REACTI-VET - FOCUSED REQUIREMENT ANALYSIS

COUNTRY: **ESTONIA**

TARGET GROUP: **VET TEACHERS**

CONTEXT

Vocational schools have to meet two opposing requirements simultaneously: to remain true to tradition, delivering stable, tested knowledge approved by relevant parties in society and economy; and to equip students with a set of skills and competencies relevant to newly emerging demands of labour market.

How can we transform the strategies of vocational schools to be more labour market responsive? How could vocational schools prepare their students to meet the requirements of the rapidly changing technological environment in their future workplace? These are the questions we want to answer in the Reacti-VET project.
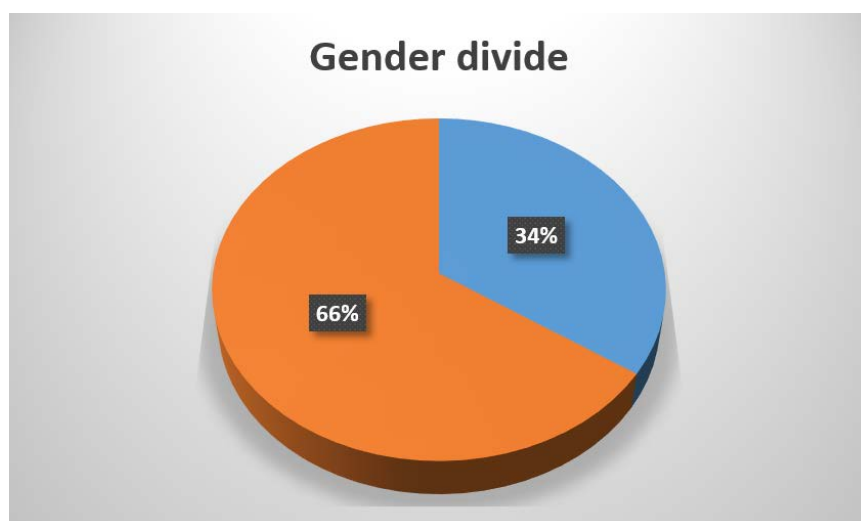
In the first project phase (focused requirement analysis), the Consortium implemented a survey for VET teachers which will serve as a basis for the next outcome, the development of an upskilling training for teachers.

The aim of the survey was to gather information about the ICT skills of VET teachers and the ICT-based methods and tools they use in teaching. We also wanted to know what efforts they have been making so far to reduce the skills gaps, and what type of contact they currently have with companies.

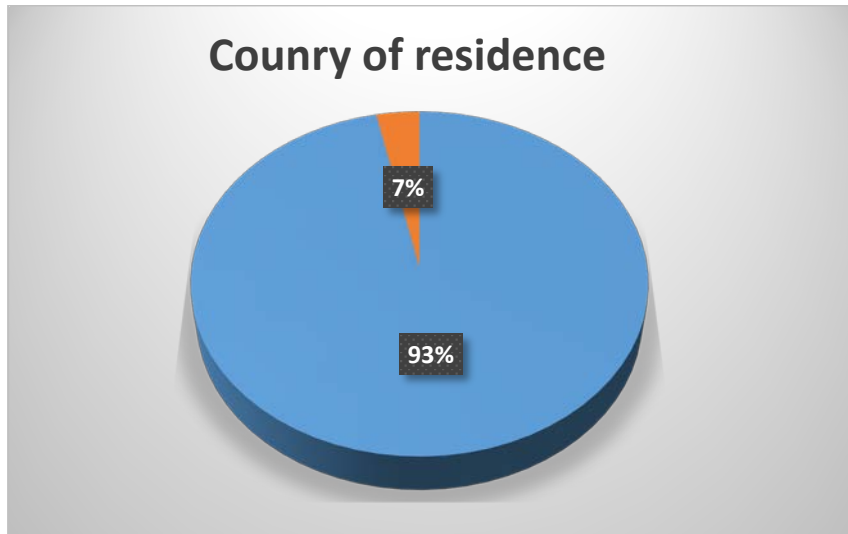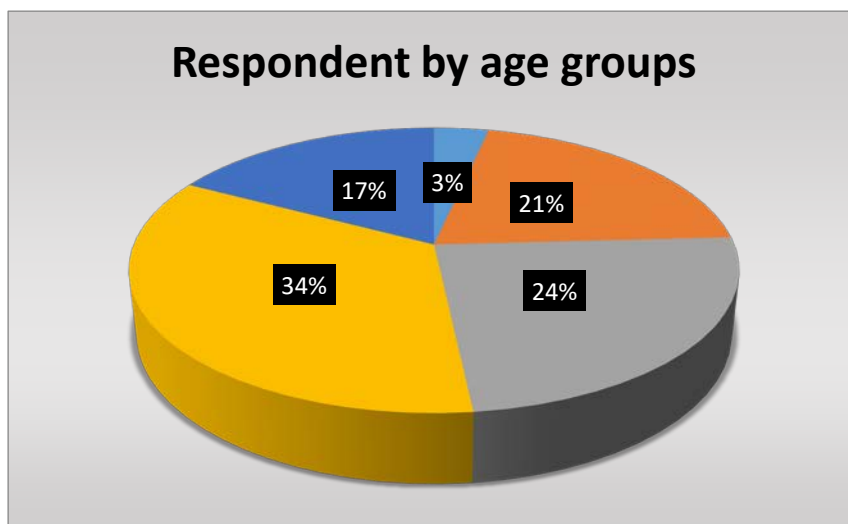In Estonia 29 responses from VET teachers were received through the online questionnaire published on the project website (http://reactivet.itstudy.hu/et/forms/k%C3%BCsitlus-%C3%B5petajatele).

DEMOGRAPHIC DATA

1.1 GENDER

Male	10	34%
Female	19	66%
Total	29	

1.2 COUNTRY

Counry of residence

7%

93%

Estonia	27	93%
Russia	2	7%
Total	29	

1.3 AGE

Respondent by age groups

17% 3% 21%

34% 24%

20-29	1	3%
30-39	6	21%
40-49	7	24%
50-59	10	34%
over 60	5	17%
Total	29	

EVALUATION

The ratio of male/female teachers reflects the general situation of secondary education in Estonia. The majority of respondents were Estonian and only 7% were Russian. The age group shows a relatively normal deviation. This latter is partially the result of the aging of the teaching profession.

PROFESSIONAL BACKGROUND

2.1 HIGHEST LEVEL OF EDUCATION
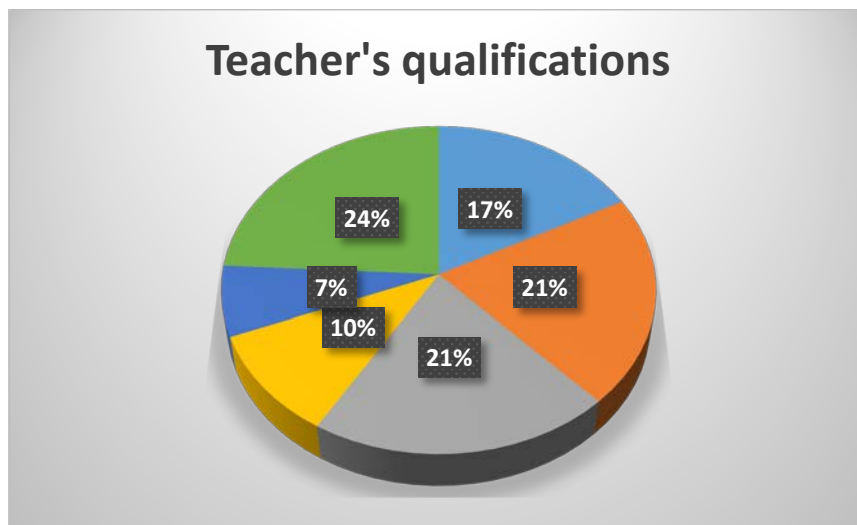
secondary and post-secondary (ISCED 3, 4, 5)	5	17%
bachelor (BSC/BA/BProf) in teacher (ISCED 6)	6	21%
bachelor (BSC/BA/BProf) in other profession (ISCED 6)	6	21%
master (MSC/MA) in teacher (ISCED 7)	3	10%
master (MSC/MA) in other profession (ISCED 7)	2	7%
Doctoral or equivalent (ISCED 8)	7	24%
Total	29	

EVALUATION

A bachelor's or a master's degree is a prerequisite for in-service teachers. As the chart shows only 17% of the respondents have a lower level qualification, and it is notable that 24% have a doctoral or equivalent degree.

2.2 HOW LONG HAVE YOU BEEN TEACHING?

Teachers experience in years
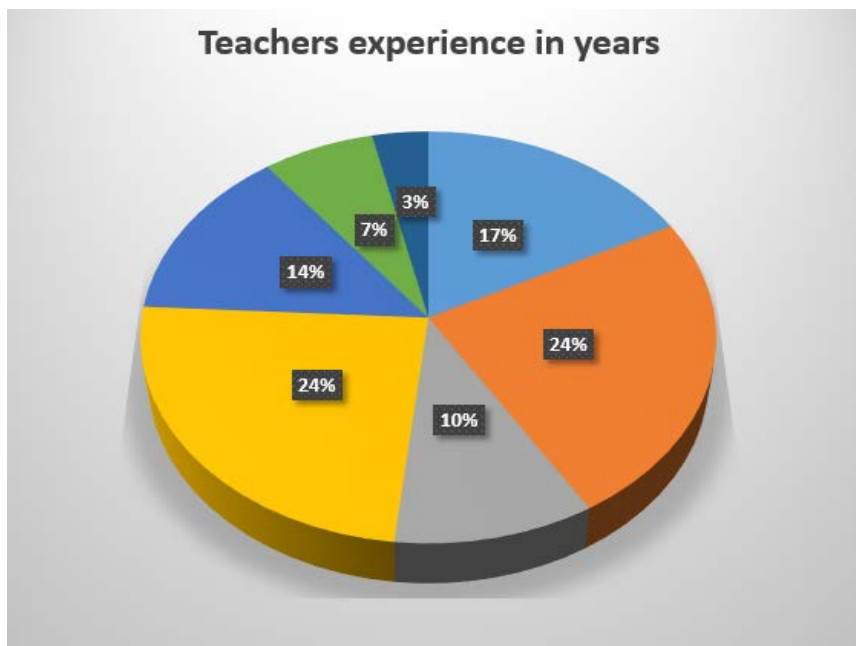
1-5	5	17%
6-10	7	24%
11-15	3	10%
16-20	7	24%
21-25	4	14%
26-30	2	7%
31-35	-	-
36, or more	-	-
No answer	1	3%
Total	29	

EVALUATION

Most of the teachers had sufficient experience to be able to adequately evaluate the state of the art in education. As can be seen, more than half of the respondents had spent more than 10 years in education.

2.3'WHAT TYPE OF SCHOOL ARE YOU CURRENTLY TEACHING IN?

Type of school the teachers are working in
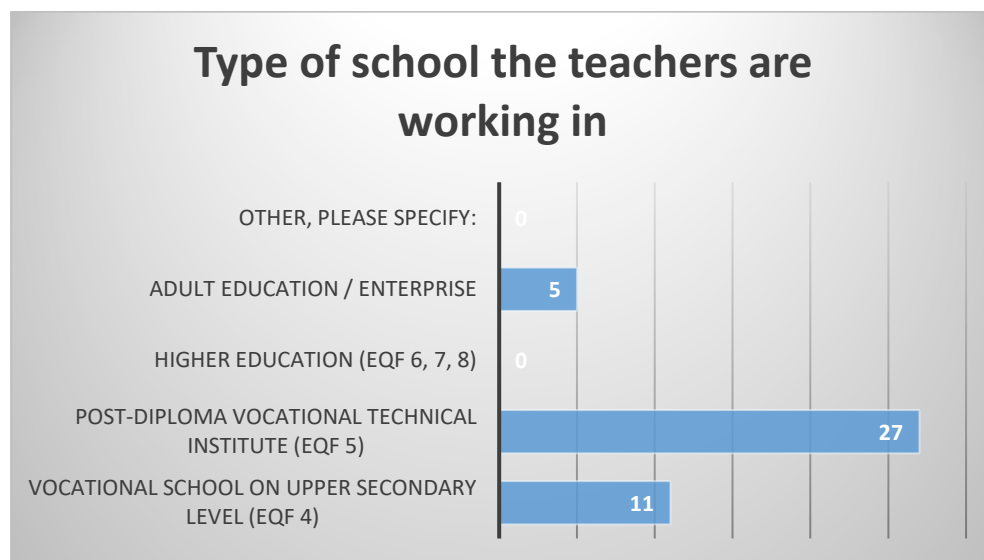
| Vocational school on upper secondary level (EQF 4)	11	26%
Post-diploma vocational technical institute (EQF 5)	27	63%
Higher education (EQF 6, 7, 8)	0	0%
Adult education / enterprise	5	12%
Other, please specify:	0	0%
Total	43	

EVALUATION

The majority of respondents were teachers in more types of schools at the same time, including vocational education.

2.4 DID YOU WORK FOR COMPANIES?

Teachers previous work experience in companies
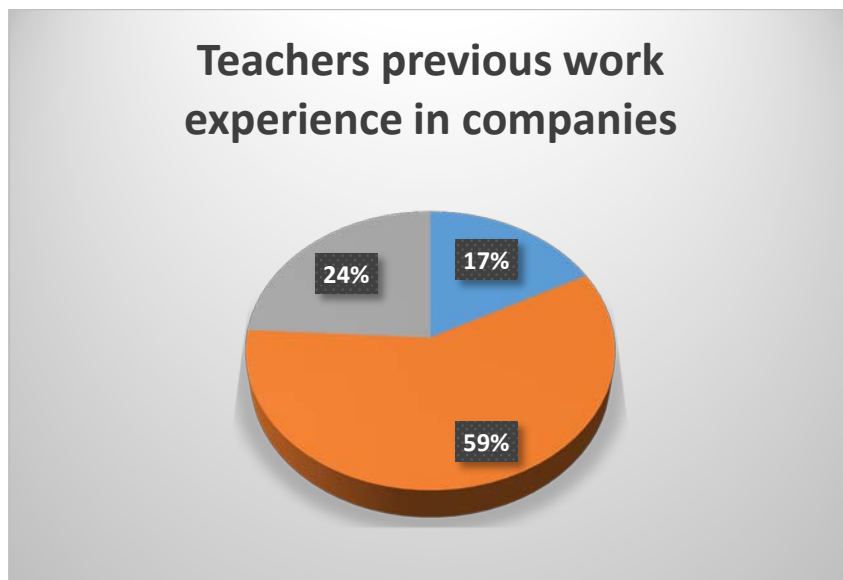
| No, I've always been a teacher.	5	17%
Yes, I worked before starting to teach.	17	59%
Yes, even now I have a job in a company besides being a teacher.	7	24%
No answer	0	0%
Total	29	

Teachers previous work experience in companies (in years)
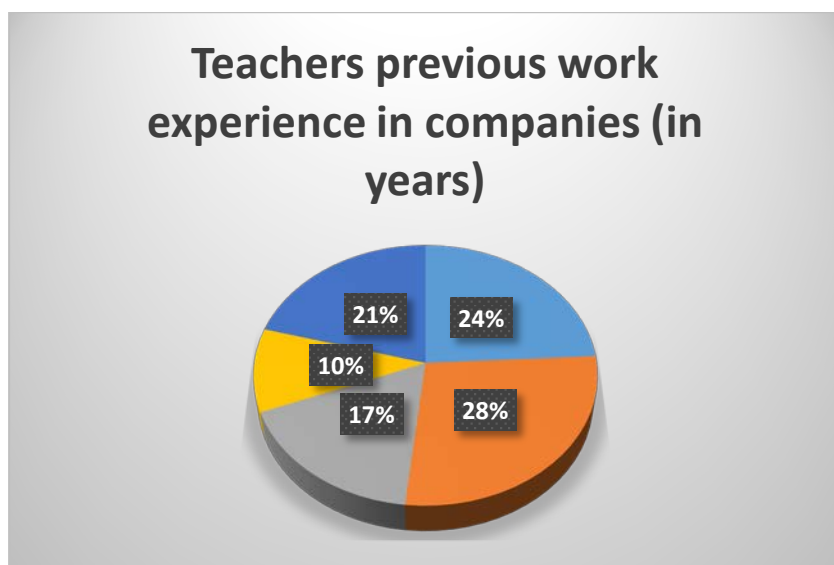
1-10	7	24%
11-20	8	28%
21-30	5	17%
31, or more	3	10%
Not specified	6	21%
Total	80	

EVALUATION

83% of the respondents had experience in other fields as well. 37% of those with other experience worked more than 20 years in industry.

2.5 WHICH SECTOR(S) DO THE SUBJECTS YOU TEACH BELONG TO?

Which sector(s) do the subjects you teach belong to?
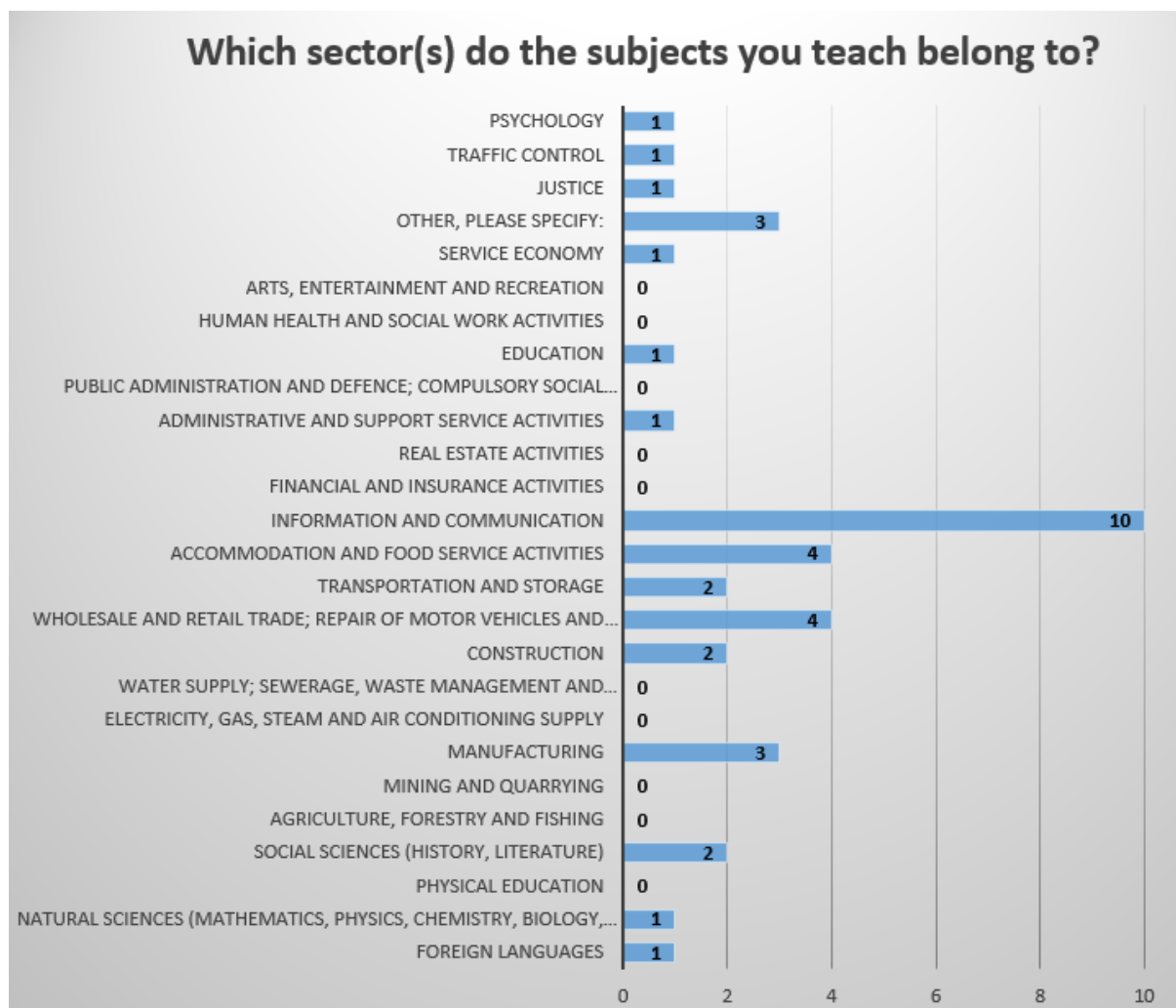
Foreign Languages	1	3%
Natural Sciences (Mathematics, Physics, Chemistry, Biology, Geography)	1	3%
Physical Education	0	0%
Social Sciences (History, Literature)	2	5%
Agriculture, Forestry and Fishing	0	0%
Mining and Quarrying	0	0%
Manufacturing	3	8%
Electricity, Gas, Steam and Air Conditioning Supply	0	0%
Water Supply; Sewerage, Waste Management and Remediation Activities	0	0%
Construction	2	5%
Wholesale and Retail Trade; Repair of Motor Vehicles and Motorcycles	4	11%

Transportation and Storage	2	5%
Accommodation and Food Service Activities	4	11%
Information and Communication	10	26%
Financial and Insurance Activities	0	0%
Real Estate Activities	0	0%
Administrative and Support Service Activities	1	3%
Public Administration and Defence; Compulsory Social Security	0	0%
Education	1	3%
Human Health and Social Work Activities	0	0%
Arts, Entertainment and Recreation	0	0%
Service economy	1	3%
Other, please specify:	3	8%
Justice	1	3%
Traffic control	1	3%
Psychology	1	3%
Total	38	

EVALUATION

Within the field of teaching, IT has a leading role with 26%. The number of general subjects (modern languages, sciences, humanities) and subjects among vocational branches vary between 1 and 4.

2.6 YOUR TEACHING ROLE IS
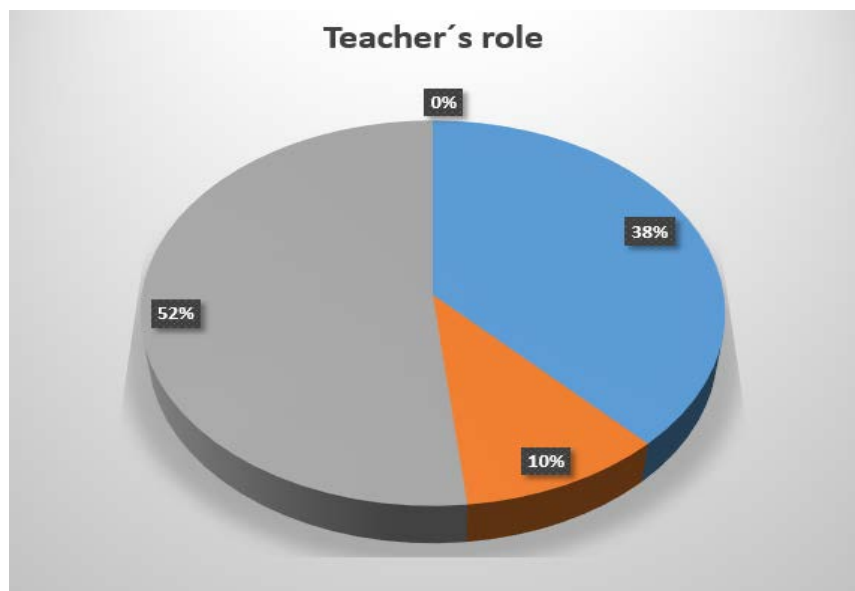
Classroom teacher	11	38%
On-the-job tutor (or equivalent role)	3	10%
Both roles	15	52%
No answer	0	0%
Total	29	

EVALUATION

According to the answers, 52% of the respondents take on the role of a classroom teacher and an on-the-job tutor at the same time, which is a high rate.

ICT SKILLS AND ICT-BASED METHODS IN TEACHING

3.1 THE LEVEL OF YOUR ICT SKILLS IS

Teachers ICT skills level (self evaluation)
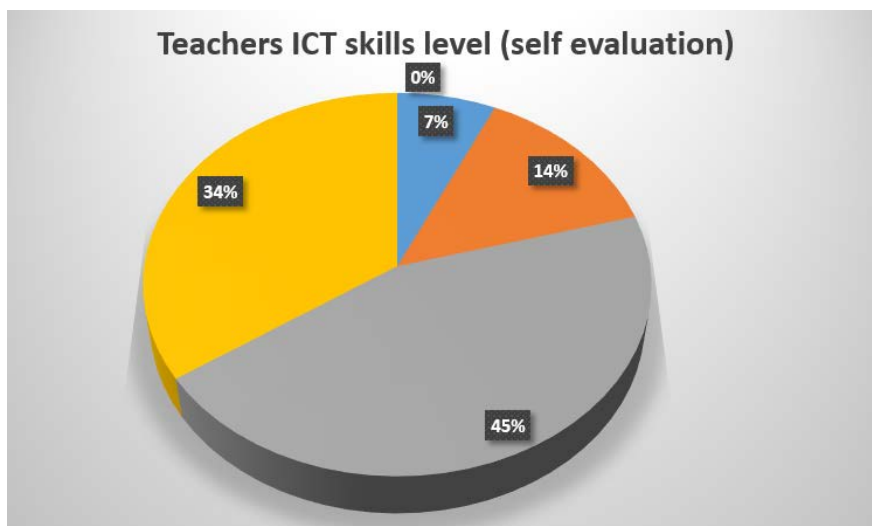
beginner	27	7%
basic	4	14%
advanced	13	45%
professional	10	34%
No answer	0	0%
Total	29	

EVALUATION

79% of the teachers have considerable knowledge of ICT, and the amount of beginner knowledge is low. It seems beneficial to the project.

3.2 WHAT TYPE(S) OF DIGITAL LEARNING CONTENT(S) DO YOU CREATE, EDIT AND SHARE FOR YOUR LESSONS?


Types of digital tools teachers are using in lessons
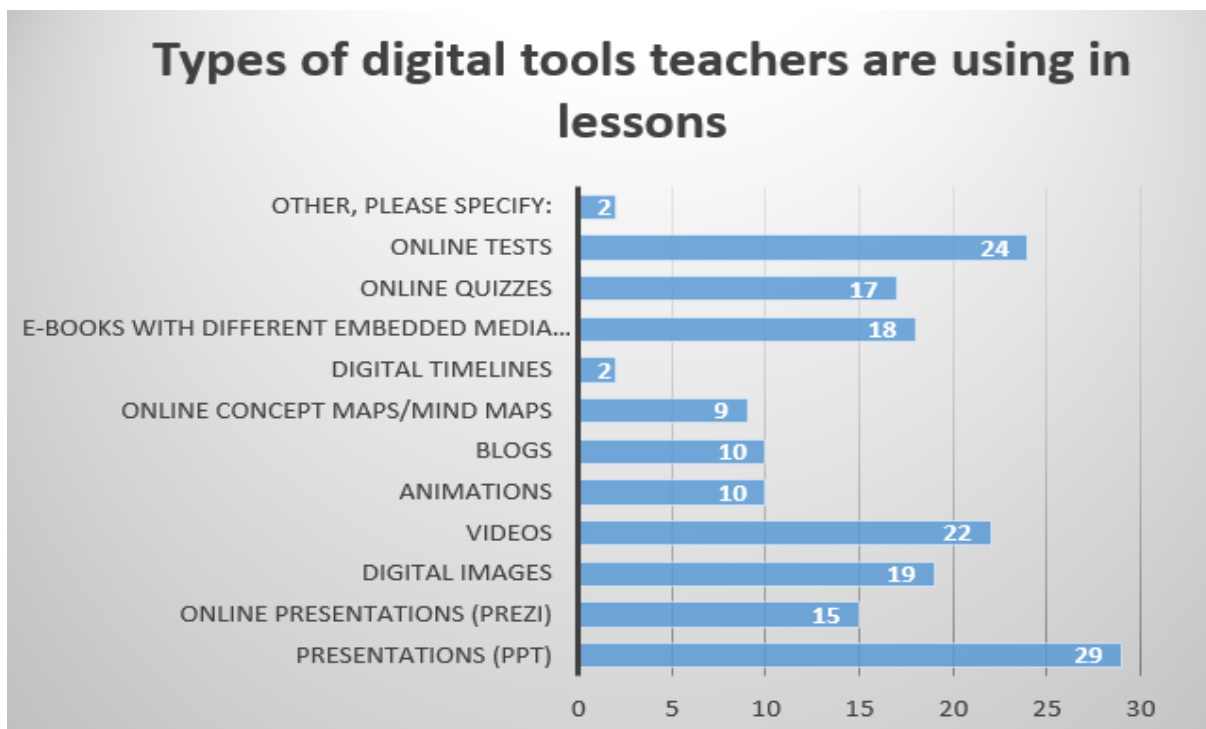
Presentations (ppt)	29	100%
Online presentations (Prezi)	15	52%
Digital images	19	66%
Videos	22	76%
Animations	10	34%
Blogs	10	34%
Online concept maps/mind maps	9	31%
Digital timelines	2	7%
E-books with different embedded media elements	18	62%
Online quizzes	17	59%
Online tests	24	83%
Other, please specify:	2	7%
Total	177	

EVALUATION

Of the digital tools, everybody uses presentations, and 83% use online tests. The use of digital images, videos are far above 60%, and online presentations and quizzes also seem popular among the respondents. The use of animations, blogs and online concept maps/mind maps should also be noted.

3.3 MARK THE ICT TOOLS YOU USE IN YOUR TEACHING

Indicated ICT tools used in teaching
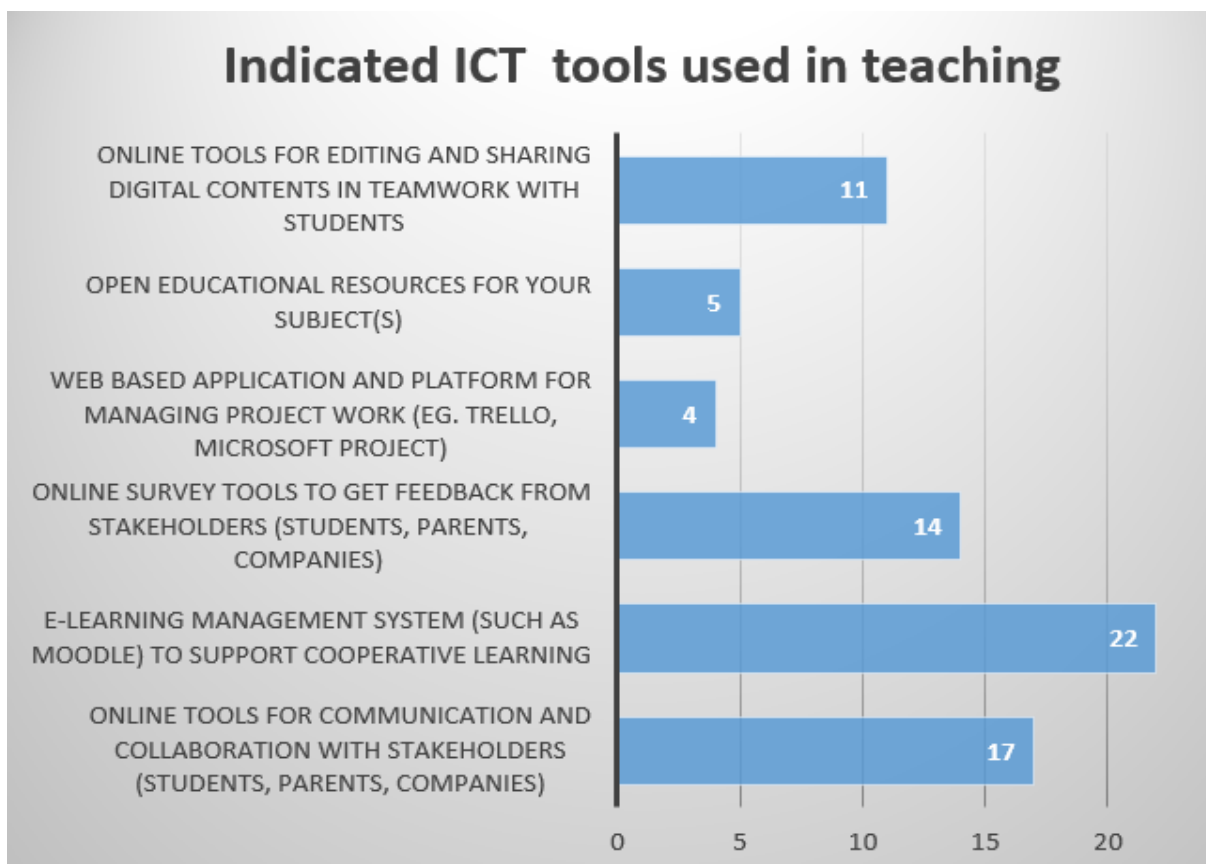
| Online tools for communication and collaboration with stakeholders (students, parents, companies)	17	59%
E-learning management system (such as Moodle) to support cooperative learning	22	76%
Online survey tools to get feedback from stakeholders (students, parents, companies)	14	48%
Open educational resources for your subject(s)	4	14%
Web based application and platform for managing project work (eg. Trello, Microsoft Project)	5	17%
Online tools for editing and sharing digital contents in teamwork with students	11	38%
Total	73	

EVALUATION

The use of e-learning management systems to support cooperative learning is very high, but more than half of the respondents tend to use online tools for communication and collaboration as well. Many also use online survey tools and online tools for editing. The other choices are moderately exploited. This must be kept in mind during curriculum development.

### 3.4 WHICH PEDAGOGICAL METHOD(S) DO YOU FREQUENTLY USE IN YOUR CLASSROOM?

Pedagocial methods used in classroom: Project - based learning
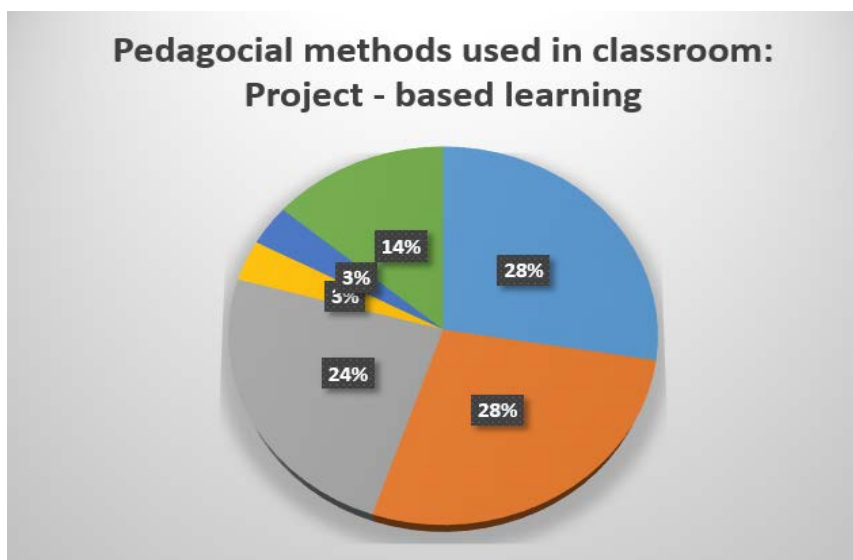
Often	8	28%
Sometimes	8	28%
Rarely	7	24%
Never	1	3%
I don't know this method	1	3%
No answer	4	14%
Total	29	

Collaborative type of pedagogical methods used in classroom:
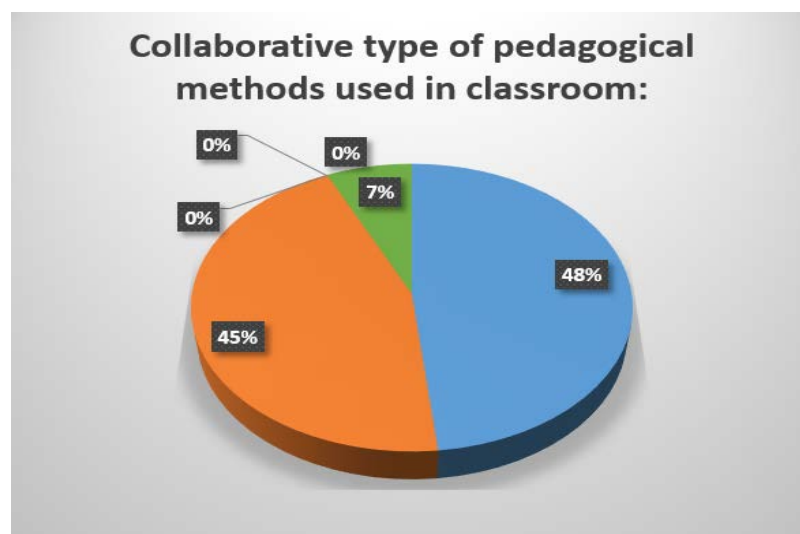
Often	14	48%
Sometimes	13	45%
Rarely	0	0%
Never	0	0%
I don't know this method	0	0%
No answer	2	7%
Total	29	

Problem-based learning
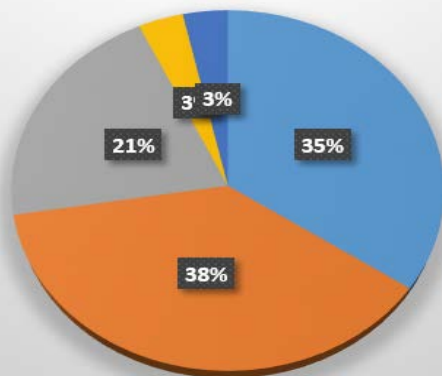
Often	10	34%
Sometimes	11	38%
Rarely	6	21%
Never	0	0%
I don't know this method	1	3%
No answer	1	3%
Total	29	

Inquiry-based learning as a teaching method
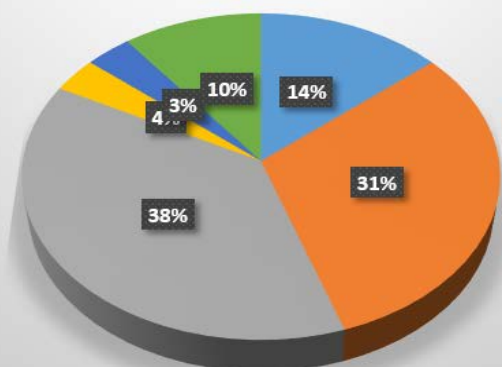
Often	4	14%
Sometimes	9	31%
Rarely	11	38%
Never	1	3%
I don't know this method	1	3%
No answer	3	10%
Total	29	

Frontal instructions
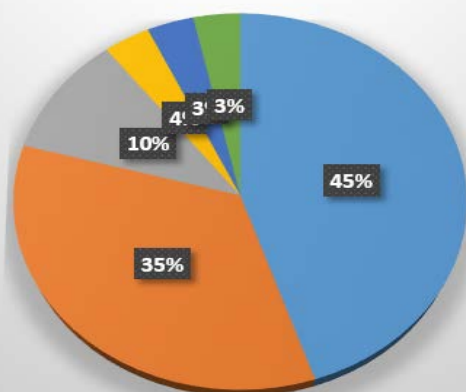
Often	13	45%
Sometimes	10	34%
Rarely	3	10%
Never	1	3%
I don't know this method	1	3%
No answer	1	3%
Total	29	

Game-based learning
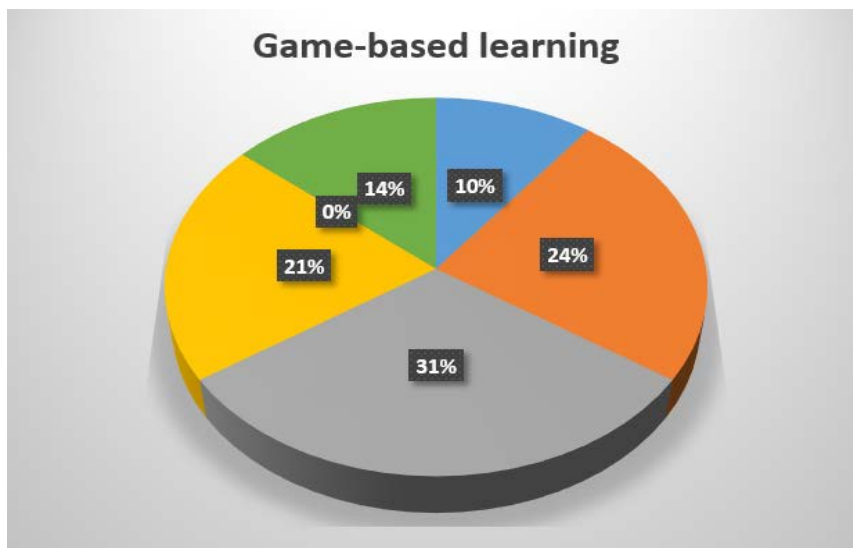
Often	3	10%
Sometimes	7	24%
Rarely	9	31%
Never	6	21%
I don't know this method	0	0%
No answer	4	14%
Total	29	

Flipped classroom method
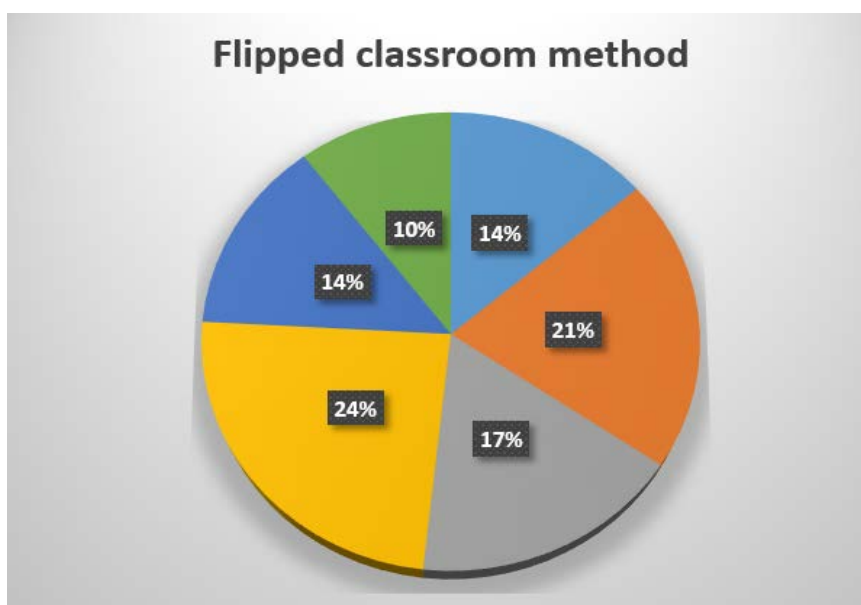
Often	4	13,8%
Sometimes	6	20,7%
Rarely	5	17,2%
Never	7	24,1%
I don't know this method	4	13,8%
No answer	3	10,3%
Total	29	

Frequently use in your classroom - comparison
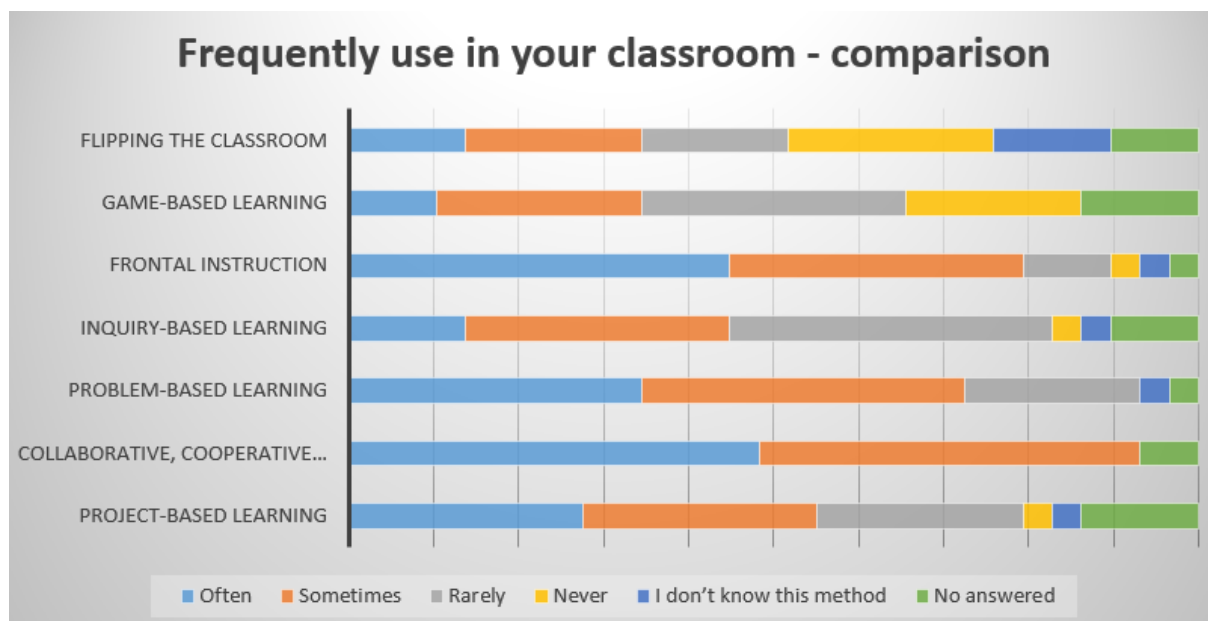
	Project-based learning	Collaborative, cooperative methods based on group work	Problem-based learning	Inquiry-based learning	Frontal instruction	Game-based learning	Flipping the classroom
Often	8	14	10	4	13	3	4
Sometimes	8	13	11	9	10	7	6
Rarely	7	0	6	11	3	9	5
Never	1	0	0	1	1	6	7
I don't know this method	1	0	1	1	1	0	4
No answer	4	2	1	3	1	4	3
Total	29	29	29	29	29	29	29

Frequently use in your classroom - max
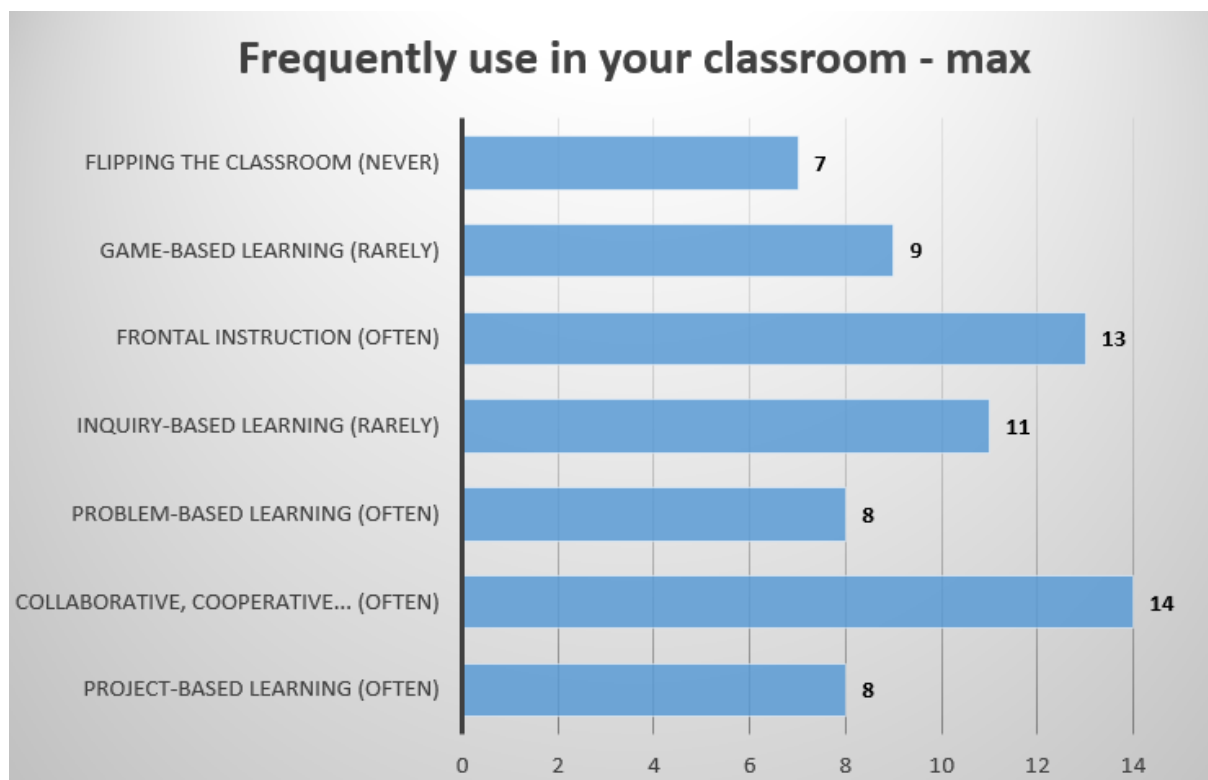

Project-based learning (sometimes)	8	27,6%
Collaborative, cooperative... (often)	14	48,3%
Problem-based learning (sometimes)	8	27,6%
Inquiry-based learning (rarely)	11	37,9%
Frontal instruction (often)	13	44,8%
Game-based learning (sometimes)	9	31,0%
Flipping the classroom (never)	7	24,1%
Total	70	

EVALUATION

The range of methodological opportunities used by the teachers shaped up nice. Collaborative and cooperative teaching methods are ahead of frontal teaching, and seem to be well-supported by inquiry- and game-based learning. The use of project- and problem-based learning is a bit lower. Interestingly, flipped classroom is rarely involved in classroom teaching.

3.5 MARK THE ONLINE TOOLS YOU HAVE ALREADY USED
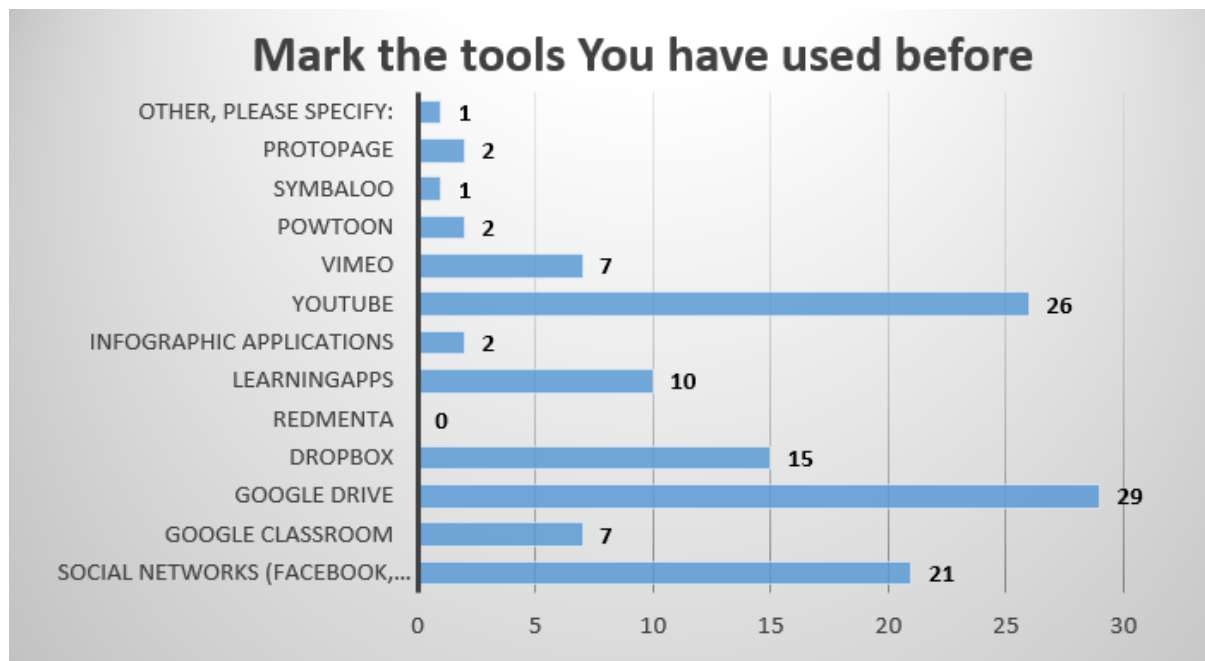
Social networks (Facebook, LinkedIn)	21	72,4%
Google Classroom	7	24,1%
Google Drive	29	100,0%
Dropbox	15	51,7%
Redmenta	0	0,0%
LearningApps	10	34,5%
Infographic applications	2	6,9%
YouTube	26	89,7%
Vimeo	7	24,1%
PowToon	2	6,9%
Symbaloo	1	3,4%
Protopage	2	6,9%
Other, please specify:	1	3,4%
Total	123	

EVALUATION

Based on the previous answers, it is not surprising that the Google Drive is used by all the respondents. It is followed by the use of YouTube and some social networks, and Dropbox is also a popular choice. Some learning applications, Vimeo and the Google Classroom are also involved in teaching, while the other options are rarely used.

3.6 ARE YOU OPEN TO IMPROVING YOUR ICT SKILLS?

Are You open to improve your ICT skills?
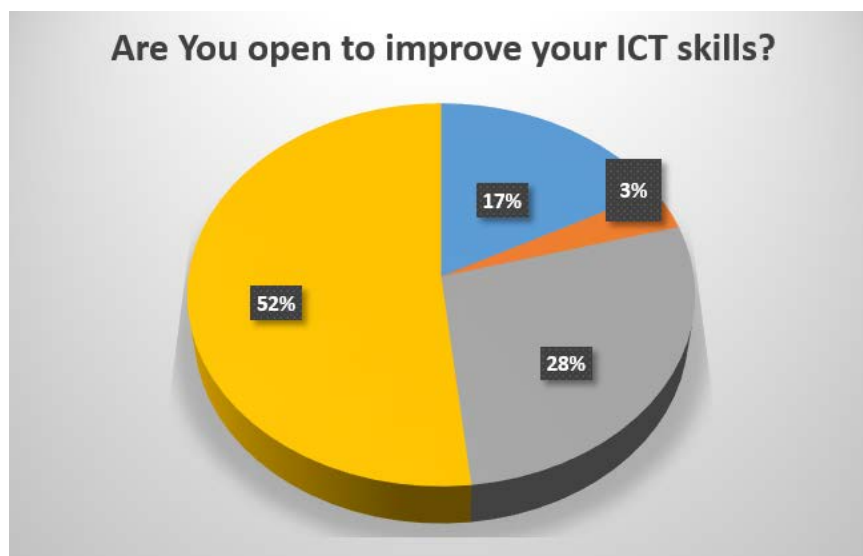
No, because I am a pro at ICT.	5	17,2%
No, because I do not need it for my teaching.	1	3,4%
Yes, because I am not skilled enough to match the needs of the new generation of students.	8	27,6%
Yes, I always like to know the latest trends and improve myself accordingly.	15	51,7%
No answer	0	0,0%
Total	29	

EVALUATION

79% of the respondents (23 persons) are aware of that they need to improve their ICT knowledge. It is encouraging.

3.7 WOULD YOU LIKE TO TAKE A FREE COURSE?

People willing to participate on a free course

48% provided e-mail addresses for further contact

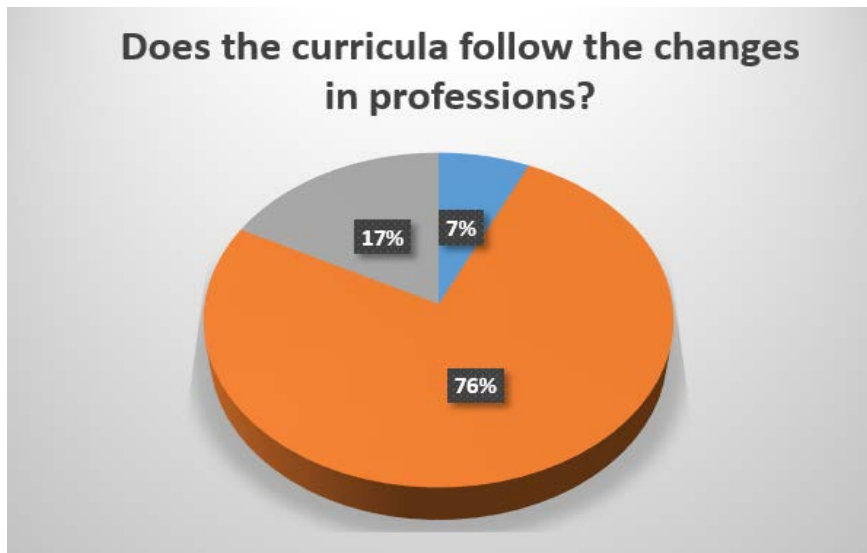| Yes	8	27,6%
Perhaps	11	37,9%
No, thanks	4	13,8%
No answer	6	20,7%
Total	29	
Mail provided	14	48,3%

EVALUATION

19 of the 29 persons would like to take IT trainings. It is more than 65%. At the same time, only 48% gave their contact details.

SKILL GAPS AND EFFORTS TO REDUCE THEM

4.1 DOES THE STANDARD CURRICULA FOLLOW THE TECHNOLOGICAL CHANGES IN PROFESSIONS?

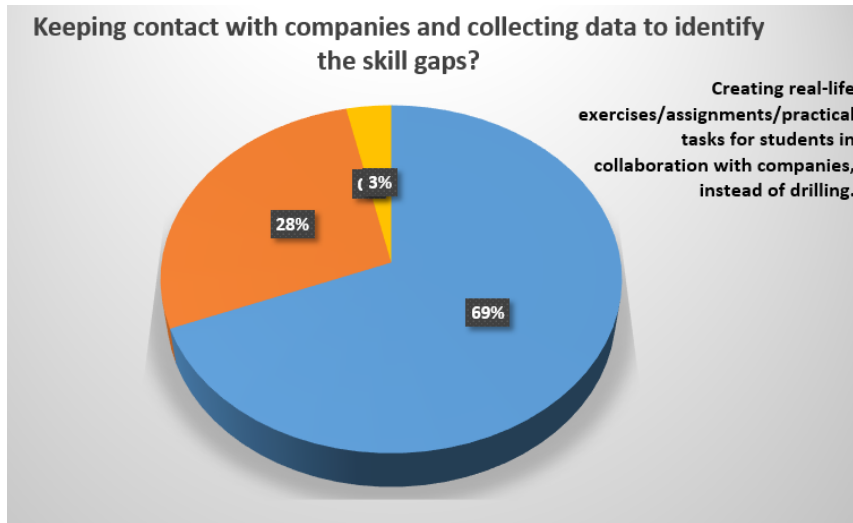| Not at all	2	6,9%
More or less	22	75,9%
The changes are too rapid to be followed by the standard curricula	5	17,2%
No answer	0	0,0%
Total	29	

EVALUATION

Most of the respondents (83%) think that vocational curricula can only more or less follow the rapid changes and needs.

4.2 WHAT ACTIVITIES ARE NEEDED TO REDUCE THE SKILL GAPS?
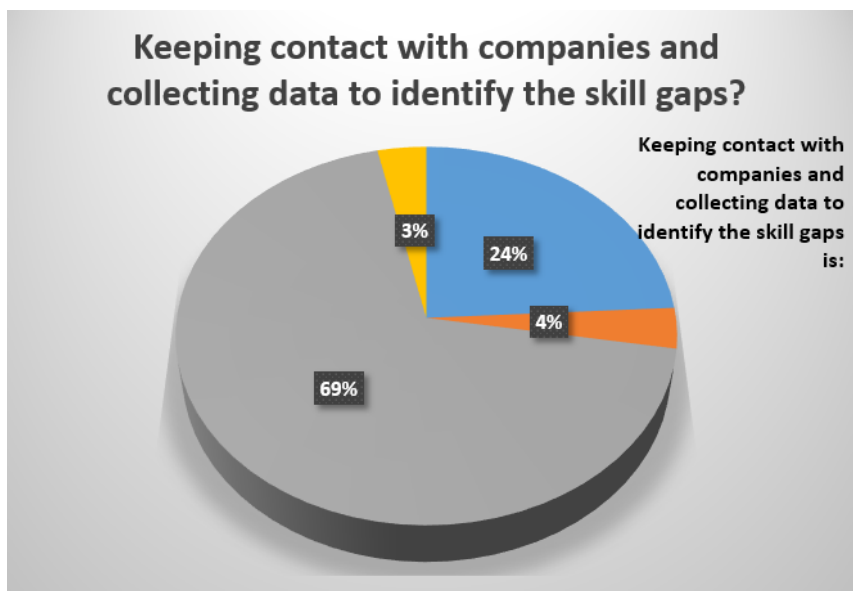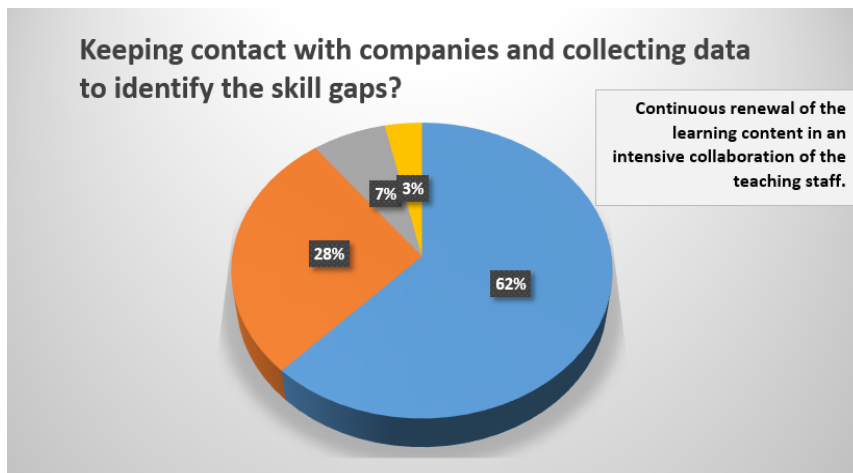

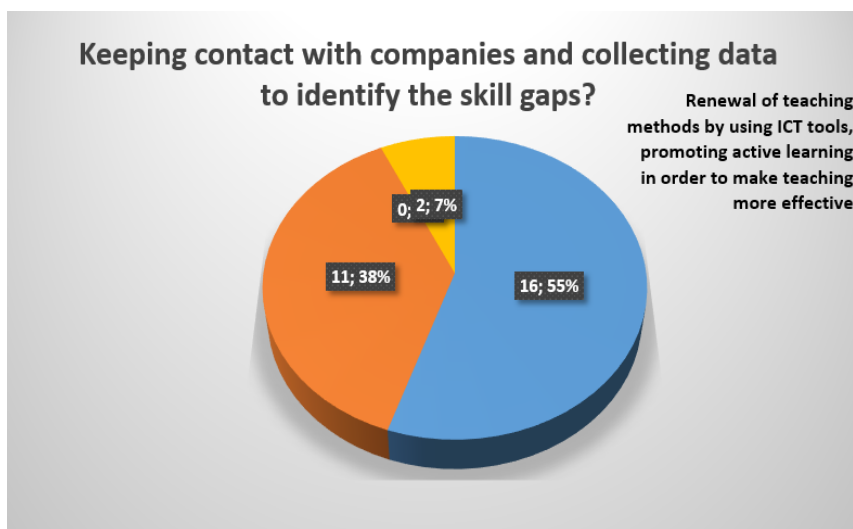
highly important, we have to do it	7	24,1%
important, but difficult to establish	1	3,4%
important but there's no way of establishing it	20	69,0%
No answer	1	3,4%
Total	29	

Keeping contact with companies and collecting data to identify the skill gaps?

Creating real-life exercises/assignments/practical tasks for students in collaboration with companies, instead of drilling.

highly important, we have to do it	20	69,0%
important, but difficult to establish	8	27,6%
important but there's no way of establishing it	0	0,0%
No answer	1	3,4%
Total	29	

Keeping contact with companies and collecting data to identify the skill gaps?

Continuous renewal of the learning content in an intensive collaboration of the teaching staff.
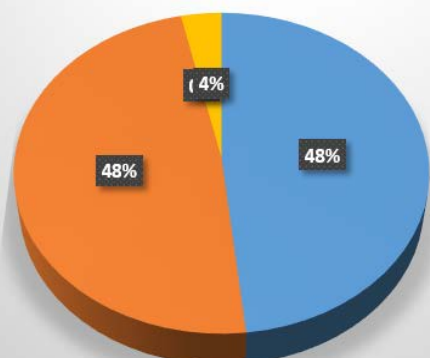

highly important, we have to do it	18	62,1%
important, but difficult to establish	8	27,6%
important but there's no way of establishing it	2	6,9%
No answer	1	3,4%
Total	29	

Keeping contact with companies and collecting data to identify the skill gaps?

Renewal of teaching methods by using ICT tools, promoting active learning in order to make teaching more effective

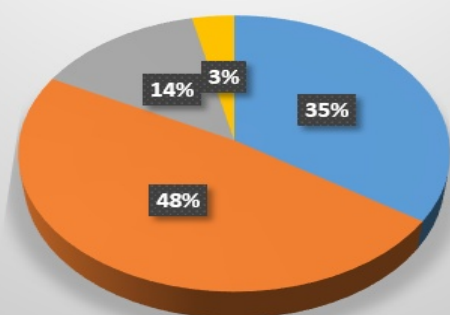|		
highly important, we have to do it	16	55,2%
important, but difficult to establish	11	37,9%
important but there's no way of establishing it	0	0,0%
No answer	2	6,9%
Total	29	

Keeping contact with companies and collecting data to identify the skill gaps?

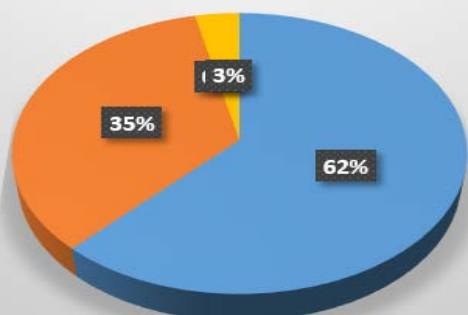**Developing learning content in collaboration with students**

highly important, we have to do it	14	48,3%
important, but difficult to establish	14	48,3%
important but there's no way of establishing it	0	0,0%
No answer	1	3,4%
Total	29	

Keeping contact with companies and collecting data to identify the skill gaps? Developing learning content ith companies/parents
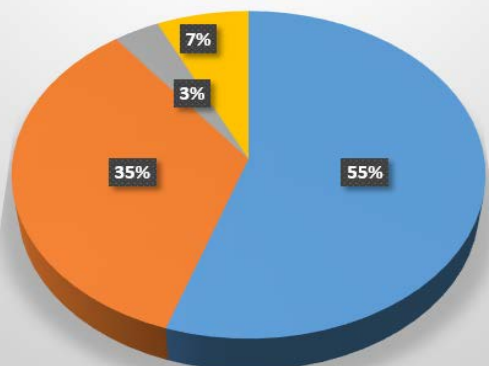
highly important, we have to do it	10	34,5%
important, but difficult to establish	14	48,3%
important but there's no way of establishing it	4	13,8%
No answer	1	3,4%
Total	29	

Keeping contact with companies and collecting data to identify the skill gaps? Asking feedback from former graduates
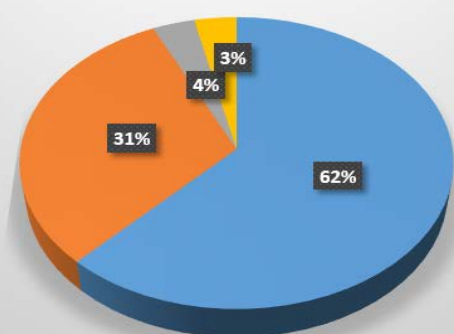
highly important, we have to do it	18	62,1%
important, but difficult to establish	10	34,5%
important but there's no way of establishing it	0	0,0%
No answer	1	3,4%
Total	29	

Integrating upskilling lessons into the standard curricula.

highly important, we have to do it	16	55,2%
important, but difficult to establish	10	34,5%
important but there's no way of establishing it	1	3,4%
No answer	2	6,9%
Total	29	

Intensive collaboration among the teachers of theoretical and practical subjects.

highly important, we have to do it	18	62,1%
important, but difficult to establish	9	31,0%
important but there's no way of establishing it	1	3,4%
No answer	1	3,4%
Total	29	

Application of a cross-curricular approach in teaching.
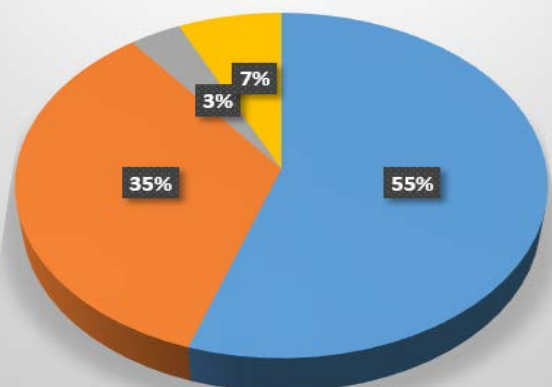

|		
highly important, we have to do it	16	55,2%
important, but difficult to establish	10	34,5%
important but there's no way of establishing it	1	3,4%
No answer	2	6,9%
Total	29	

Summary of skills gaps
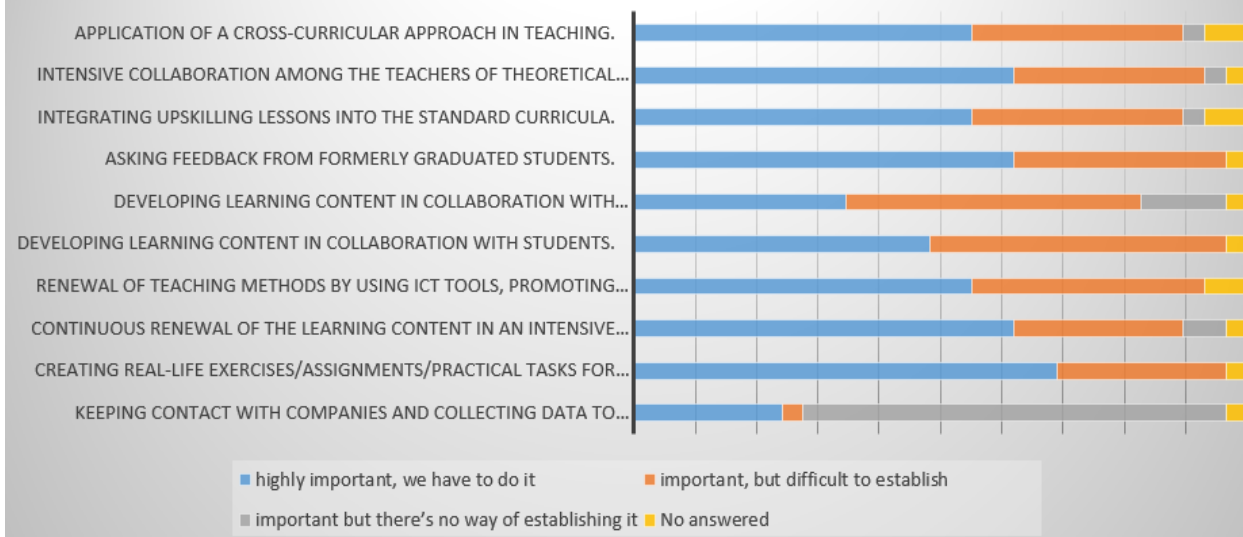
	Keeping contact with companies and collecting data to identify the skill gaps.	Creating real-life exercises/assignments/practical tasks for students in collaboration with companies, instead of using exam papers from previous years for drilling.	Continuous renewal of the learning content in an intensive collaboration of the teaching staff.	Renewal of teaching methods by using ICT tools, promoting active learning in order to make teaching more effective.	Developing learning content in collaboration with students.	Developing learning content in collaboration with companies or even parents.	Asking feedback from formerly graduated students.	Integrating upskilling lessons into the standard curricula.	Intensive collaboration among the teachers of theoretical and practical subjects.	Application of a cross-curricular approach in teaching.
highly important, we have to do it	7	20	18	16	14	10	18	16	18	16
important, but difficult to establish	1	8	8	11	14	14	10	10	9	10
important but there's no way of establishing it	20	0	2	0	0	4	0	1	1	1
No answer	1	1	1	2	1	1	1	2	1	2
Total	29	29	29	29	29	29	29	29	29	29

EVALUATION

According to the teachers, cooperation is important for overcoming skills gaps. It is true to all fields. The most difficult thing is to involve companies and parents into course material development.

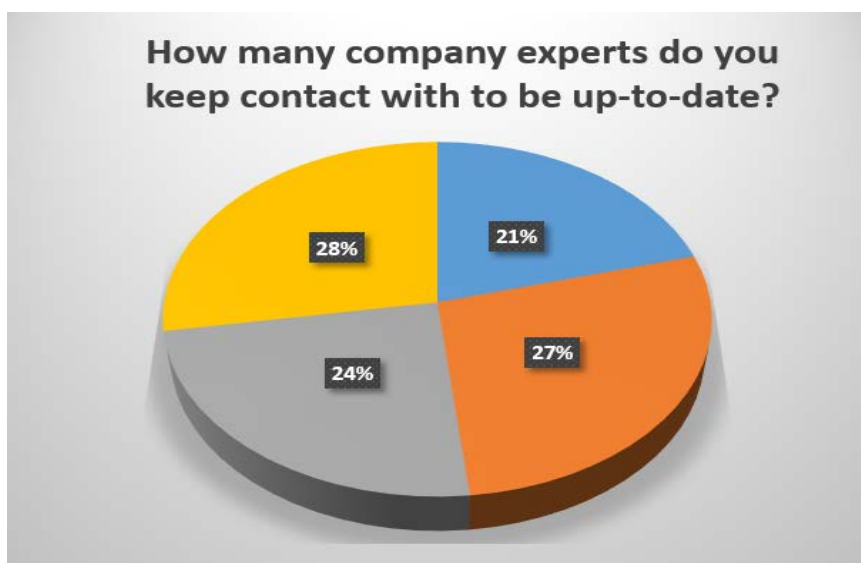4.3 DO YOU HAVE EXPERIENCE IN CURRICULUM AND LEARNING CONTENT DEVELOPMENT?
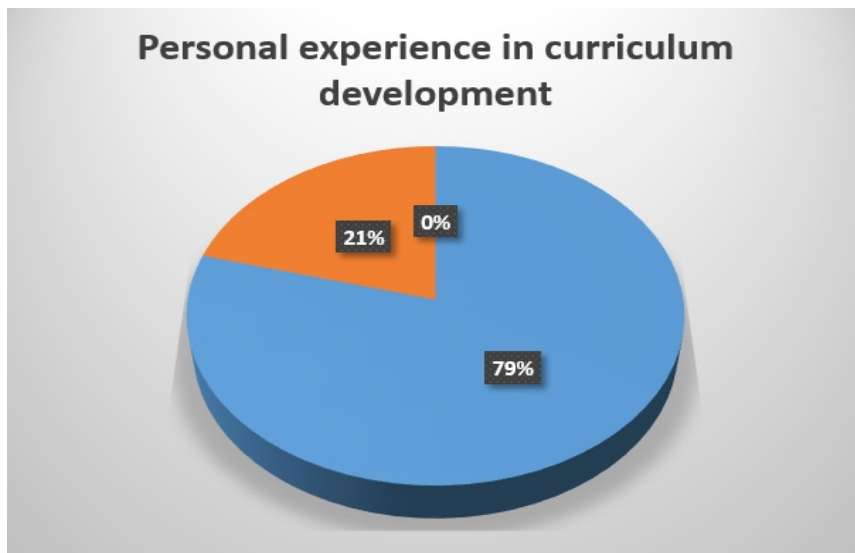
Yes, I have.	23	79,3%
No, I haven't.	6	20,7%
No answer	0	0,0%
Total	29	

EVALUATION

More than 79% of the respondents had already taken part in curriculum development.

4.4 HOW MANY COMPANY EXPERTS DO YOU KEEP CONTACT WITH TO BE UP-TO-DATE?

I don't have contacts like this.	6	20,7%
I have 1-2 contacts like this.	8	27,6%
I co-operate with 3-5 experts.	7	24,1%
I regularly co-operate with 6 or more experts.	8	27,6%
No answer	0	0,0%
Total	29	

EVALUATION

Most of those teaching in vocational schools have contacts with companies or experts, and probably have up-to-date knowledge.

4.5 WHEN WAS THE LAST TIME YOU VISITED A CORPORATE SITE FOR ON-HAND EXPERIENCE?

Several times a year	41	48,2%
At least once a year	8	9,4%
It happens very rarely	18	21,2%
Never	5	5,9%
Not relevant to me as I teach a general subject	5	5,9%
No answer	8	9,4%
Total	85	

EVALUATION

About 48% of the teachers keep regular contacts with companies, and more than 30% visit companies about once a year or a bit more rarely.

4.6 YOUR ADDITIONAL SUGGESTIONS ABOUT CLOSING THE GAP BETWEEN WHAT IS CURRENTLY OFFERED BY THE EDUCATION SYSTEM AND WHAT IS NEEDED IN THE JOB MARKET
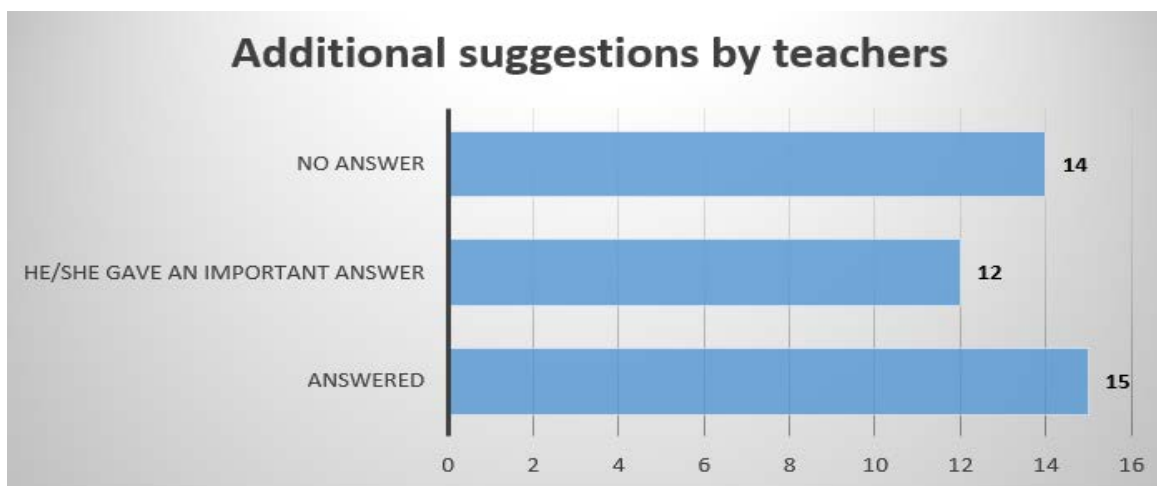
Answered	15	51,7%
He gave an important answer	12	41,4%
No answer	14	48,3%
Total	41	

EVALUATION

In the case of free suggestions, 41 persons answered, and 41% of the answers were substantive. The answers categories:

Conducting lessons in companies. Supervising and evaluating trainers hips at a trilateral placement. Less theory and more practice or practice.
Communication with employers and practice places. Feedback from trainees and alumni.
Modular curricula create great confusion; many grey areas between substances.
Entrepreneurs could go to school and definitely have more than one month. There have been benefits: entrepreneurs understand who we are doing at school today and usually don't want to come to school after teaching ...
Develop students' practical skills; create opportunities for this in schools, in cooperation with employers.
I feel a lack of cooperation. When students go to practice, they have an attitude- let, give. However, if you areas king people to take a practical day, you will find only a few. If people from companies are invited to a roundtable to discuss further, only a few will come.
Employers' attitudes towards today's learner and teaching. Improving cooperation and understanding.
"Schools must be flexible and responsive to the needs of the labour market.
Experts with business experience must teach.
Constant cooperation with companies and materials manufacturers.
cross-curricularspecialtyeducationcouldhelptoshapethebroaderprofile of the future employee;
Learners attend internships in companies that give an overview of the real life in the labour market.
An effective and fast response to labour market needs, not a stumbling block to law enforcement. Less commandment and greater teacher trust based on end result assessment.
Keeping in touch with practitioners, we send pupils only to companies that work closely with the school, and we are confident that the students will be able to achieve the level they need when going to work
Integrate more practical lessons into teaching. Leave the teacher more flexible (ie to mitigate rigorous curriculum monitoring), as the teacher in the field may have more insight into what needs to be learned, perhaps omitted from the curriculum or the curriculum includes outdated methodology.
Organize student placements abroad to broaden their horizons

CONCLUSIONS

In Estonia, 29 teachers completed the questionnaire. The selection of respondents covers a wide range of teachers so the answers appropriately represent Estonia's opinions. The teaching profession is slightly ageing so it is not surprising that most of the respondents have significant professional experience. Teaching fields cover a wide range of professions as well. Teachers' qualifications conform to the existing laws or are even higher. In the project, it is lucky that more than 50% have industrial experience as well, and more than half of them take the role of a classroom teacher and an on-the-job tutor at the same time.

The majority of teachers have IT knowledge, 79% advanced or professional, and beginner knowledge is at low level, which is beneficial to the project. For teaching, everybody uses presentations, and 83% use online tests.

The use of digital images, videos are far above 60%, and online presentations and quizzes also seem popular among the respondents. The use of animations, blogs and online concept maps/mind maps should also be noted. The use of e-learning management systems to support cooperative learning is very high, but more than half of the respondents tend to use online tools for communication and collaboration as well. Many also use online survey tools and online tools for editing. 79% of the respondents (23 persons) are aware of that they need to improve their ICT knowledge. It is encouraging that 19 of the 29 persons would like to take IT trainings. It is more than 65%, but only 48% gave their contact details.

Most of the respondents (83%) think that vocational curricula can only more or less follow the rapid changes and needs. Cooperation with companies or experts is relatively common, which may be a good contribution to the project. Getting parents and companies involved in course material development seems really challenging. However, more than 79% of the respondents had already taken part in curriculum development, which is again encouraging.