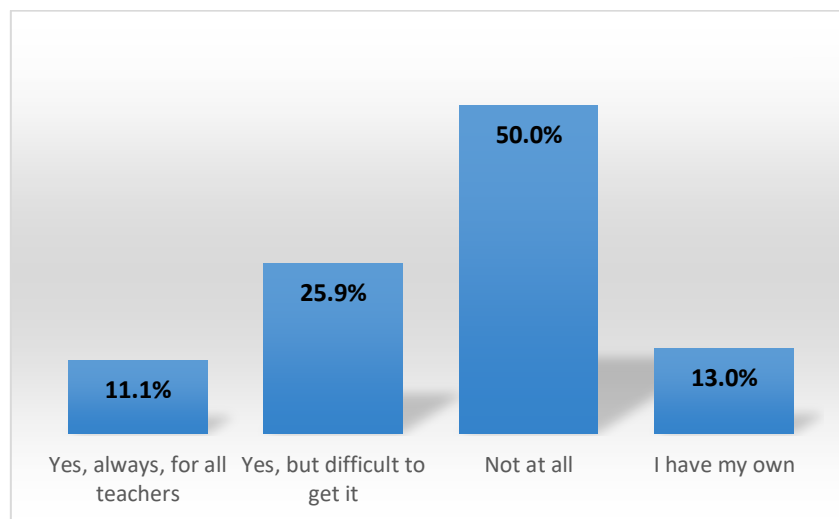
Evaluation

Tablets are not used by one half of the respondents. They are used by more than one third of the respondents, but they are available for each teacher only in 11.1 %. 13 % of the respondents use their own tablets.

21. Do you have access to the following IT tools/features for your classroom work?

	Presentation set (computer + projector)	Interactive board	High speed internet access	Poor internet access
For every lesson	34	18	26	2
Not at all	3	12	7	21
Occasionally	11	19	11	25
Only for IT lessons	6	5	10	6
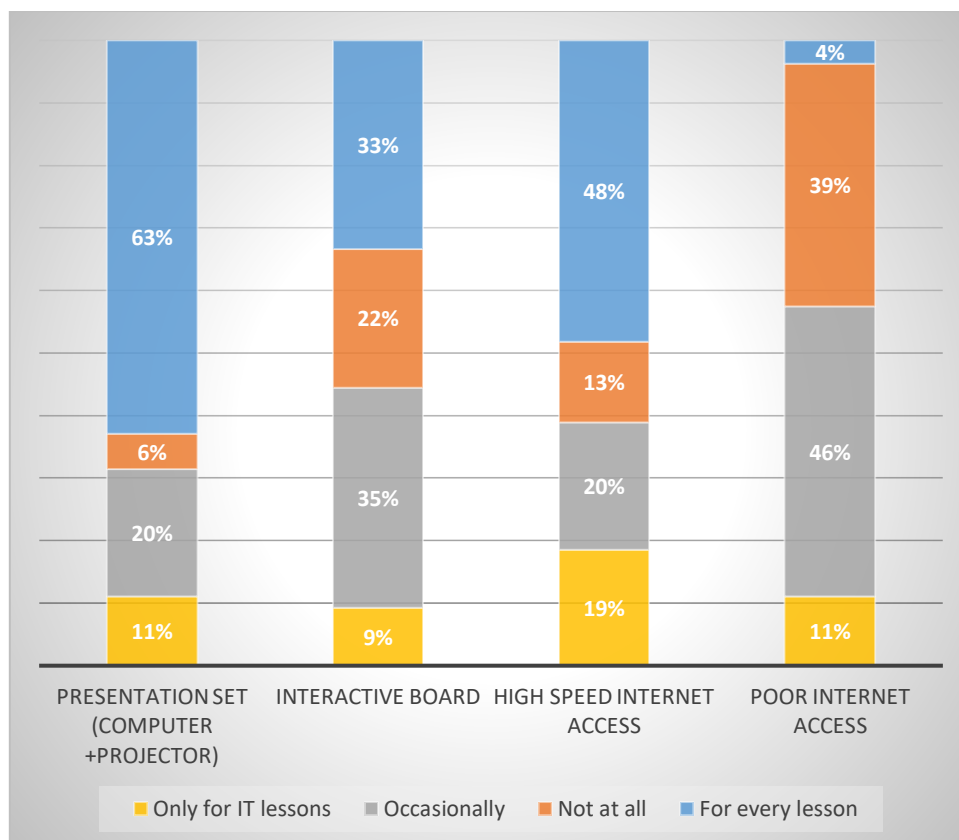
Evaluation

The IT tools most frequently used for classroom work are the presentation set, high speed internet access and the interactive board.

Access to presentation set (PC + projector)
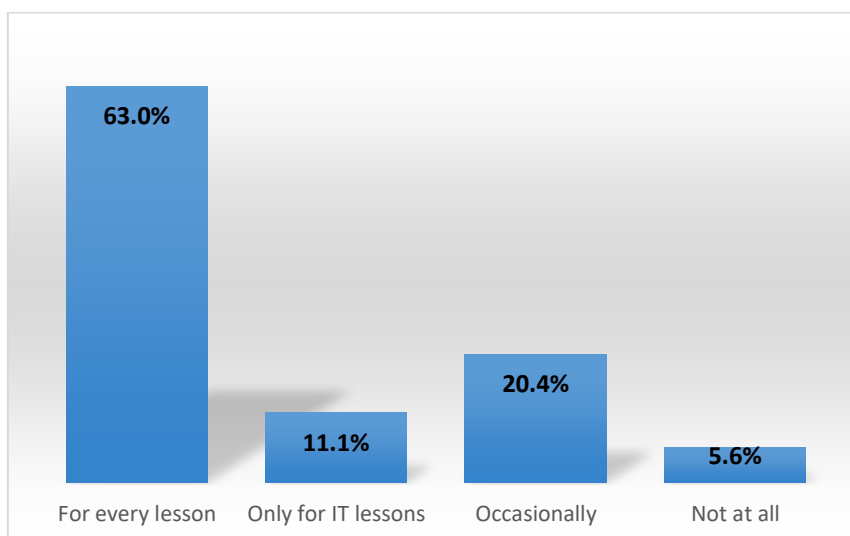
Evaluation

PCs and projectors are available for every lesson to 63 % of the respondents. 5.6 % of the respondents cannot use this set for presentations at all.

Access to interactive board
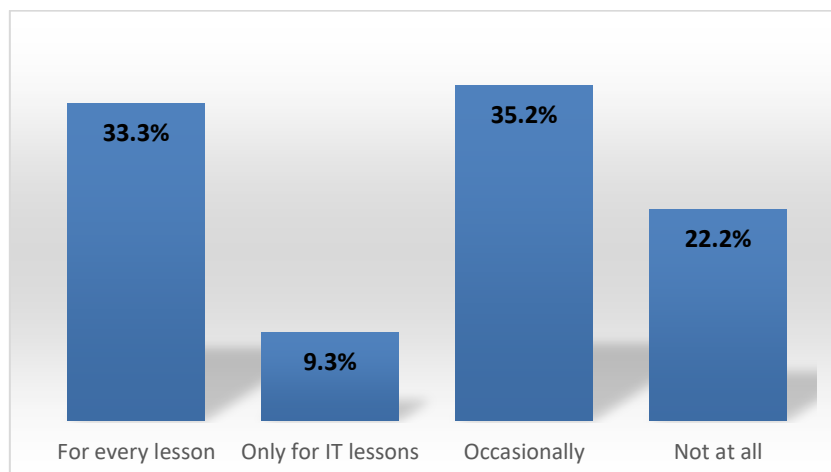
Evaluation

The interactive board is commonly used at the lower level of primary schools. It is not as frequently used at secondary vocational schools, which is in accordance with the results gained. The tool is available for every lesson for only 33 % of the respondents; 9.3 % of the respondents can use it only for IT lessons.

Access to high speed internet
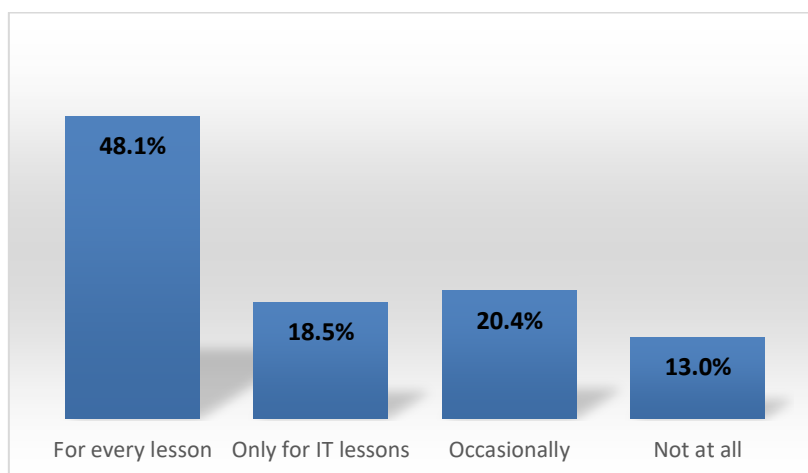
Evaluation

High speed internet is available every lesson in case of 48.1 % of the respondents, no access at all was claimed by 13 % of the respondents.

Access to low speed internet
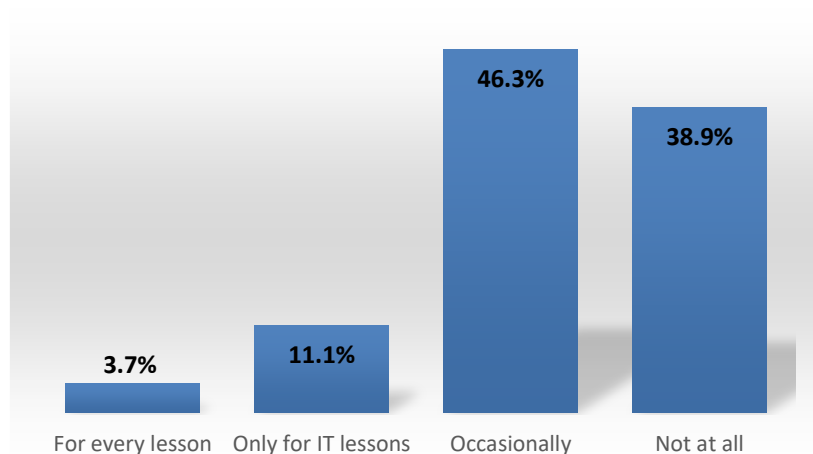
Evaluation
An occasional access to low speed internet is available to nearly a half of the respondents. It is not available at all to 38.9 % of the respondents.

22. If using computers in the classroom, how many students works on every single computer?

	1	2-3	4-7	8 or more
without internet	4	1	2	11
with internet	1	2	11	25
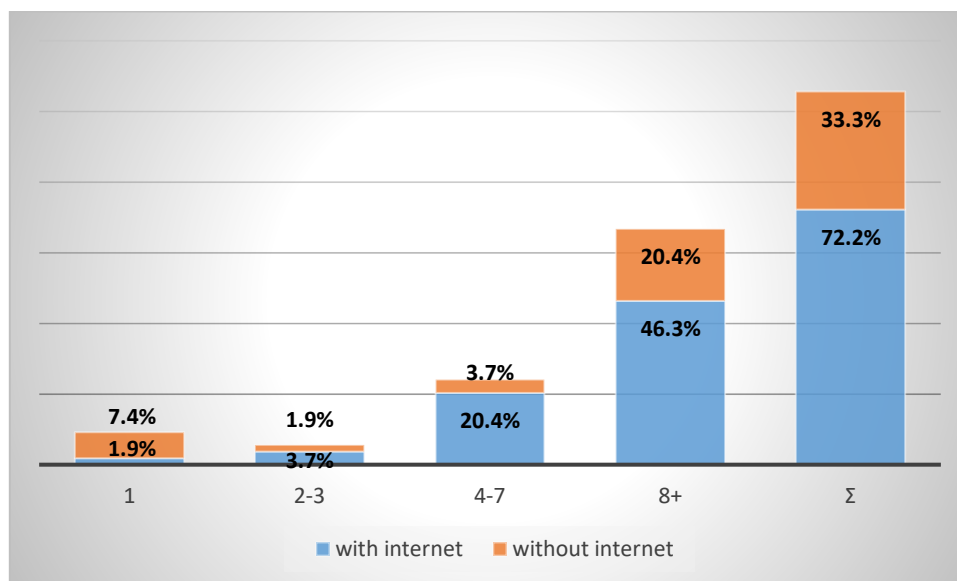
Evaluation
Computers without the internet access are used in their classes by 33.3 % of the respondents, in that case one computer is available for 8 students in 20.4 %. Computers with the internet access are used by 72.2 % of the respondents, in a majority of the cases one computer is again available for 8 students.

**23. Are the following tools available for students in the school after official lessons?**

	PC	camera	drawing tablet	tablet	internet
Not at all	5	34	41	38	3
Yes, occasionally	29	16	11	13	24
Yes, at any time	20	4	2	3	27
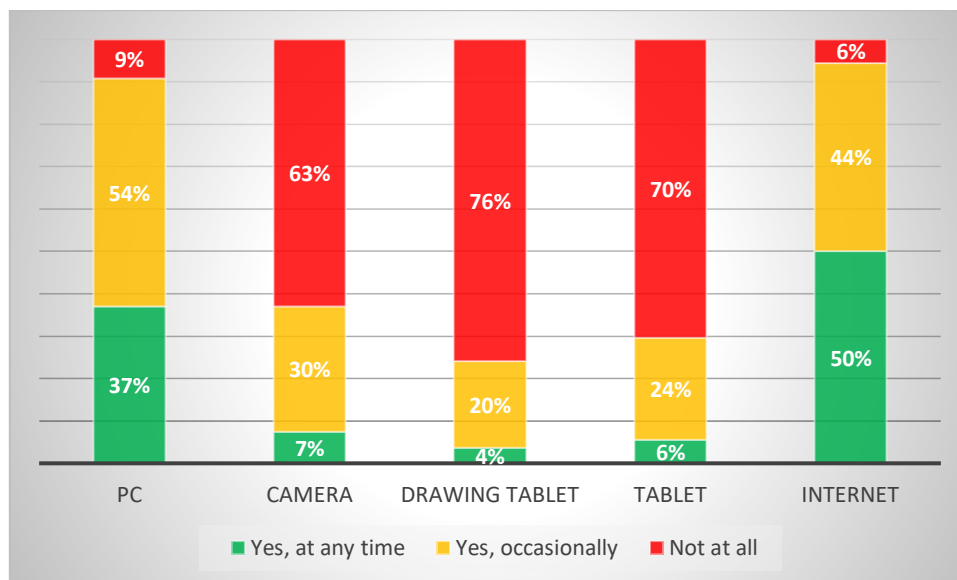
Evaluation
Based on the above given graph, a majority of the respondents use personal computers and internet. The drawing tablet is the least frequently used tool.
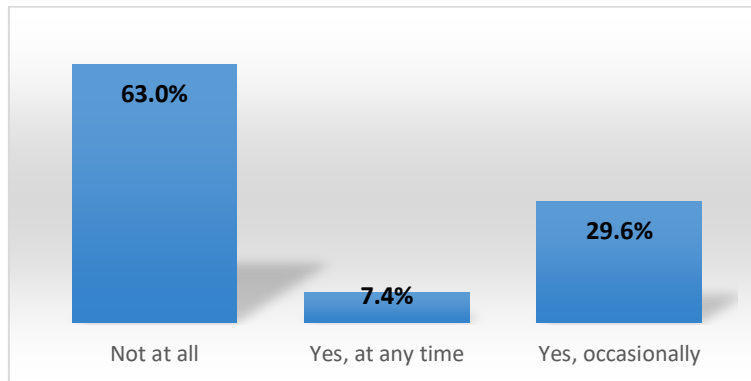
PC
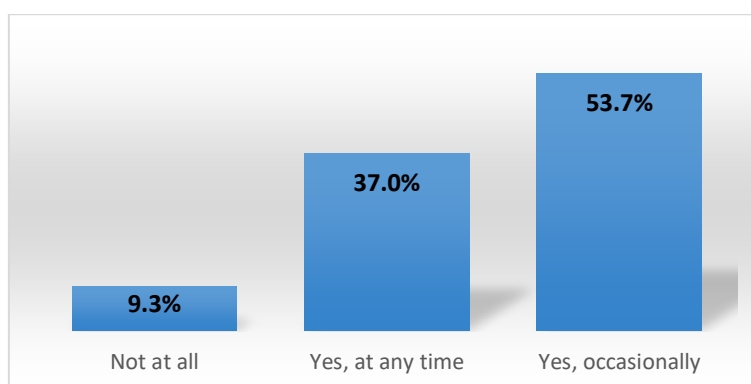
Evaluation
Personal computers are used at any time by 37% of the respondents. 53.7 % of them use PCs only occasionally.

Camera

Evaluation

Cameras are only occasionally used by 29.6 % of the respondents. 63 % of them do not use this tool at all.
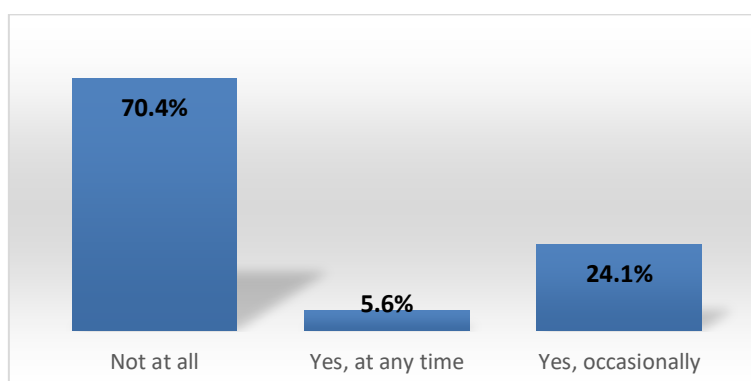
Drawing tablet
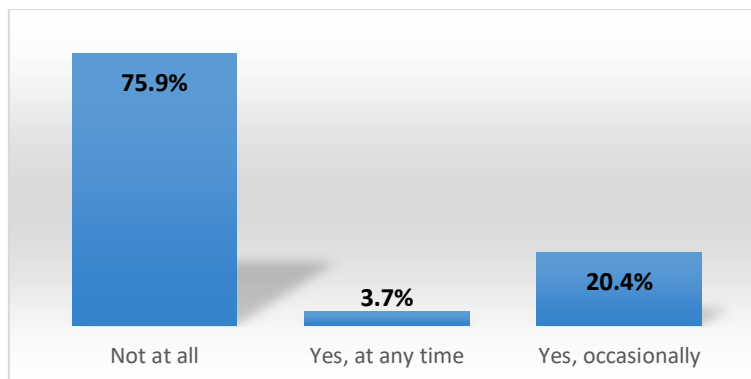
Evaluation

Drawing tablets belong to the least used tools. This specific tool could be more applied at vocational schools. Three quarters of the respondents do not use this tool at all.
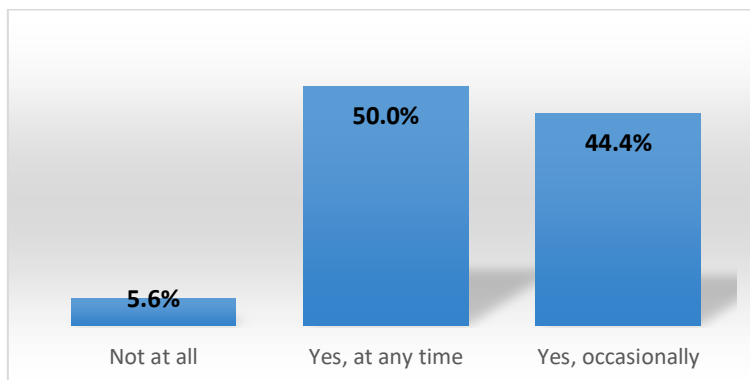
Tablet

Evaluation
Tablets, similarly to cameras and drawing tablets, do not belong to devices commonly used by teachers. 70 % of the respondents do not use them at all, 24.1 % of the respondents use them only occasionally.

Internet

Evaluation
Internet, on the contrary, is quite s frequent tool. It is used by more than 90 % of the respondents.

24. Do your students have the following tools at home?

	Computer	Digital camera	Tablet	Smart phone	Internet access
A few of them (less than 50%)	3	3	6	1	1
More than 50%	2	7	16	8	6
More than 70%	15	14	11	12	11
Almost all of them (more than 90%)	33	21	10	32	35
Don't know	1	9	11	1	1

Evaluation
Concerning the issue of the tools available for students at home, the respondents believe that their studetns are well-equipped. The prevailing tools are computer and internet access.
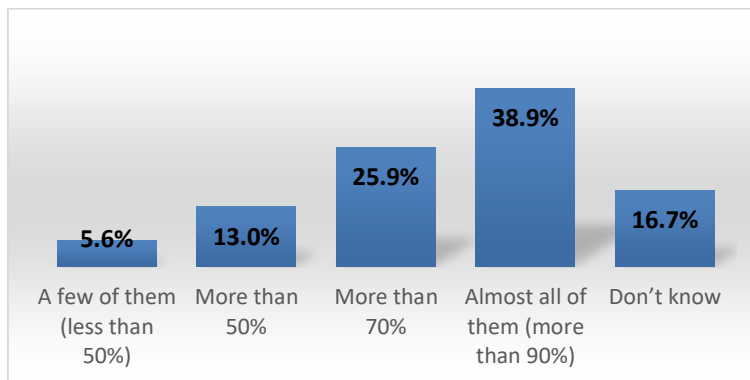
Computer
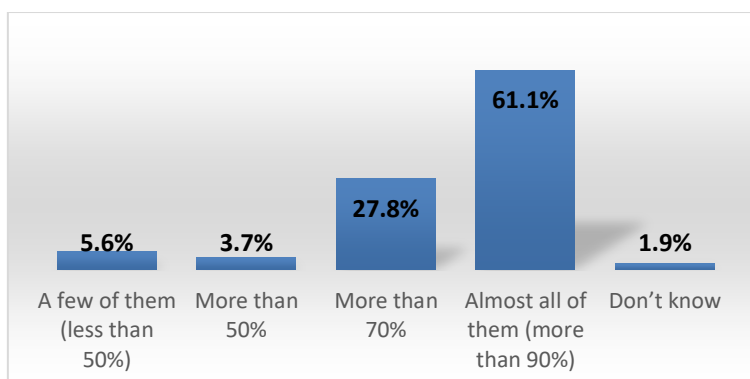
Evaluation
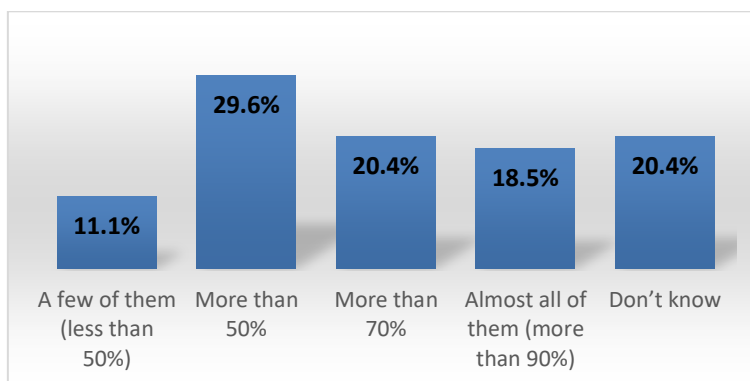Estimated by teachers, 61.1 % of students own computers.

Digital camera

Evaluation
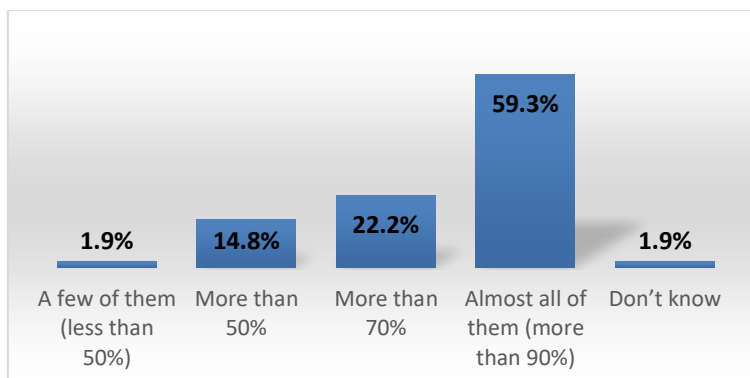38.9 % of students own digital cameras.

Tablet

Evaluation
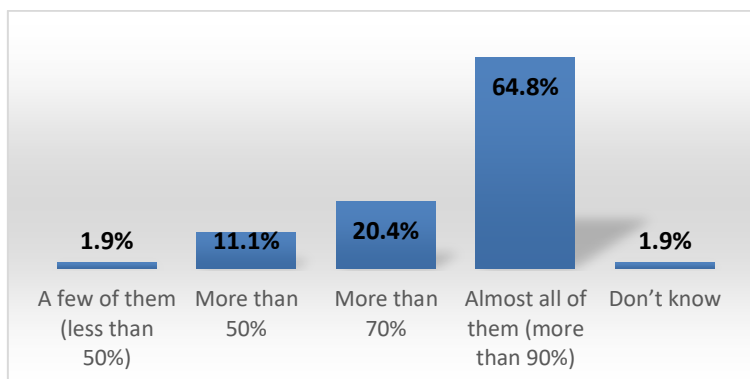18.5 % of students own tablets.

Smart phone

Evaluation

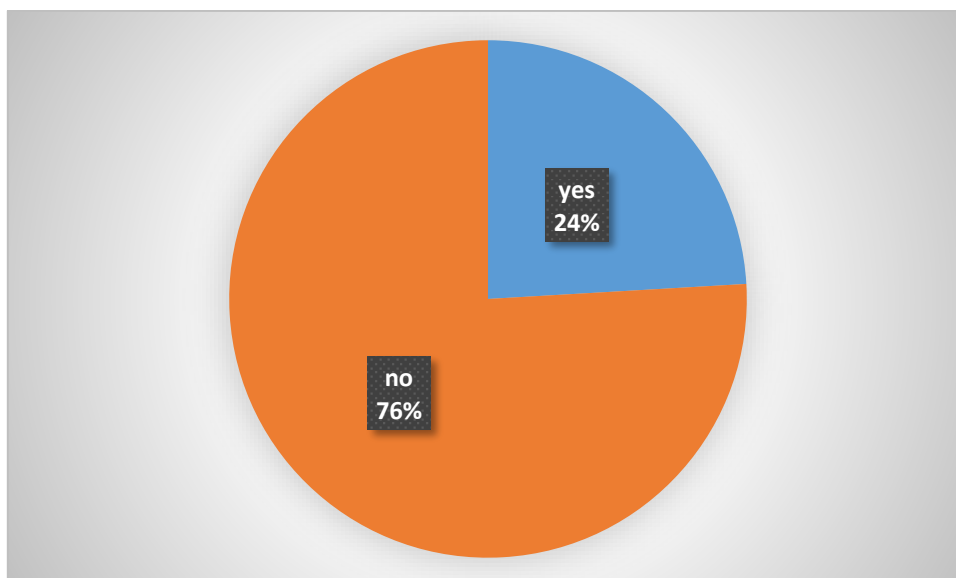Smart phones are used by 59.3 % of students.

Internet access

Evaluation

Access to Internet is available in 64.8 % of the cases.

25. In the Flip-IT project, we will develop an online FC course for teachers in early 2017. If you are interested in taking part, please provide your e-mail address.

Evaluation

One quarter of the respondents expressed their interest in attending the course focused on the FC.