



What do you think of the future of education and training in the EU?

Need, issues, practices and possible improvements in education through digital transformation

2022 edition



www.dlearn.eu





Digital Skills and
Jobs Coalition



Digital Skills and
Jobs Coalition

A research made by



www.dlearn.eu

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Foreword



This report presents the results of the research “What do you think about the future of Digital Education and Training in EU?”, a self-sustained survey promoted by the European Digital Learning Network ETS – Dlearn – over the entire 2022 to collect opinions, doubts, hopes and views about the impact produced on the field of Education & Training by the fast and steady process of digital transformation.

We collected more than 1000 ad-hoc questionnaires from key opinion leaders working in VET, Higher, School or Adult Education, with the aim of tracking the path the digital solution in education is having. As an initiative of the European Commission managed by the DG Connect, DLEARN – an active member of the Digital Skills and Jobs Coalition – has been awarded the pledge of promoting this survey through its channels.

DLEARN – European Digital Learning Network ETS – is indeed a young reality, but still its journey until today has been outstanding and full of satisfactions. The wide experiences, know-how and strong relations of the involved members – which are actively committed to strengthen the voice of the network – have allowed us to become an acknowledged and influential player in the field of Education & Training. EU authorities and institutions, together with relevant sectorial organisations, look at us as a reliable and competent partner.

We are at the front line when it comes to raise awareness on the key role assumed by digital knowledge, a critical component today for the creation of a competitive economy and of a truly inclusive society. We strongly believe in the educational opportunities brought by digital technologies. Therefore, we created the network, and this is why we keep on working so hard: to produce – and offer – know-how, contents, models and solutions which will shape the future education at all the levels. I am proud of our accomplishments, and even more confident for the future progress of our work.

I invite you to analyse this report and to contact us if you wish to comment and give us your feedback.

To know more about our network, visit our website www.dlearn.eu

Gianluca Coppola, President of the European Digital Learning Network ETS

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1. Executive summary

The European Digital Learning Network ETS – DLEARN – aims to embrace the challenges brought by the digital transformation in terms of digital skills mismatch and digital learning opportunities. The 47% of Europeans is not properly digitally skilled, yet in the near future 90% of jobs will require some level of digital skills.

We believe in the value of SHARING, CONNECTING, MULTIPLYING and ENHANCING the potential of our members, local territories and people.

Constant changes in economy and society have been urging governments to emphasize the contribution of education to a wide range of newly required skills and competencies. 21st Century skills are considered to be key enablers of responsible citizenship in an ICT-based economy.

A successful education and training in our knowledge society depends increasingly on the confident, competent and innovative use of ICT.

DLEARN wants to **bring closer the experiences and voices of local territories and people to EU policies**. Nowadays, this process is hindered by the presence of bigger interests, notably big corporations or umbrella organisations. With our activities and through our network we want to minimize this gap, through the promotion of bottom-up initiatives, such as:

- Closer cooperation and enhancement of our activities to a higher level through periodic project labs;
- Tight networking activities and lobbying to achieve a fruitful accreditation of local needs to the relevant EU Commission DGs;
- Improving existing experiences and knowledge of digital learning through sharing of practices and creation of efficient business opportunities.

DLEARN is a network made of members based all over Europe, related to the field of education and training and ICT. In the framework of our activities, DLEARN – in cooperation with some of the most influent stakeholders in Europe in the sector of education and training – promoted a survey to collect trends and ideas about the future development in education and Training, in the era of digital transformation. The initiative is part of the Digital Skills and Job Coalition’s pledge awarded to DLEARN, not granted by any public funds. Every professional acting in the fields of adult education, school, higher education or VET has been invited to take up the survey.

With the survey “**What do you think about the future of digital education and training in EU?**”, our objective is to understand the point of view of professionals in Education & Training adopting a bottom-up approach, thus to collect feedback that will be shared among all European countries and EU institutions from people that daily deals with improvements and changes in Education & Training.

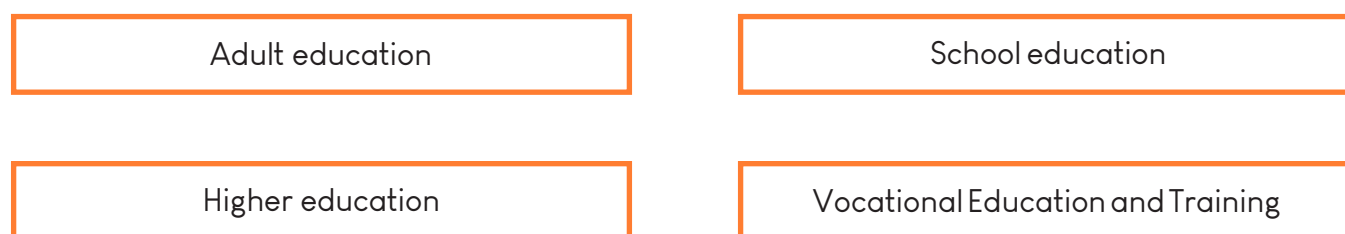
We asked **organisations in the field of education to share their point of view through a bottom-up approach**, and this report aims to share their ideas among all EU countries and institutions, analysing the 4 main sectors of education.

1.1 Methodology

The survey was promoted to **collect trends, ideas, practices and opinions in the framework of digital education**, from the organisations belonging to the education sector. The questionnaire investigated different issues which are shaping education nowadays:

- The extent to which digital tools are used in education
- The level of digital skills among education providers
- The extent to which organisations are equipped to embrace digital transformation
- The most used or known methodologies to adopt ICT tools for educational purposes
- The most used practices or methodologies to help the transition to employment
- The extent to which ICT tools can help students'/learners' retention

The investigation interested 4 main education sectors:



Each respondent had the possibility to answer questions specifically related to its sector of interest, allowing for an in-depth insight of the current situation in education and future developments.

Ultimately, **our aim was to deliver a comprehensive picture of the situation in these four sectors**, so to understand needs, problems, practices and possible improvements. The statistical results, both from a qualitative and quantitative point of view, have been analysed with the purpose of drafting recommendations for the education sector and, most importantly, for that of digital education. The recommendations, together with the analysis of the results, will be addressed to all private and public stakeholders playing a leading role in shaping education today and in the future.

1.2 Data gathering

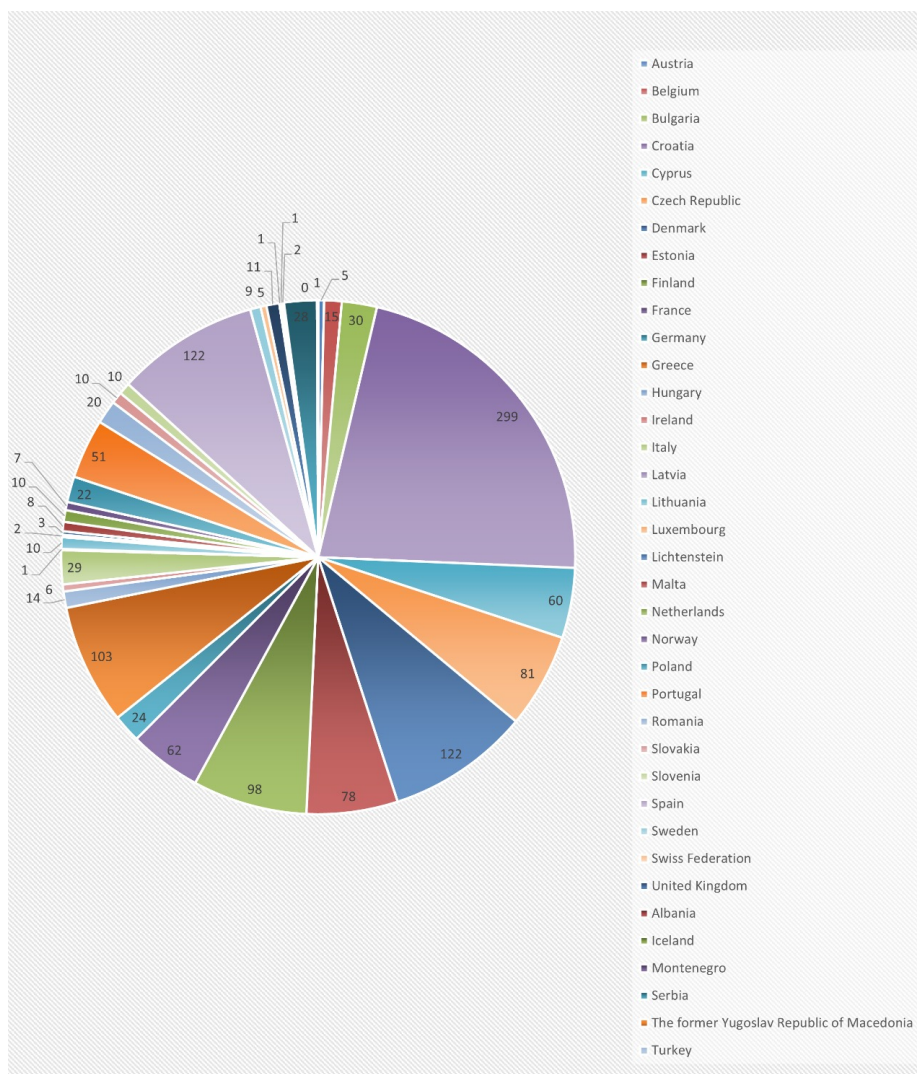
The European Digital Learning Network ETS, together with its partners in this activity, as described above, has promoted the survey through different channels. The most used have been the following:

- Social media, such as Facebook, Twitter and LinkedIn
- Newsletters
- Blog posts
- Websites
- Emails

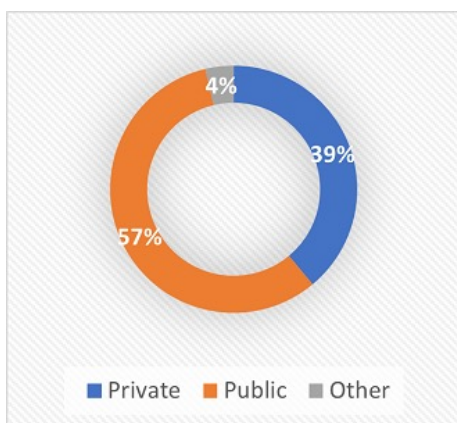
The contacts used are those of the network, together with the partners' mailing list and social media contacts.

This approach allowed the survey to be spread all over Europe, and especially to very different education organizations. The **total number of respondents is 1360**.

In the graph below, you can see the count of organizations **from different European countries** that participated in the research and percentage of the types of these organisations.

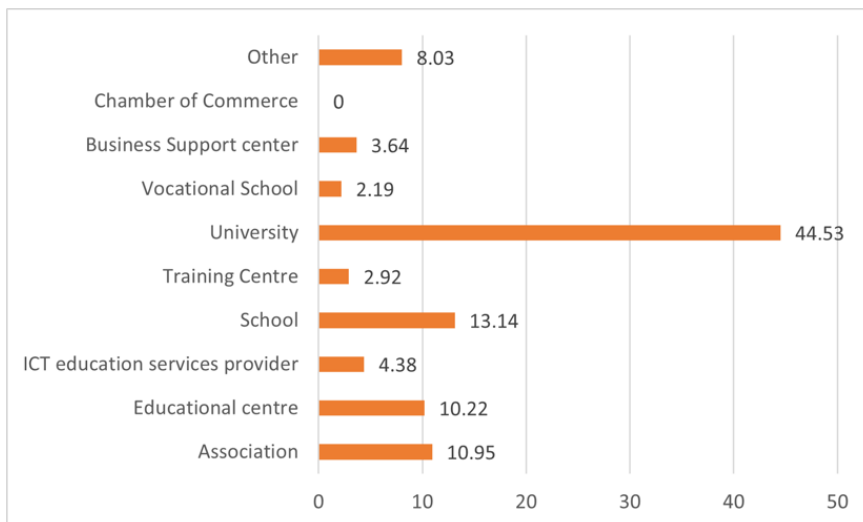


The countries which participated the most to the survey were: Croatia 22% (299), Denmark 9% (122), Spain 9% (122), Greece 8% (103), Finland 7% (98), Czech Republic 6% (81), etc. Other countries participated on the survey in smaller amount, one country did not reply.



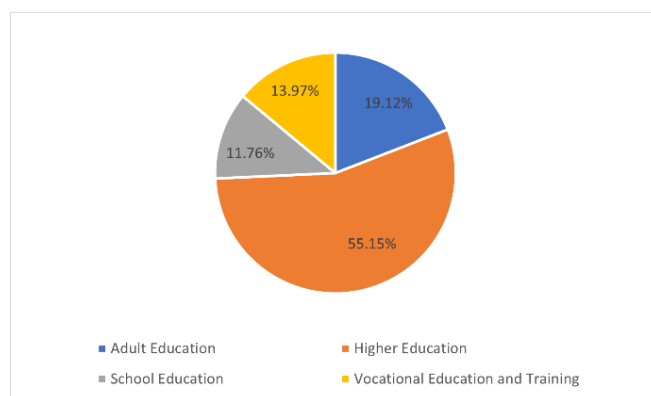
The questionnaire investigates also on the nature of the respondents. The 57% are from the public sector and the 39% are from private sector. Some of the surveyed answered "other".

In the graph below, you can see also the characteristics of the organisations which took part in the survey.



Finally, as what concerns the number of **respondents per sector**, we have reached the following amounts.

Most respondents – 55.15% – belong to the Higher Education sector, while the other sectors are represented with 19.12% for Adult Education, 13.97% for Vocational Education and Training, 11.76% for School Education.



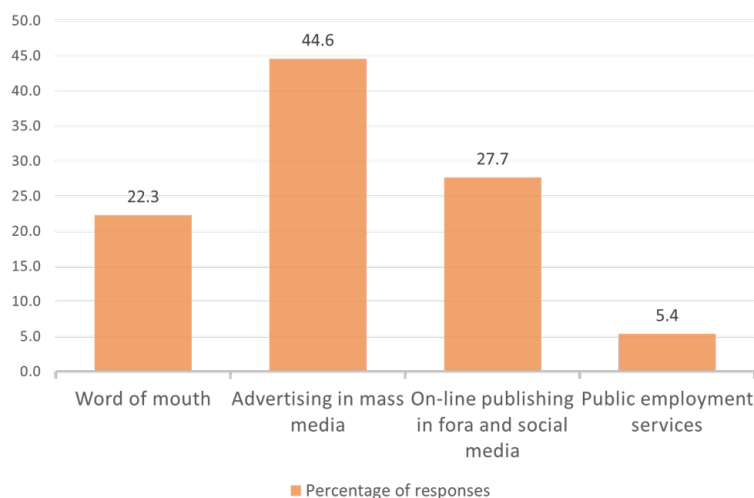
2. Sectors of analysis

2.1 Adult education

What are the main channels through which you recruit adults for your learning programmes?

This question aimed to understand the main channels in the process of adults' recruitment and the ways to promote learning programs. Respondents had the possibility to choose more than one answer. The results show that organisations still prefer common channels, such as:

- «Mass media advertisement» with 116 preferences, which is 44.6%,
- while the «Digital means», i.e., online publishing through social media platforms, only ranked second had 72 preferences, which is 27.7%.



As we can see from this result, even though there is an improvement comparing to the past, **adults still lack enough digital skills or are less responsive in using social channels**. The sum of the other two options, «Word of mouth» and «Public employment services», which have received respectively 58 preferences (22.3%) and 14 preferences (5.4%), showed the decline in comparison to the findings in the previous research. However, these numbers mean that providers of adult learning programmes – and therefore adult learners too – still count with the conventional channels when it comes to recruit or attract students.

How can an adult education provider attract learners to their learning programmes?

Regarding the way to attract learners, this question shows results which, somehow, are in line with the previous one. The methodology employed to analyse data gathered from this issue simply gave a weighted average to each option which requested a rate for the measures provided, rating them from 1 to 4 where 1 is not useful and 4 is the most useful. Respondents found equally two options «Have detailed information regarding local learning needs» and «Use social media» the best ways to attract learners to their educational programmes with a weighted average of 127,10.

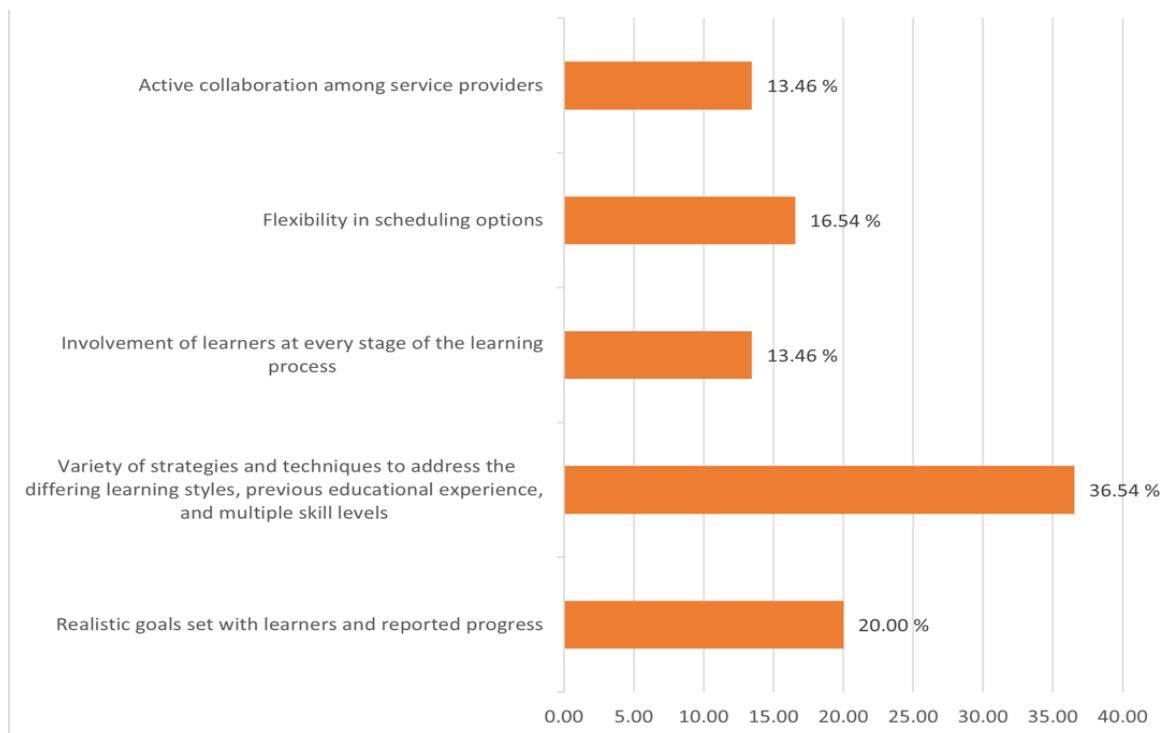
The option «Have close links with community key stakeholders e.g., businesses, unions, professional organisations in workplace programmes» ranked second (weighted average of 107.14). «Use teachers to promote adult programmes in libraries, community centres» was the fourth most rated option with weighted average 93.14. The option that ranked as the last one was «Ask enrolled students to promote the adult programmes they are enrolled in» (weighted average 86.67) although most of the respondents evaluate it between useful and very useful.



Which practices should the adult education providers employ to ensure adult learners' retention from the start?

Regarding the adult learners' retention practices, respondents had the possibility to choose more than one answer. Most of the respondents affirmed to use a «Variety of strategies and techniques» – 95 preferences – while 52 preferences have been given to the «Realistic goals set with learners and reported progress». These results are followed by «Flexibility in scheduling options» with 43, «Involvement of learners at every stage of the learning process» with 35 and «Active collaboration among service providers» equally with 35 preferences.

These data show that **educational methodologies need to adapt to a diversified audience** coming from different cultural-working domains with several learning styles, educational experiences and skills along with the possibility to have a level of flexibility in scheduling options.



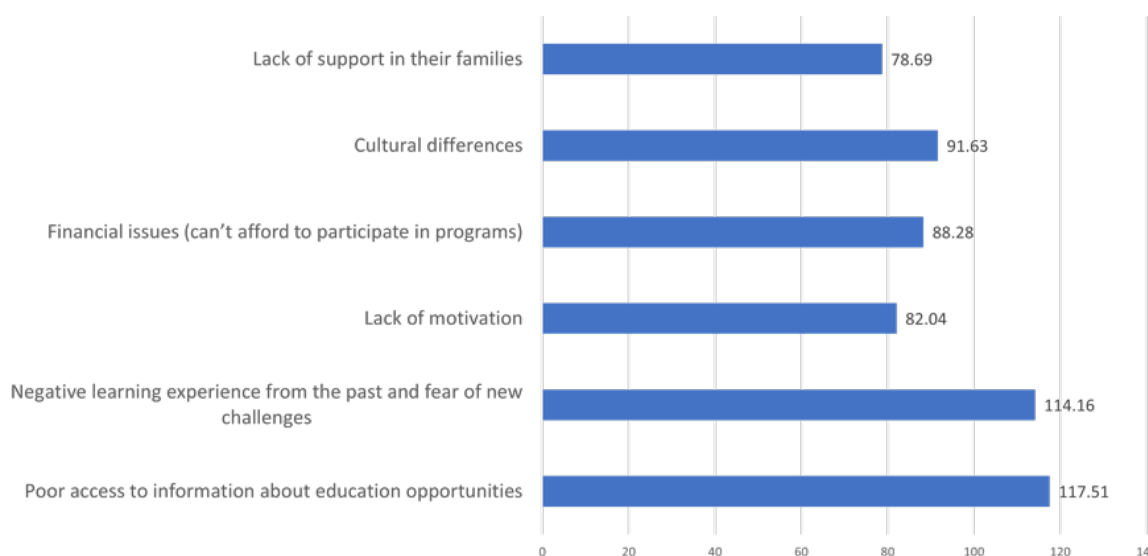
Which are the greatest obstacles preventing adults at risk from entering education programs?

The methodology employed to analyse data gathered from this issue simply gave a weighted average to each option, which requested to rank the importance of obstacles/reasons provided from 1 to 4 (1: doesn't have much effect, 4: has big effect).

Respondents found «Poor access to information about education opportunities» to be the first obstacle/reason preventing adults from enrolling in learning programs with 117.51, while the option «Negative learning experience from the past and fear of new challenges» ranked second (weighted average of 114.16).

The last four options have very little differences among them, such as:

1. «Cultural differences» with a weighted average of 91.63,
2. «Financial issues (can't afford to participate in programs)» with a weighted average of 88.28,
3. «Lack of motivation» with a weighted average of 82.04,
4. «Lack of support in their families» ranked on the last, 6th position with a weighted average of 78.69.

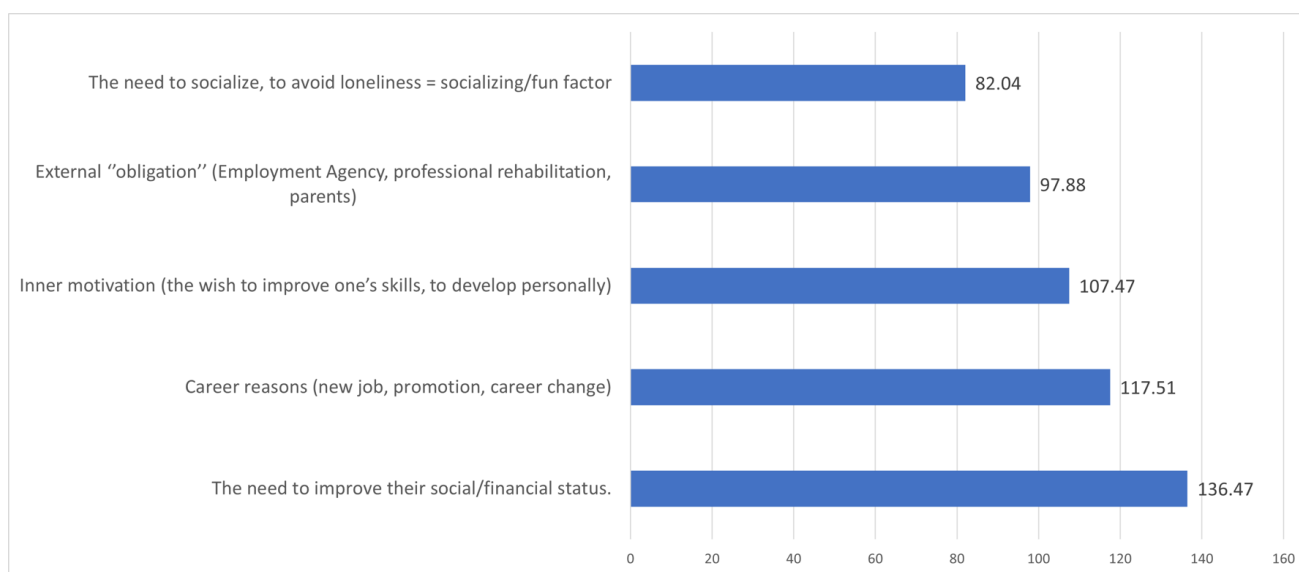


Which are the most frequent motivational factors (internal/external) of adult learners to enter education programs?

This question tried to evaluate the internal/external motivational factors of an adult learner to enter education programs. The methodology employed to analyse data gathered from this issue simply gave a weighted average to each option which requested to rank the importance of motivation provided marking them 1: least frequent, 4: most frequent. According to data, respondents found the options:

- «The need to improve their social/financial status» the first motivation encouraging adults to enter education programs with a weighted average of 136.47.
- «Career reasons (new job, promotion, career change)» ranked second (weighted average of 117.51).
- «Inner motivation (the wish to improve one's skills, to develop personally)» ranked 3rd with a weighted average of 107.47.
- «External "obligation" (employment agency, professional rehabilitation, parents)» ranked 4th with a weighted average of 97.88.
- «The need to socialize, to avoid loneliness = socializing/fun factor» obtained a weighted average of 82.04.

It can be stated that **adults are more encouraged by internal motivation** (career goals or wish to improve personal skills) rather than external factors when they enter educational programs.

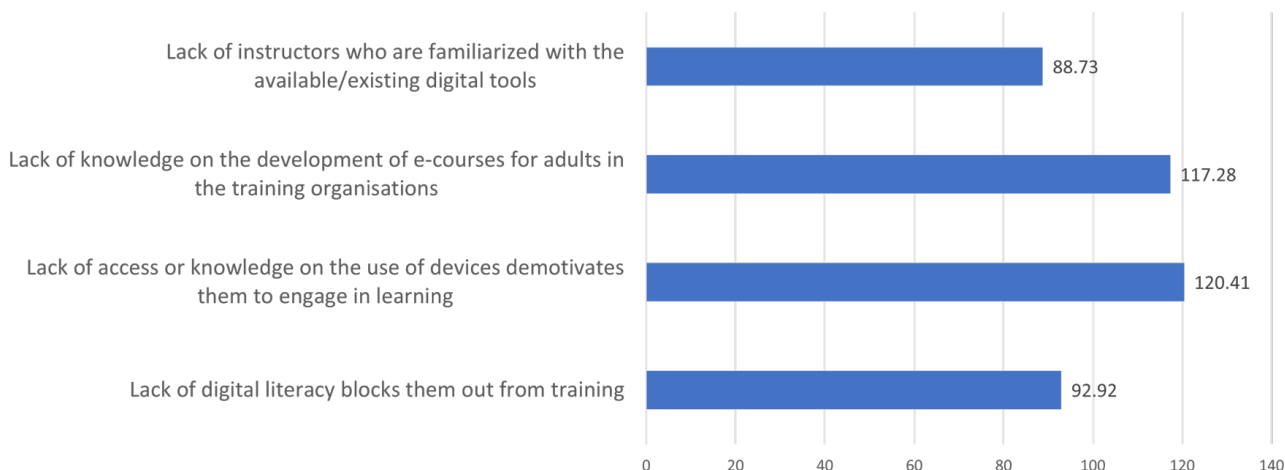


What are the challenges and barriers with regards to adult education and digital transformation?

In this section, we asked the participants to evaluate challenges and barriers with regards to adult education and digital transformation. The methodology employed to analyse data gathered from this issue gave a weighted average to each option, which requested to rank the importance of selected challenges according also to respondents' experience from 1 to 4, as 1: not important and 4: very important. According to the resulting data, participants found the options:

- «Lack of access or knowledge on the use of devices demotivates them to engage in learning» the most important barrier within the adult education – digital transformation domain, with a weighted average of 120,41;
- «Lack of knowledge on the development of e-courses for adults in the training organisations» ranked second (weighted average of 117.28);

- «Lack of digital literacy blocks them out from training» ranked 3rd with a weighted average of 92.92;
- «Lack of instructors who are familiarized with the available/existing digital tools» with a weighted average of 88.73 has been considered the less important challenge.

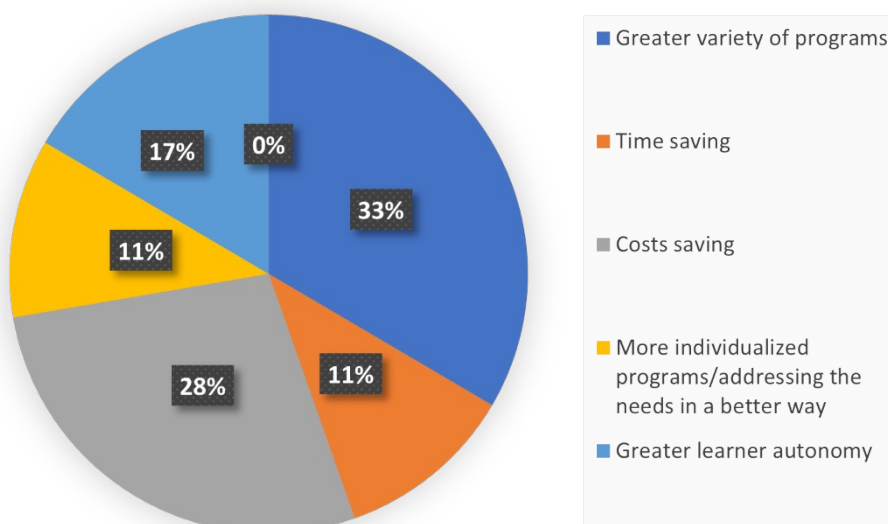


In which way digitalization improved teaching methodologies toward adult learners' benefits?

As far as it concerns the ways through which digitalization improved teaching methodologies in the terms of adult learners' benefits, results show a variety among the proposed options. Indeed 33 % of respondents identified «Greater variety of programs» as the first benefit digitalization contributes to. Then we find respectively:

- «Costs saving» 28%.
- «Greater learner autonomy» 17%.
- «Time saving» 11%.
- «More individualized programs/addressing the needs in a better way» 11%
- «Other» 0%.

Assessing these results, the first insight here regards definitively the enormous potential that digitalization can trigger, not only in terms of teaching methodologies but also in terms of overall benefits for adult education providers and learners.

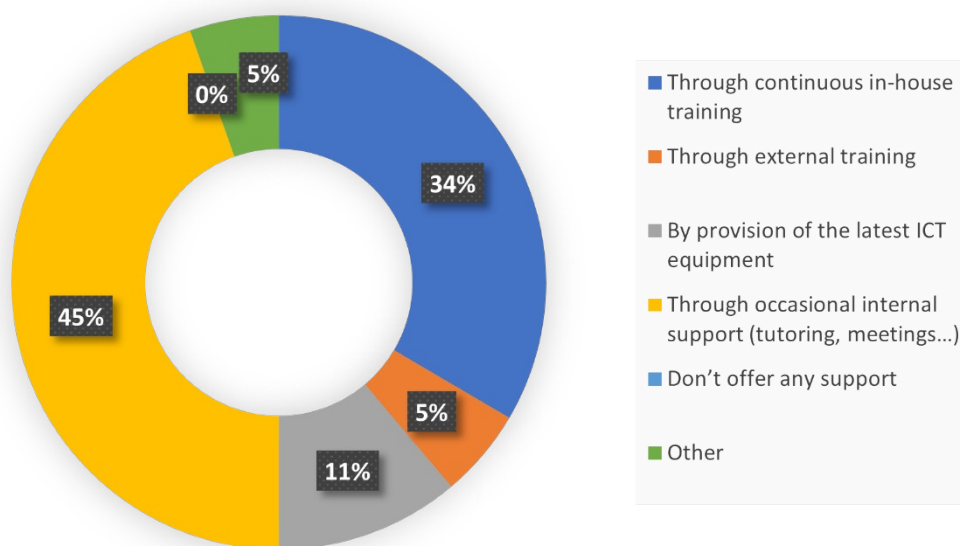


In what way(s) do you help teachers/professional staff embrace this transformation?

The graph here shows the way through which participants help teachers/professional staff embrace this transformation (digitalization). Respondents had the possibility to choose more than one answer.

- The most preferences – 116 – went to the answer «Through occasional internal support (tutoring, meetings ...)» while
- «Through continuous in-house training» answer ranked the second position with 87 preferences.
- «By provision of the latest ICT equipment» received much less preferences, only 29, and
- «Through external training» had 14 preferences equally as
- «Other», which received 14 preferences as well but remain unspecified.
- Finally, the option «Don't offer any support» remained with zero votes, which can be considered being a very good result.

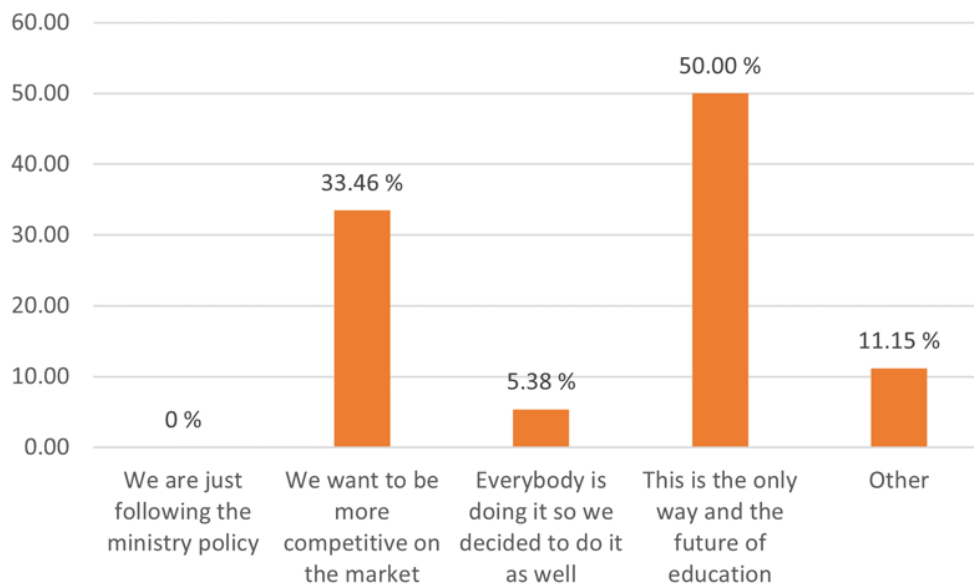
The result shows a certain **disproportion in favour of the occasional internal support and continuous in-house training**. From an economic point of view, this **data underlines the importance of ICT equipment provision** – and of course a kind of tutoring support, which ranked below the ICT equipment – to keep market competitiveness and avoid technology obsolescence. No respondents affirmed that they “Don't offer any support”, which is a sign of progress in comparison to the past. Out of all answers, no participants left a comment to this topic.



Why is your organization making transformation toward digitalized methodologies?

As for the reason why are organisations making transformation toward digitalized methodologies:

- 50% (130 answers) preferred «This is the only way and the future of education»,
- 33,46% (87 answers) stated that they «want to be more competitive on the market»,
- 11,15% (29 answers) replied they have «other» reasons for transformation toward digitalised methodologies,
- 5,38% (14 answers) chose «Everybody is doing it, so we decided to do it as well»,
- 0% (0 answers) chose the option to do so for the «policy of the ministry».



In contrary with the past findings, this research reveals that the common vision, represented with 50% of respondents, for the way the education is taking is toward digitalized methodologies. This united opinion naturally leaves less space for other motives, which are represented in significantly lower amount: approximately one third, 33.46%, of respondents stated that they want to be more competitive on the market, 11.15% replied they have other reasons for transformation toward digitalised methodologies while they didn't name them, 5.38% chose the option that «Everybody is doing it, so we decided to do it as well».

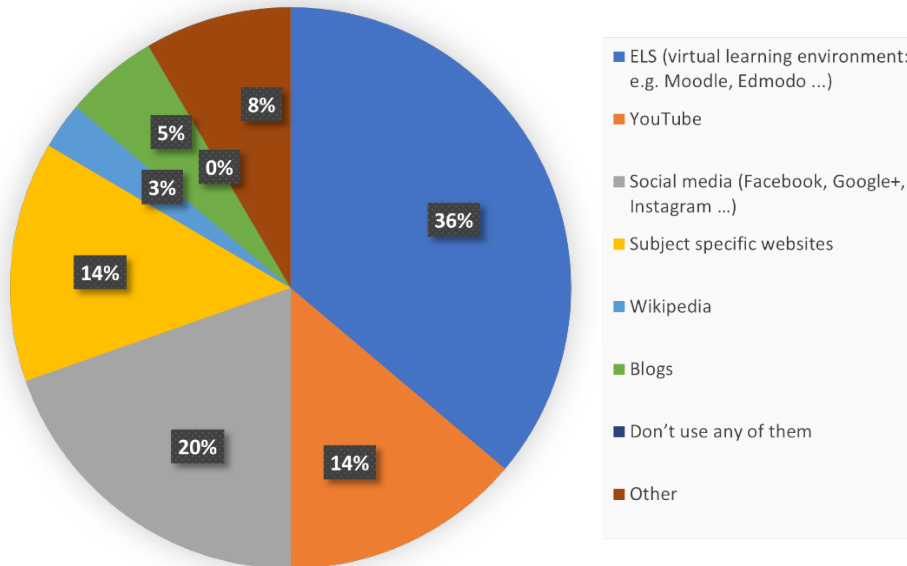
The answer that would confirm the motivation as a necessity resulted from the policy of the ministry did not receive any vote provision – and of course a kind of tutoring support, which ranked below the ICT equipment – to keep market competitiveness and avoid technology obsolescence. No respondents affirmed that they «Don't offer any support», which is a sign of progress in comparison to the past. Out of all answers, no participants left a comment to this topic.

Which of the listed online tools do you use in your education programs?

Regarding respondents' preferences on the proposed online tools, the participants had the possibility to choose more than one answer.

- 94 respondents (36%) chose «ELS (virtual learning environment: e.g., Moodle, Edmodo)»,
- «Social Media (Facebook, Google+, Instagram ...)» received 51 preferences (20%), while
- «YouTube» received 36 preferences (14%) as well as
- «Subject specific websites» with 36 preferences (14%),
- «Other» than mentioned options were used by 22 respondents making it 8% of the answers,
- «Blogs» received 14 likings (5%),
- «Wikipedia» obtained 7 preferences (3%), and
- Nobody selected «Don't use any of them» option (0%).

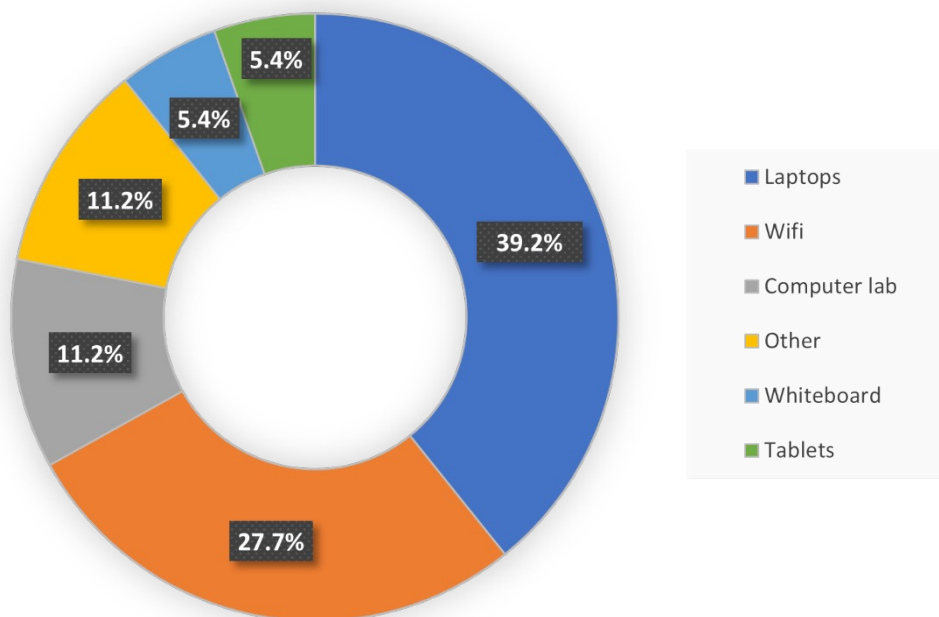
The statistic section shows that, apart from preferences and typologies of online tools employed, **conventional tools are obsolete and are passing the way in favour of new digital tools.**



Which of the following ICT can adult learners use at your organisations?

About the skills and competences of adult learners in employing some basic ICT tools, device or technologies, respondents had the possibility to choose more than one answer.

- 102 (39.2%) preferences were given to «Laptops» while
- «Wi-Fi» ranked second with 72 preferences (27.7%),
- «Computer Lab» with 29 preferences (11.2%) just as the answer
- «Other» with 29 preferences (11.2%),
- «Whiteboard» with 14 likings (5.4%) and
- Successively, «Tablets» with 14 (5.4%).

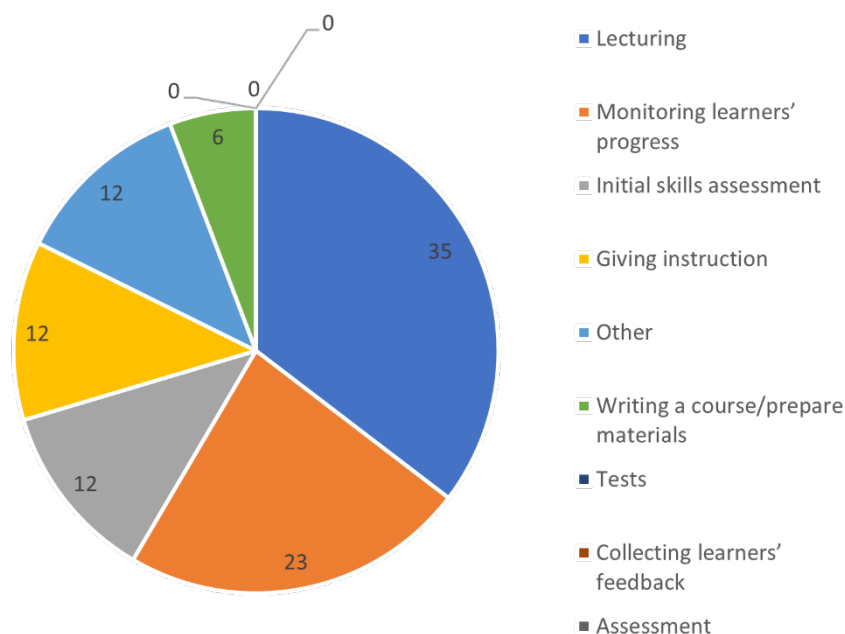


The result shows **using ICT tools has first the practical base** which is ownership of the equipment and availability of Wi-Fi connection. «Computer lab» with 11.2% was followed by the answer «Other» that remained unspecified by the respondents. The options «Whiteboard» just like «Tablets» both received equally 14 liking and reached 5.4% each.

Which of the following "processes" do you do online in the framework of your training activities?

This question asked respondents to express their preferences with reference to online "processes" employed in their training activity framework. Participants had the possibility to select more than one answer.

- The most answers, 92, were the «Lecturing» while
- «Monitoring learners' "progress"» ranked second with 60 preferences,
- «Initial skills assessment» gained 31 votes just as
- «Giving instruction» with 31 preferences and the
- «Other» with the same number of votes – 31.
- «Writing a course/prepare material» was the answer of 31 respondents.
- «Tests» received 0 likings, equally as «Collecting learners' feedback» (0) and «Assessment» which got 0 preferences, too.



The result shows that «Lecturing» is the most favourite training activity. «Monitoring learners' progress» is the second favourite. The next favourite activities are «Initial skills assessment», «Giving instruction» and «Others», which respondents did not specify. The last one which received preferences (15) was «Writing a course/prepare materials». Other offered options, «Tests», «Collecting learners' feedback» and «Assessment» did not receive any preference.

What statement you consider important in using digital advancements for training processes?

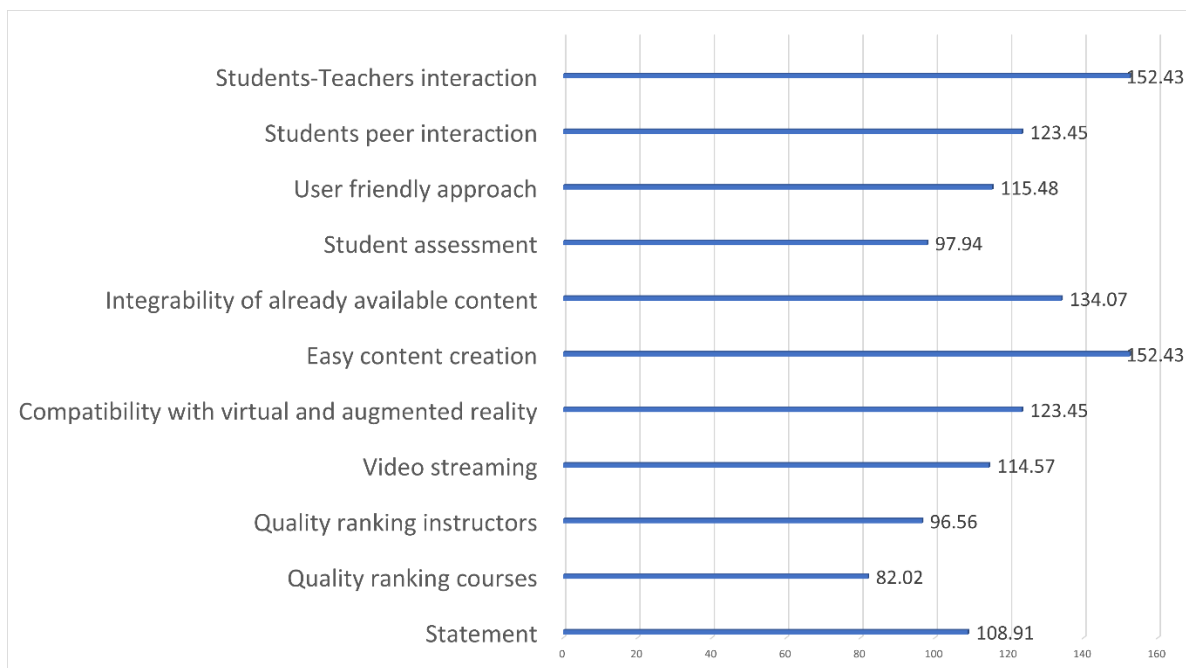
We asked participants to evaluate the proposed statements and give value of 1 to 4 points to each statement, where 1 point was for not important, 2 points meant less important, 3 points meant important, and 4 points was very important. The methodology employed to analyse data gathered from this issue simply gave weighted average to each option which requested a rate.

- According to the results to the question concerning the importance in using digital advancements for training processes the respondents chose as the most important the «Students-Teachers interaction» and «Easy content creation». Both statements gained the value of weighted average

of 152.42.

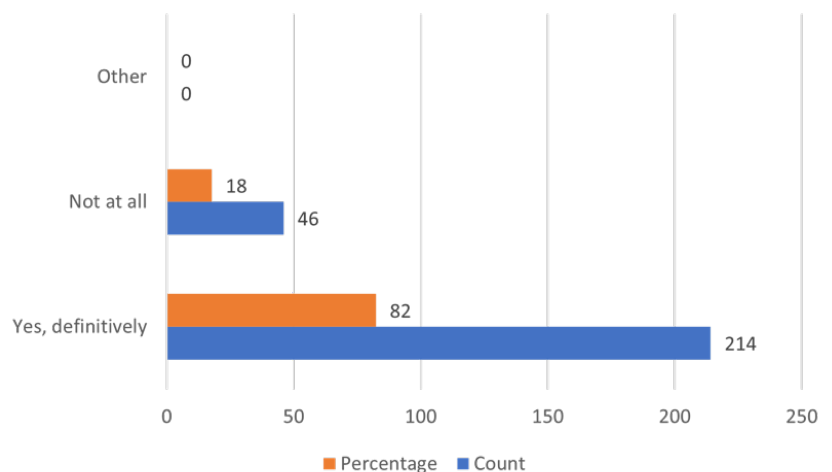
- The second most voted statement was «Integrability of already available content» with weighted average value of 134.07.
- The third position according to votes of the respondents belongs equally to two statements, «Students peer interaction» and «Compatibility with virtual and augmented reality», with weighted average of 123.45.
- The fourth most valued statement was «User friendly approach» with 115.48.
- With only a slight difference of 0.91 point behind the fourth one there is the statement on the fifth position – «Video streaming», which received 114.57 points of the weighted average.
- 97.94 points belongs to «Student assessment» tightly followed by
- «Quality ranking instructors» with value of 96.56.
- The last position belongs to «Quality ranking courses» with weighted average 82.02.

The weighted average of all statements is 108.91.



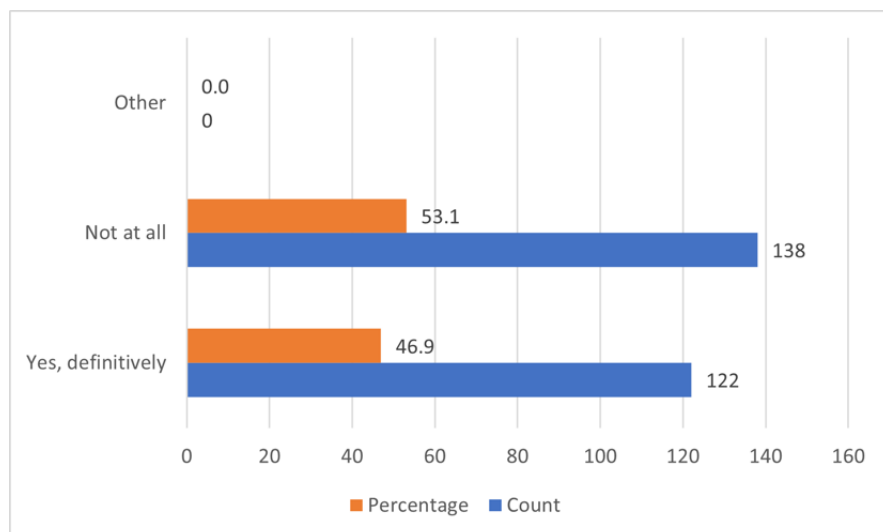
Have you implemented evaluation procedures regarding the teaching in Covid time?

In this case we wanted to know whether the respondents have implemented some evaluation procedure regarding the teaching during the Covid-19 pandemic when part of the education had to be done online. Vast majority of respondents, 214 which meant 82% of all answers confirmed that they implemented the evaluation procedures in Covid times, only 46 answers were Not at all and this part made 18%. There was no other answer stated than these two options despite the possibility given.



Did you face marginalisation issues for trainers and/or trainees because of lack of skills and/or equipment during the pandemic?

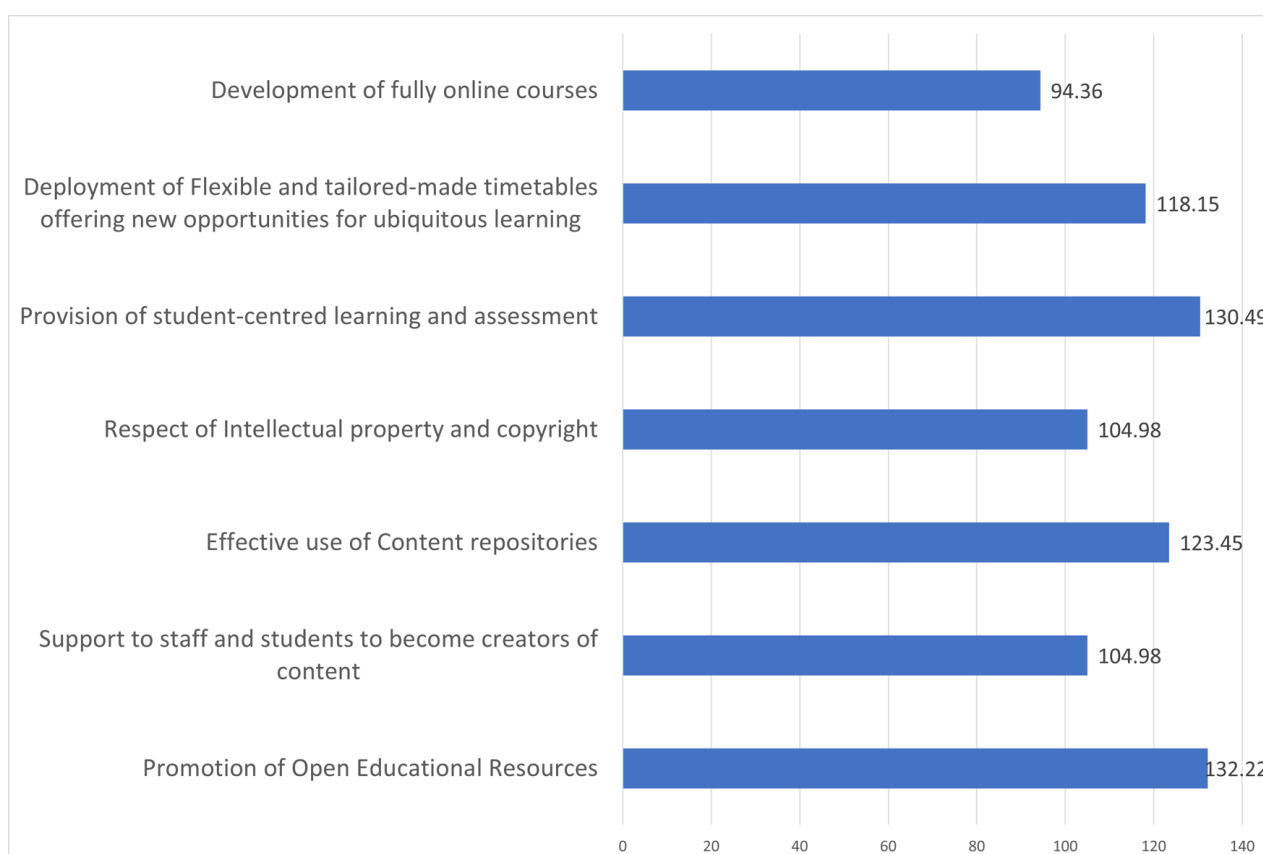
One of the topics regarding the online education during Covid-19 pandemic surely was readiness of the trainers and/or trainees to continue the process of education fluently and their skills and/or equipment during the pandemic. One of the reasons for preoccupation were marginalisation issues for trainers and/or trainees because of lack of skills and/or equipment during the pandemic. We wanted to know from our respondents about their experience. The results showed that majority of the respondents did not have these



issues. Somewhat expected was the confirmation of this problem, even in smaller amount. Yes, definitively was the answer of 122 respondents, what makes 46.9% of all answers.

Which of the following elements should be considered in a post Covid curriculum?

We asked participants to evaluate the proposed statements and give value of 1 to 4 points to each statement, where 1 point was for not important, 2 points meant less important, 3 points meant important, and 4 points was very important. The methodology employed to analyse data gathered from this issue simply gave weighted average to each option which requested a rate.



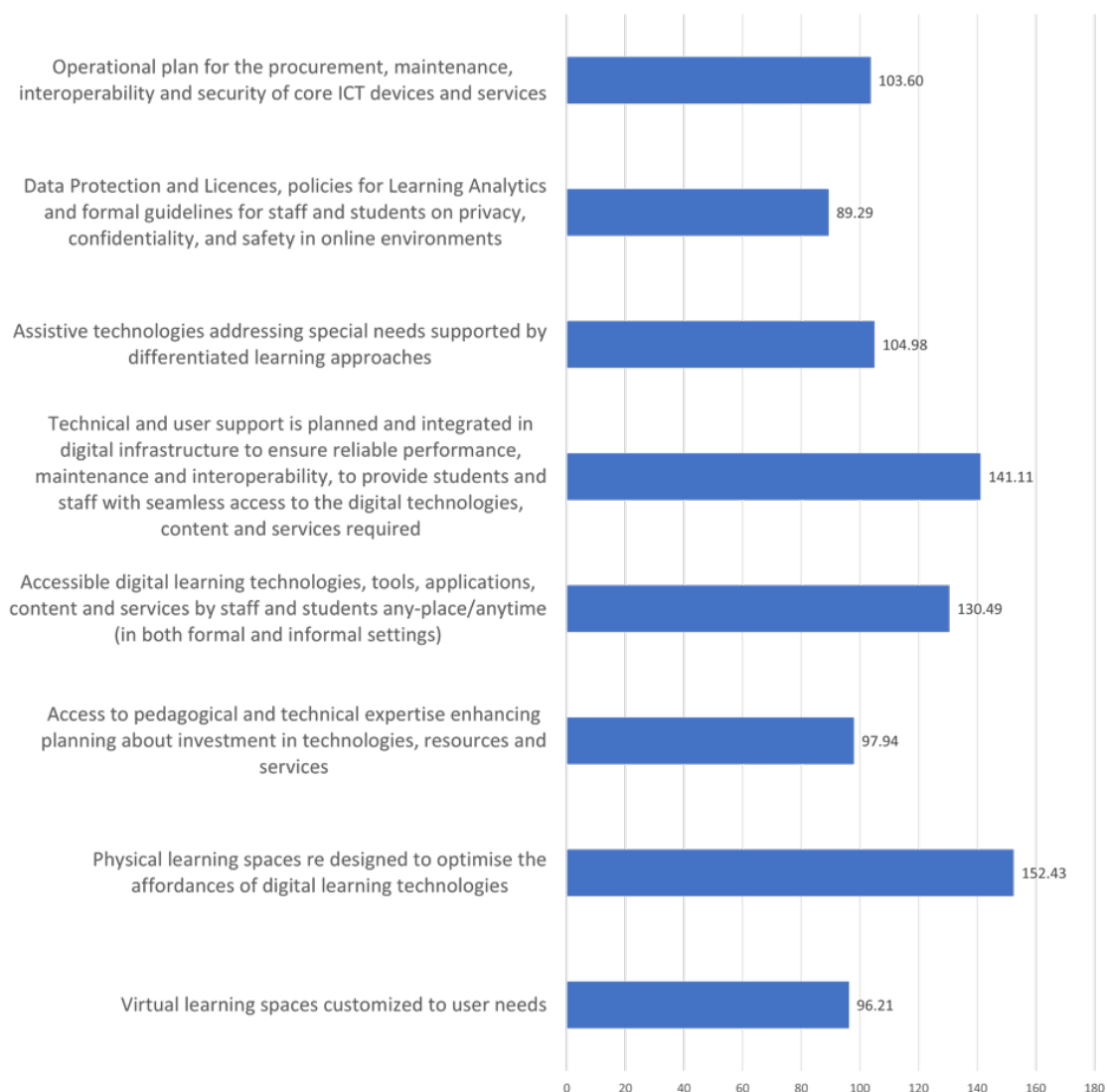
As we can see from gained data:

- The most important element which should be considered in a post Covid curriculum according to the respondent of this research is «Promotion of Open Educational Resources» which received 132.22 points, tightly followed by the
- «Provision of student-centred learning» and «assessment» with 130.49 points.
- The «Effective use of Content repositories» got to the value of 123.45 points and ranked the 3rd most voted statement.
- «Deployment of Flexible and tailored-made timetables offering new opportunities for ubiquitous learning» received 118.15 points.
- «Respect of Intellectual property and copyright» and «Support to staff and students to become creators of content» ranked both the fifth position with 104.98 points each equally.
- The least voted statement was «Development of fully online courses» which received value of 94.36.

What infrastructure you consider important in a digital environment for Adult learning?

We asked participants to evaluate the proposed statements and give value of 1 to 4 points to each statement, where 1 point was for not important, 2 points meant less important, 3 points meant important, and 4 points was very important. The methodology employed to analyse data gathered from this issue simply gave weighted average to each option which requested a rate.

The question dealing with the topic of the most important infrastructure in a digital environment for Adult learning by opinion of our respondents brought the following answers.

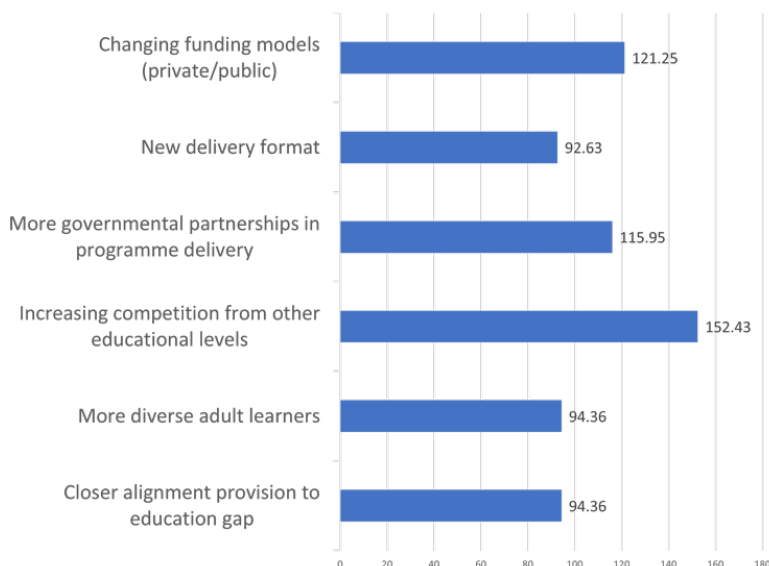


- The answer which received the highest value was «Physical learning spaces re designed to optimise the affordances of digital learning technologies». It received 152.43 points.
- The second most valued answer was the «Technical and user support is planned and integrated in digital infrastructure to ensure reliable performance, maintenance and interoperability and to provide students and staff with seamless access to the digital technologies, content and services they require». It received 141.11 points.
- 130.49 points went to the statement «Accessible digital learning technologies, tools, applications, content and services by staff and students any-place/anytime (in both formal and informal settings)», which ranked the third most important option by opinion of the respondents.
- «Assistive technologies addressing special needs supported by differentiated learning approaches”» ranked at the fourth position with value of 104.98.
- Successively with 103.60 points follows the statement «Operational plan for the procurement, maintenance, interoperability and security of core ICT devices and services».
- 97.94 points is the value of statement «Access to pedagogical and technical expertise enhancing planning about investment in technologies, resources and services» and it is the sixth most important one according to the respondents, while tightly followed by
- «Virtual learning spaces customized to user needs» which received 96.21 points.
- The least voted option with weighted average of 89.29 is «Data Protection and Licences, policies for Learning Analytics and formal guidelines for staff and students on privacy, confidentiality, and safety in online environments».

What do you think will shape Adult education in 3 years from now?

We gave participants this question and asked them to evaluate the probability for each proposed event/situation to occur in Adult Education in the next three years. The methodology employed to analyse data gathered from this issue simply gave a weighted average to each option which requested a rate, marked as «Least likely to happen», «Likely to happen», «Probable», «Very probable». According to data, participants found the option:

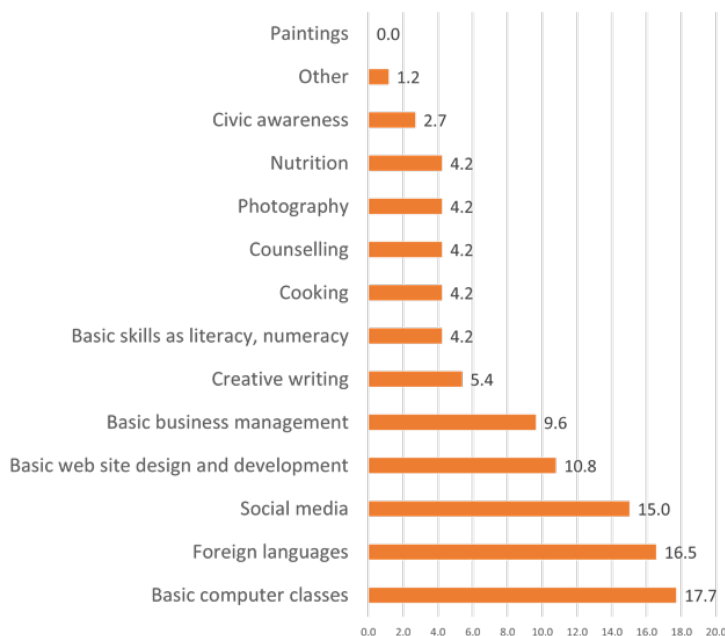
- «Increasing competition from other educational levels” the most likely to happen in shaping the “future” adult education domain, with a weighted average of 152.43.
- «Changing funding models (private/public)» obtained a weighted average of 121.25, then
- «More governmental partnerships in programme delivery» ranked 3rd with a weighted average of 115.95,
- «More diverse adult learners» and «Closer alignment provision to education gap» with weighted average 94.36 equally ranked the fourth position,
- while the option «New delivery format» with the weighted average of 92,63 was the least voted answer.



Which are in your opinion the most interesting topics for an Adult learner?

Furthermore, we asked respondents to express their opinion with reference to the most interesting topics for an adult learner. Participants had the possibility to select more than one answer. 46 preferences (17.7%) went to the answer «Basic computer classes» while «Foreign languages» ranked second with 3 preferences less (43 in total) which is 16.5%. «Social Media» ranked the third with 15% and 39 likings.

More details are available in the following chart.

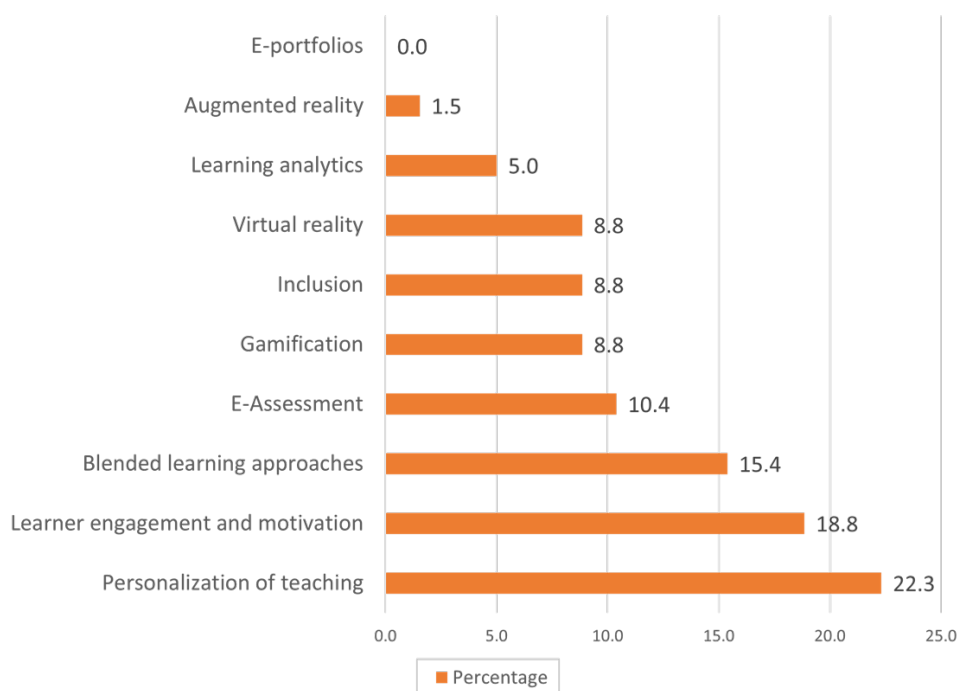


Moreover:

| Answer choices | N° of preferences |
|---------------------------------------|-------------------|
| Basic web site design and development | 28 |
| Basic business management | 25 |
| Creative writing | 14 |
| Basic skills as literacy, numeracy | 11 |
| Cooking | 11 |
| Counselling | 11 |
| Photography | 11 |
| Nutrition | 11 |
| Civic awareness | 7 |
| Other | 3 |
| Paintings | 0 |

Those who selected «Other» (3 respondents) did not specify their interests. Considering the number of options proposed, the result shows that respondents prefer topics related to ICT/digital issue.

Please indicate which of the following ICT enabled transformations, Adult Education can truly benefit from



The graph above shows respondents selection among the proposed transformations triggered by ICT, the most helpful for the adult education sector. Participants had the possibility to select more than one answer.

- 58 preferences went to the option «Personalization of teaching»
- while «Learner engagement and motivation» ranked second with 49 preferences
- and «Blended learning approaches» third with 40 likings.

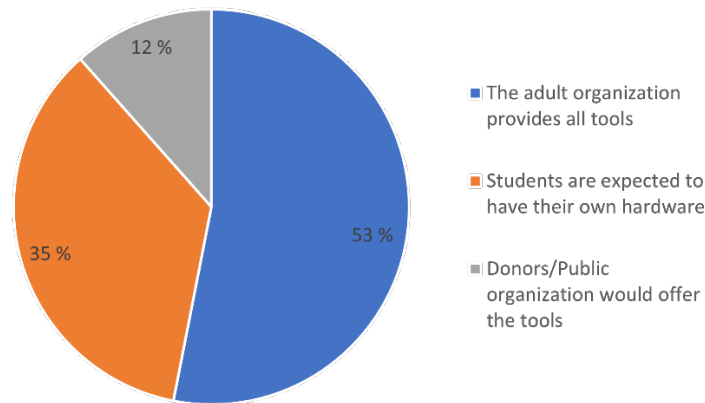
Moreover:

| Answer choices | N° of preferences |
|--------------------|-------------------|
| E-Assement | 27 |
| Gamification | 23 |
| Inclusion | 23 |
| Virtual reality | 23 |
| Learning analytics | 13 |
| Augmented reality | 4 |
| E-portfolios | 0 |

For the ICT enablers discussed above, how would you implement that?

Consequently, we sought to understand how respondents would implement the ICT transformations discussed in the previous question. Participants had the possibility to choose more than one answer.

- 138 preferences went to the option «The adult organization provides all tools»,
- while «Students are expected to have their own hardware» ranked second with 92 preferences
- and «Donors/Public organization would offer the tools» had 30 preferences.



With reference to the adult education domain, the result shows that providers expect adult to bring/have their own HW, meaning that in the next future people attending any educational programme should have basic computer literacy.

2.2 Higher education

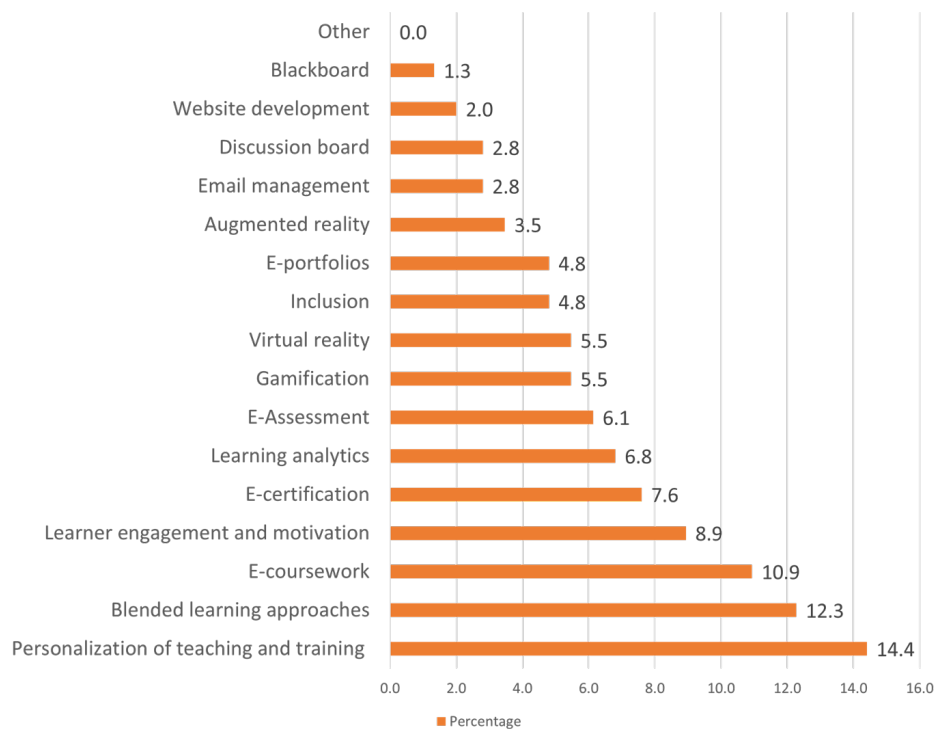
Indicate which of the following transformations triggered by ICT, higher education can truly benefit from

Intention of this question was to **understand more deeply the perception of respondents about the benefits received from transformations triggered by ICT**. In terms of preferences expressed, as each respondent could give more than one answer, the situation outlined is the following:

- «Personalization of teaching and training» (108 preferences, 14.4%);
- «Blended learning approaches» (92 preferences, 12.3%);
- «E-coursework» (82 preferences, 10.9%).

These are the three main steps in the drawn-up chart, in terms of transformations triggered by ICT for Higher Education institutions. Probably this situation is related to the need of different approaches in teaching and learning tools, along with a mixed one in the provision of lessons (like the blended-learning approach is, combining the traditional frontal method in classroom with computer-driven activity).

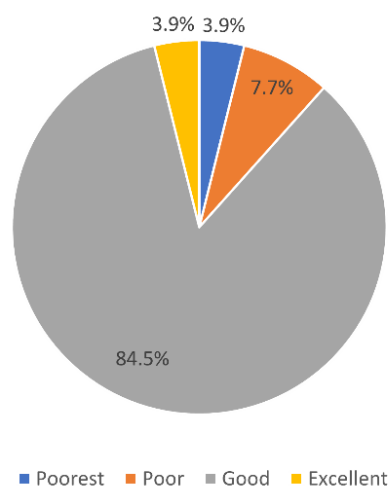
| Options | Preferences | % |
|-----------------------------------|-------------|-----|
| Learner engagement and motivation | 67 | 8.9 |
| E-certification | 57 | 7.6 |
| Learning analytics | 51 | 6.8 |
| E-Assessment | 46 | 6.1 |
| Gamification | 41 | 5.5 |
| Virtual reality | 41 | 5.5 |
| Inclusion | 36 | 4.8 |
| E-portfolios | 36 | 4.8 |
| Augmented reality | 26 | 3.5 |
| Email management | 21 | 2.8 |
| Discussion board | 21 | 2.8 |
| Website development | 15 | 2.0 |
| Blackboard | 10 | 1.3 |
| Other | 0 | 0.0 |



Overall, how would you rate the quality of the Higher Education in Europe?

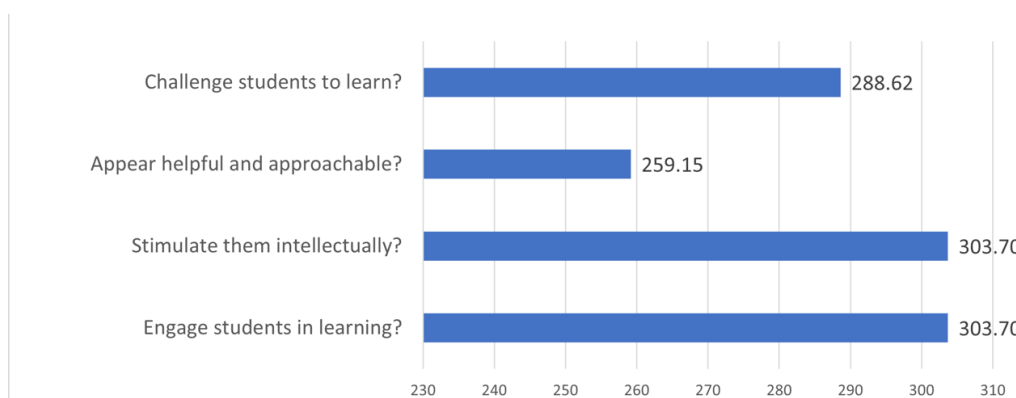
We asked the respondents about their opinion considering the Higher Education in Europe. They chose one of four offered options to rate the quality of HE, from 1 to 4, when 1: poorest, 4: excellent. As we can see from the result, vast majority voted for option «Good» (84.5%, 634 preferences), while option «Poor» ranked second with 58 votes (7.7%). Both most extreme options, «Poorest» and «Excellent» gained equal number of preferences, 29, making it 3.9% each.

Basically, the message is that there is still space for improvement while we must pay attention to the level of the quality set in order to maintain the good results.



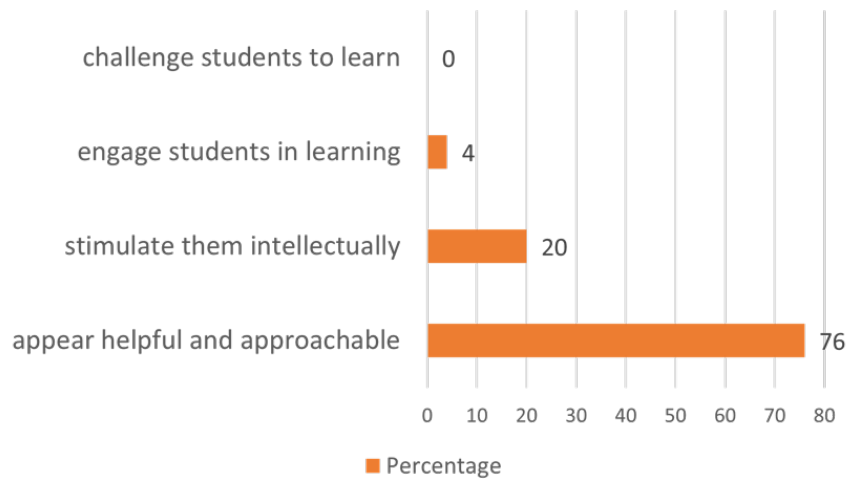
How would you rate the level of digitalized teaching in the Higher Education in Europe?

Higher Education in Europe and its level of digitalized teaching was the subject of the rating by the participants in this question. Several statements were given values and as the result, digitalized teaching helps mainly to «Engage students» in learning and «Stimulate them intellectually». These two statements received both the weighted average of 303.70. The second most successful statement is that it challenges students to learn (weighted average of 288.62) and the least preferred is the claim that it appears helpful and approachable (weighted average of 259.15).



The lectures and tutors, what is your advice to them?

We asked the participants their advice for lecturers and tutors how to improve the approach to students. The most participants believe that lecturers and tutors should «Appear helpful and approachable». This statement received 570 votes (76%). Follows the opinion to «Stimulate them intellectually» with 150 preferences (20%) and the last one is «Engaging students in learning» with 30 votes (4%).



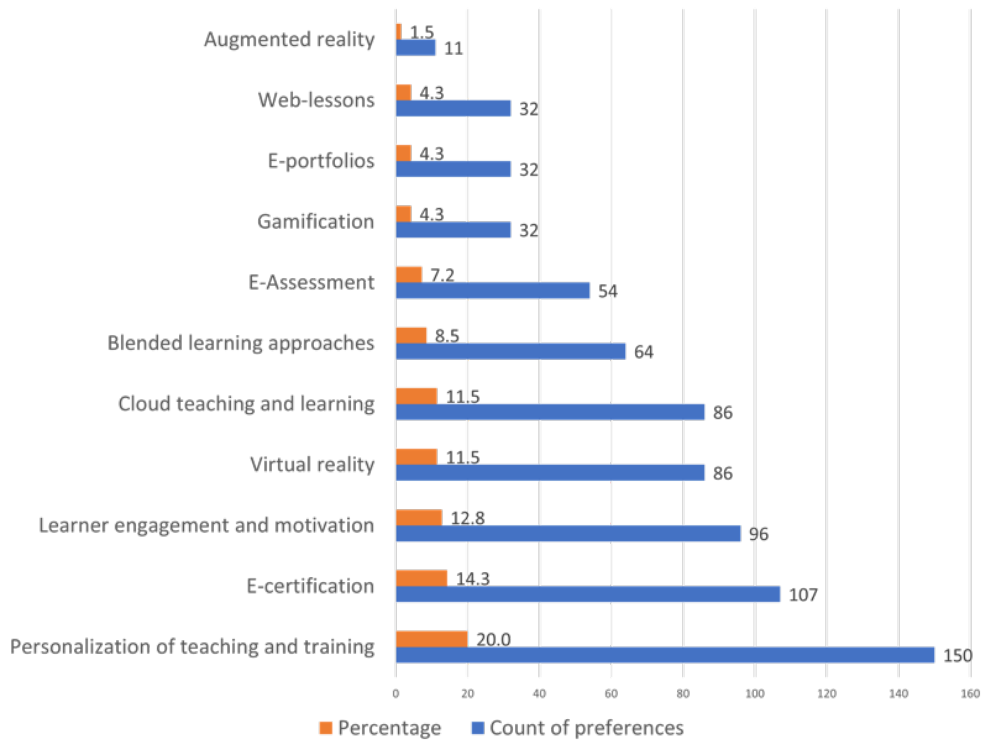
Do you think teaching/learning/assessment in 20+ years from now will be done in the same way as it is done today? (n = 25) Choose 3 main differences from the list

Through this question, we wanted to know from our respondents their opinion how teaching, learning and assessment in 20 and more years from now will be done, whether in the same way as it is done today or will it be different and how. They could have chosen three out of offered options. The chart shows the results as followed:

- The most voted option was «Personalization of teaching and training», which received 150 preferences (20%),
- The second most voted was «E-certification» with 107 preferences (14.3%).
- «Learner engagement and motivation» ranked third with 96 preferences (12.8%).

Other answers were voted in this order:

| Options | Preferences | % |
|-----------------------------|-------------|------|
| Virtual reality | 86 | 11.5 |
| Cloud teaching and learning | 86 | 11.5 |
| Blended learning approaches | 64 | 8.5 |
| E-Assessment | 54 | 7.2 |
| Gamification | 32 | 4.3 |
| E-portfolios | 32 | 4.3 |
| Web-lessons | 32 | 4.3 |
| Augmented reality | 11 | 1.5 |



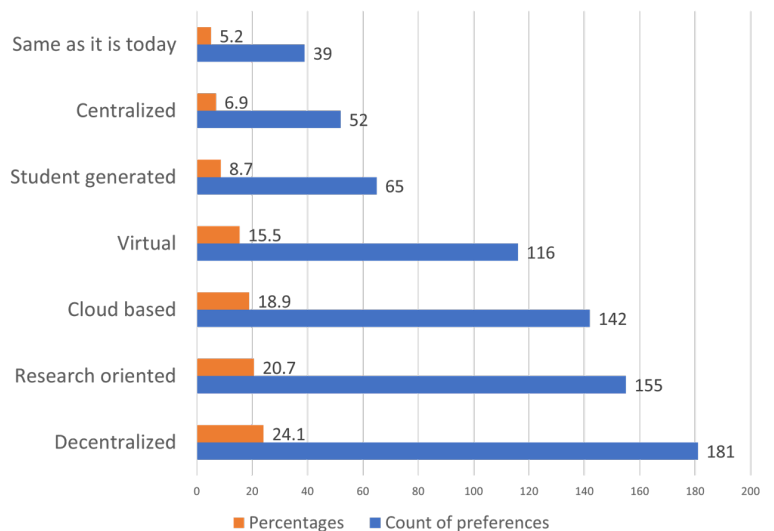
As the results suggest, in future the education should be more individualistic, personalised, oriented toward independent approach with higher inner motivation of persons involved rather than pressured by outside forces.

How do you expect that the Higher Education governance and leadership will look like in 20+ years?

In this question we wanted to know from the respondents their expectations on the Higher Education governance and leadership in the horizon of 20 and more years. According to their answers they expect the governance and leadership to be «Decentralized». This answer gained the most votes (181) which is 24.1%. With 155 preferences (20.7%) ranked the second most voted opinion, that the governance and leadership will be «Research oriented». The third most expected option was «Cloud based», with 142 votes and 18.9%.

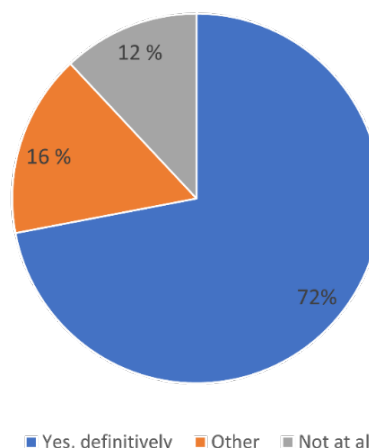
Other options were voted in this order:

| Options | Preferences | % |
|---------------------|-------------|------|
| Virtual | 116 | 15.5 |
| Student generated | 65 | 8.5 |
| Centralized | 52 | 6.9 |
| Same as it is today | 39 | 5.2 |



Has the Covid-19 pandemic finally boosted the modernisation of the education system?

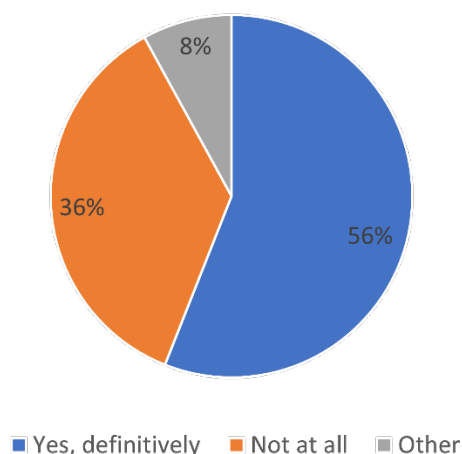
The pandemic of Covid-19 affected our society in many ways. Concerning the education system, we wanted to know from the respondents their experience and we asked them whether according to them the Covid-19 pandemic boosted the modernisation of the education system or not. The vast majority (72%) of them replied that the pandemic has influenced the education system toward the modernisation, while only 12% of them thought it did not do it. 16% of respondents chose the option «Other» but left the answer without further commentary.



Did you face marginalisation issues for teachers because of lack of skills and/or equipment during the pandemic?

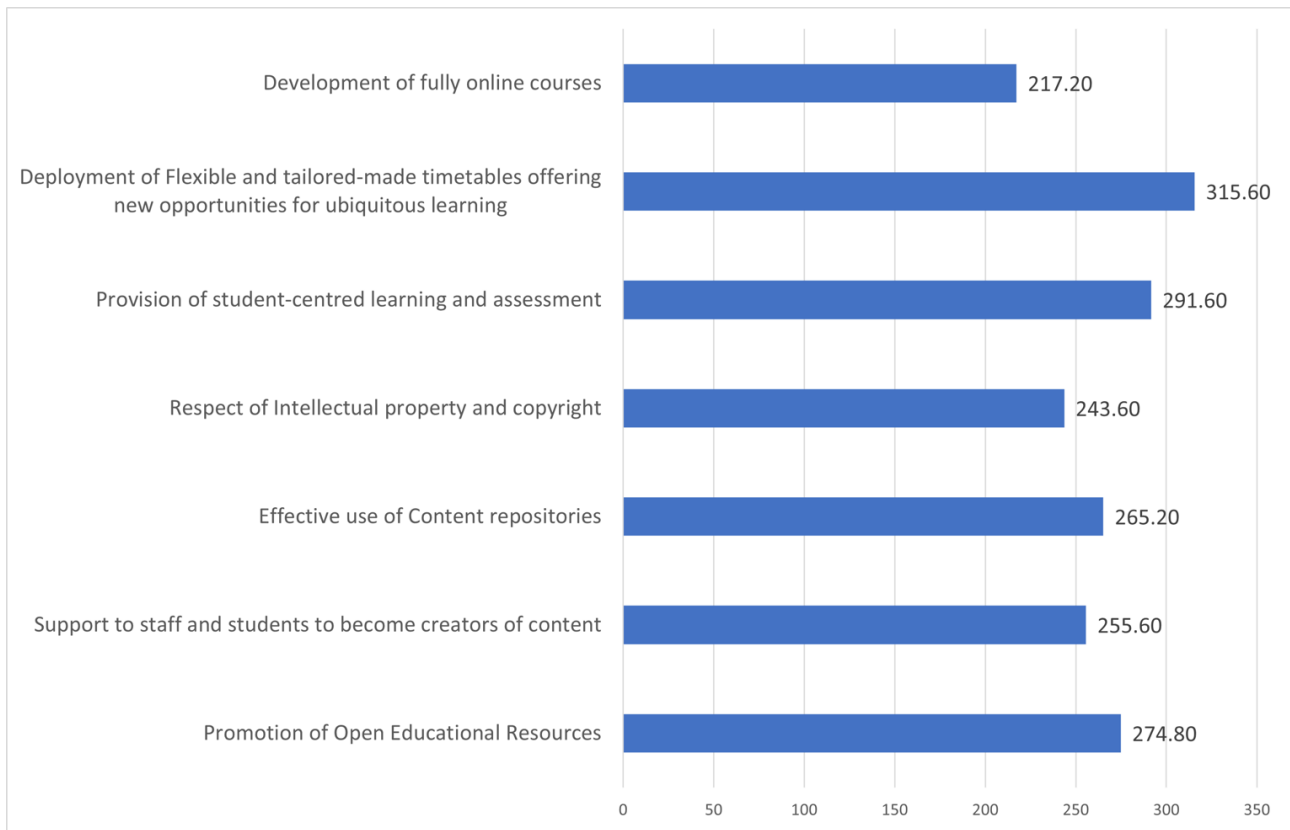
Unfortunately, the answer for this question was somewhat expected from the previous experiences with the topic.

Majority of respondents answered to the question whether they «face marginalisation issues for teachers because of lack of skills and/or equipment during the pandemic» positively. This part of answers reached 56% with 420 preferences. «Not at all» was the answer of 36% (270 preferences) while 8% (60 preferences) replied with «Other» without specifying their experience.



Which of the following elements should be considered in a post-Covid curriculum?

In this question the participants were asked to rate the elements which should be considered in a post-Covid curriculum. For the summary of the answers' values was use the weighted average of each answer. As it resulted, the most preferred answer is «Deployment of Flexible and tailored-made timetables offering new opportunities for ubiquitous learning» with weighted average of 315.60, follows, with average rate 291.60, the «Provision of student-centred learning and assessment» and the third most considered answer is «Promotion of Open Educational Resources» with weighted average of 274.80. The chart below completes the summary of all the answers and their results.



Which ICT enabled transformations are used at your institution?

Here we inquired the current situation in terms of ICT transformations already presented or provided by the membership organisations of the respondents. It seems that active transformations are well-distributed. However, regarding the top three we can find

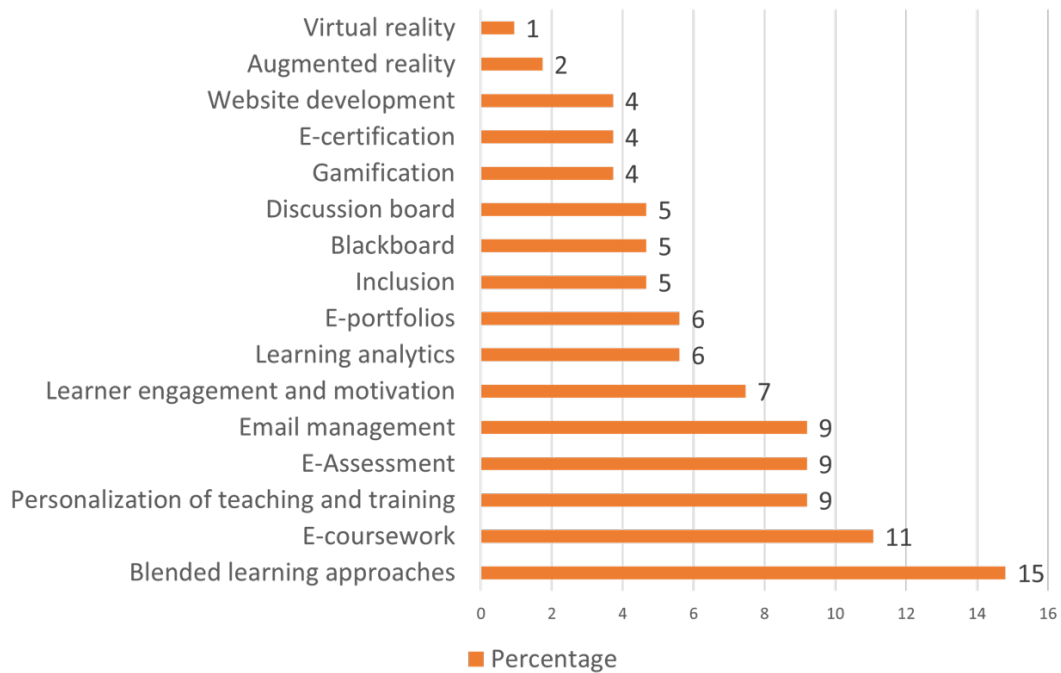
1. the «Blended learning approaches» (111 preferences, 15%),
2. «E-coursework» (83 preferences, 11%),
3. and the «Personalization of teaching and training», «E-Assessment» and «Email management» which ranked all with the same count (69 preferences, 9%).

Regarding the results we can state that most of the respondents are quite active in the main innovative categories of digital learning.

Other options were voted in this order:

| Options | Preferences | % |
|-----------------------------------|-------------|---|
| Learner engagement and motivation | 56 | 7 |
| Learning analytics | 42 | 6 |
| E-portfolios | 42 | 6 |
| Inclusion | 35 | 5 |
| Blackboard | 35 | 5 |
| Discussion board | 35 | 5 |
| Gamification | 28 | 4 |
| E-certification | 28 | 4 |

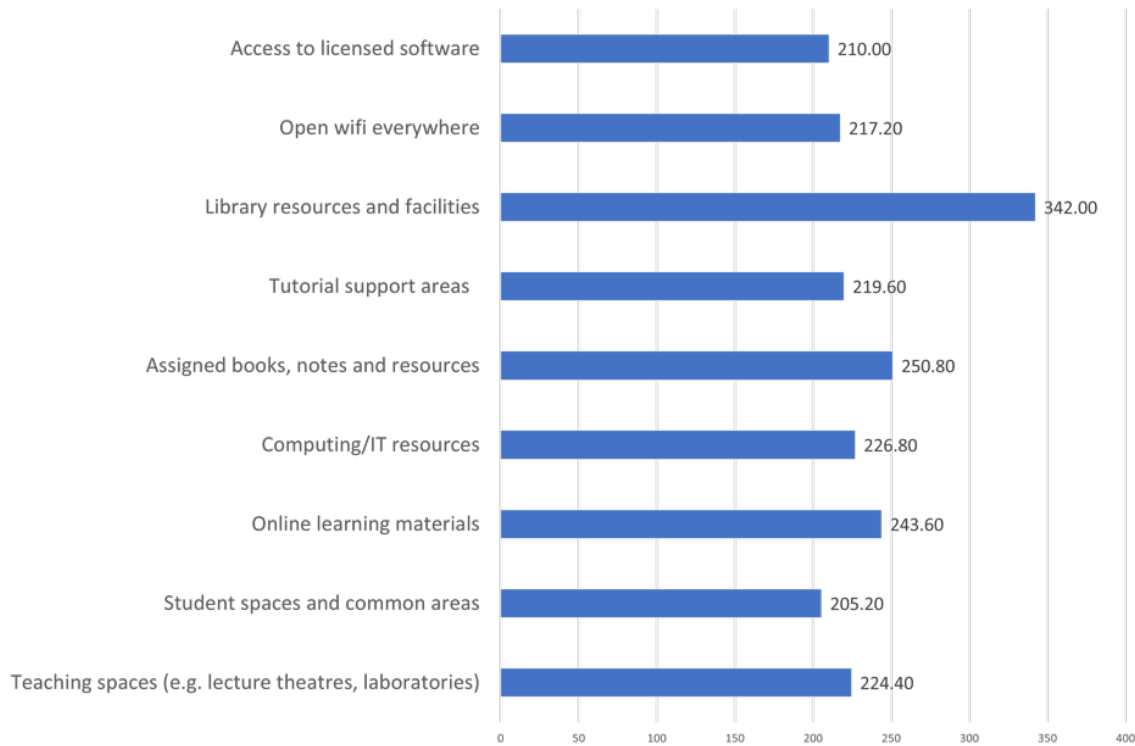
| | | |
|---------------------|----|---|
| Website development | 28 | 4 |
| Augmented reality | 13 | 2 |
| Virtual reality | 7 | 1 |



Overall, how would you rate from 1 to 4 the following learning resources provided by your institution for the courses offered?

After giving a general opinion on the latter topics, respondents have been requested to rate between 1 and 4 (1 equals to lowest and 4 equals to highest rate) the learning resources provided by their institutions, to assess if they are useful for the courses implementation. The methodology employed to analyse data gathered from this issue simply gave a weighted average to each option which requested a rate for the measures provided. According to the answers, the most useful learning resource already provided for the course offered is «Library resources and facilities», with the highest rate of weighted average 342. At the following positions we find:

- «Assigned books, notes and resources»: weighted average 250.80
- «Online learning materials»: weighted average 243.60
- «Computing/IT resources»: weighted average 226.80
- «Teaching spaces (e.g., lecture theatres, laboratories)»: weighted average 224,40
- «Tutorial support areas»: weighted average 219, 60
- «Open Wi-Fi everywhere»: weighted average 217,20
- «Access to licensed software»: weighted average 217,00
- «Student spaces and common areas»: weighted average 205,20



Globally, rates are quite highly spread within all the presented categories, with one exception which got significantly higher result, «Library resources and facilities». On the other hand, we can assume that «Student spaces and common areas» are not that developed and maybe available at a very high level within the consulted institutions.

Which of the computer-related basic skills do you think the students have in your institution?

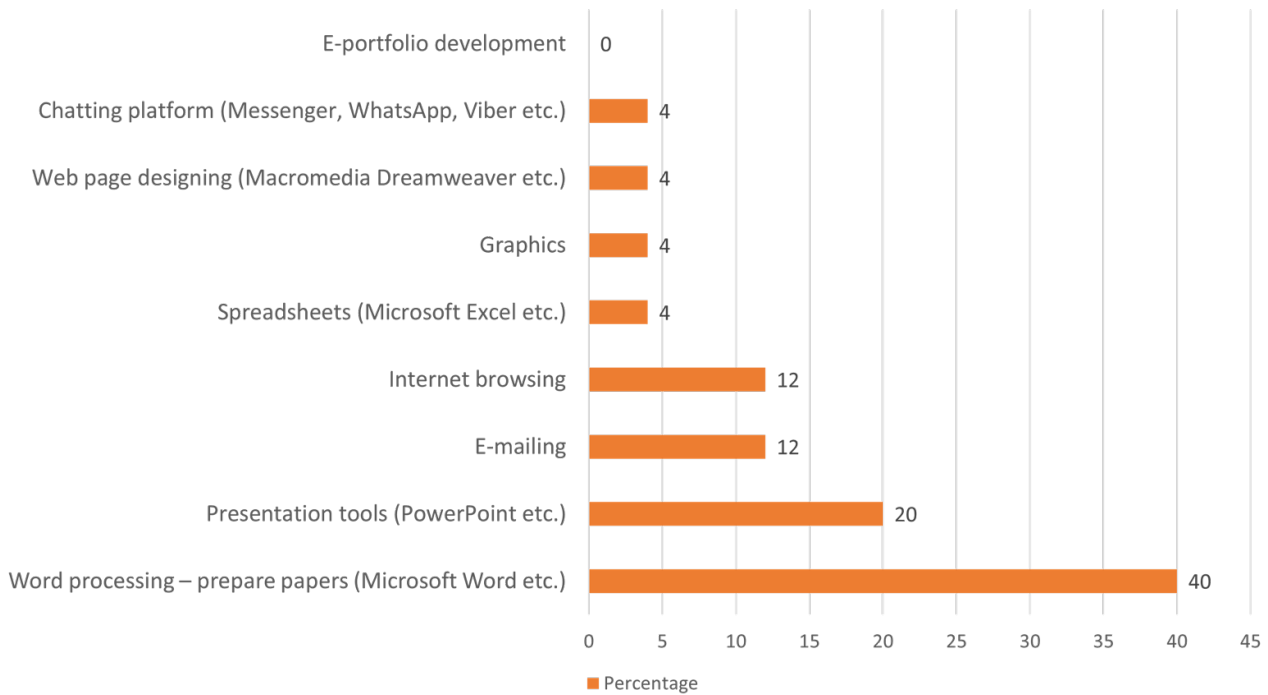
This question aimed at looking to the actual situation of the digital knowledge among Higher Education learners.

Respondents state that their students own very basic digital skills, such as

- «Word processing – prepare papers (Microsoft Word etc.)»: 300 preferences,
- «Presentations tools such as Power Point»: 150 preferences and
- «E-mailing»: 90 preferences.

These are the top three positions.

It shows quite common trend in the owning of the basic digital tools regarding the students' understanding, given that these mentioned tools are quite commonly used, maybe also in their daily personal life.

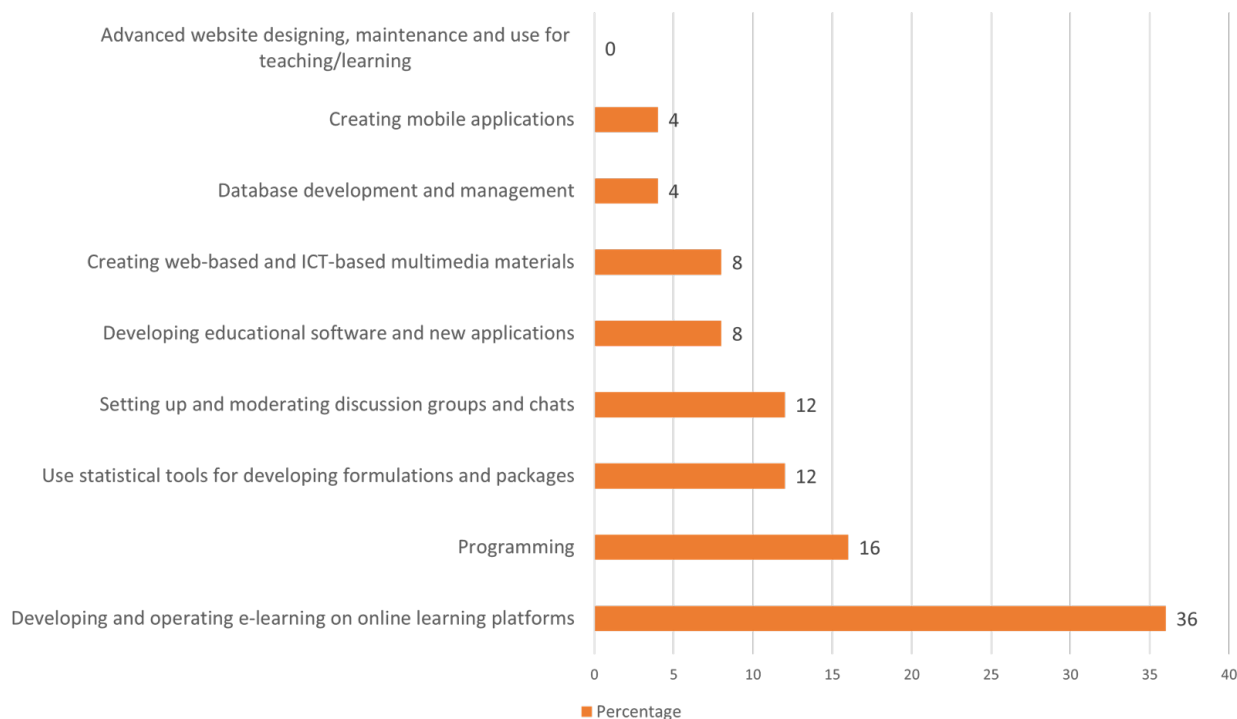


Only 60 respondents (out of 750) add other digital skills among their students that are quite advanced, like «Graphics» or «Web page designing (Macromedia Dreamweaver etc.)». Also, this may be the reason why none of the respondents believed their students have such advanced skills as «E-portfolio development».

Which of the following advanced skills can you use to create and develop new applications, contents, learning materials, etc.?

With this question, we inquired the perception of some of the most advanced skills in digital learning into the creation and development of new applications, contents and learning materials. The respondents of the survey identified their preferences:

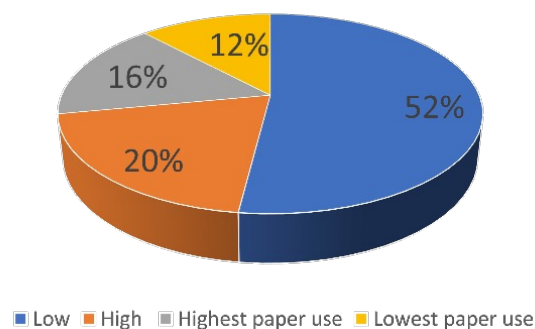
- «Developing and operating e-learning on online learning platforms»: 270 preferences,
- «Programming»: 120 preferences,
- «Use statistical tools for developing formulations and packages» and «Setting up and moderating discussion groups and chats»: 90 preferences each such as the most advanced skills useful to create new applications, contents, learning materials etc.



«Developing educational software and new applications», «Creating web-based and ICT-based multimedia materials», «Database development and management» and «Creating mobile applications» are not that common between our interviewed organisations (60 preferences and lower). The option «Advanced website designing, maintenance and use for teaching/learning» was not chosen by any of the respondents.

How much paperless is the administration operation of your institution?

As far as it concerns the administration offices of the organisations which responded, we have explored how much they are still dependent on paper usage as this could be the base of the problem with their readiness for digital transformation. We hope the statistics could encourage the consulted institutions to upgrade their administrative departments in such a way, given that they already own good digital basis.

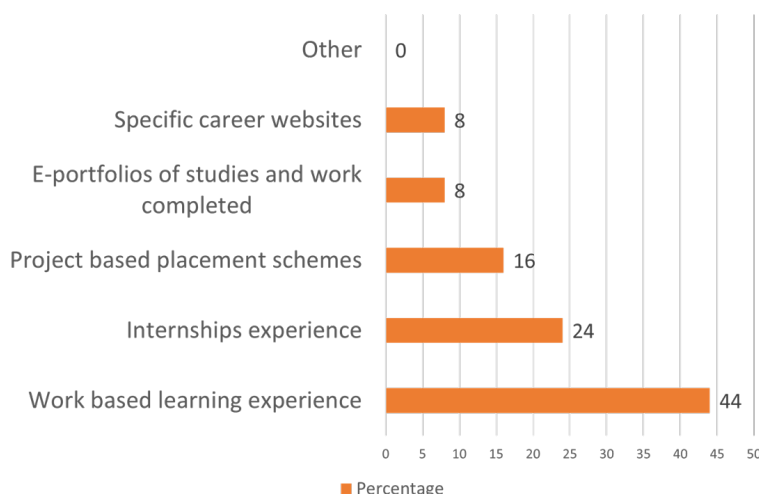


What is in your view the most effective way to assist HE students in their transition to employment?

In this section we are exploring the teaching and tutoring methodologies. The above graphics and tables report what Higher Education respondents have chosen as the most effective way to assist their students in finding job or approaching the labour market.

«Work-based learning experience» (330 preferences), the «Internship experience» (180 preferences) and «Project based placement schemes» (120) are three ways most considered to be effective to assist HE students in their transition to employment.

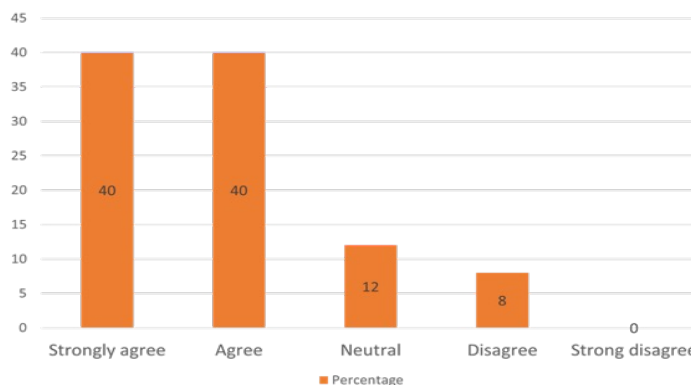
Other two options, «E-portfolios of studies and work completed» and «Specific career websites» received significantly lower result (60 preferences each), while the option «Other» didn't receive any preference.



The results above basically might be due to the general trends in universities produced by following EU indications on specific learning aptitudes, directly linked to the job world. The future of jobs, as indicated in the devoted WEF 2016 Report, is based on digitals, besides robotics and related topics. So, it is quite important, and well perceived by respondents, to introduce students to the digital world to be more and more competitive.

Do you think ICT will improve the teaching and learning effectiveness and quality in Higher Education?

This question wants to search for the **level of change provided by ICT into the teaching and learning effectiveness and quality in Higher Education**. We can say that the respondents believe that information communications technology will improve the teaching and learning effectiveness and quality in Higher Education. 40% of respondents (300 preferences) «Strongly agree» with this opinion, the same number of votes received



the option «Agree». 90 respondents (12%) remained «Neutral», while 60 of them (8%) «Disagreed». No one chose the option «Strongly disagree».

The result shows that **the importance of better exploiting ICT in Higher Education is considerably appreciated between the interviewed people**. This could indeed facilitate both the teaching and learning processes for Higher Education students, along with their opportunity in finding high levels jobs.

Using communication and information management tools in the teaching by professors at respondents' institution

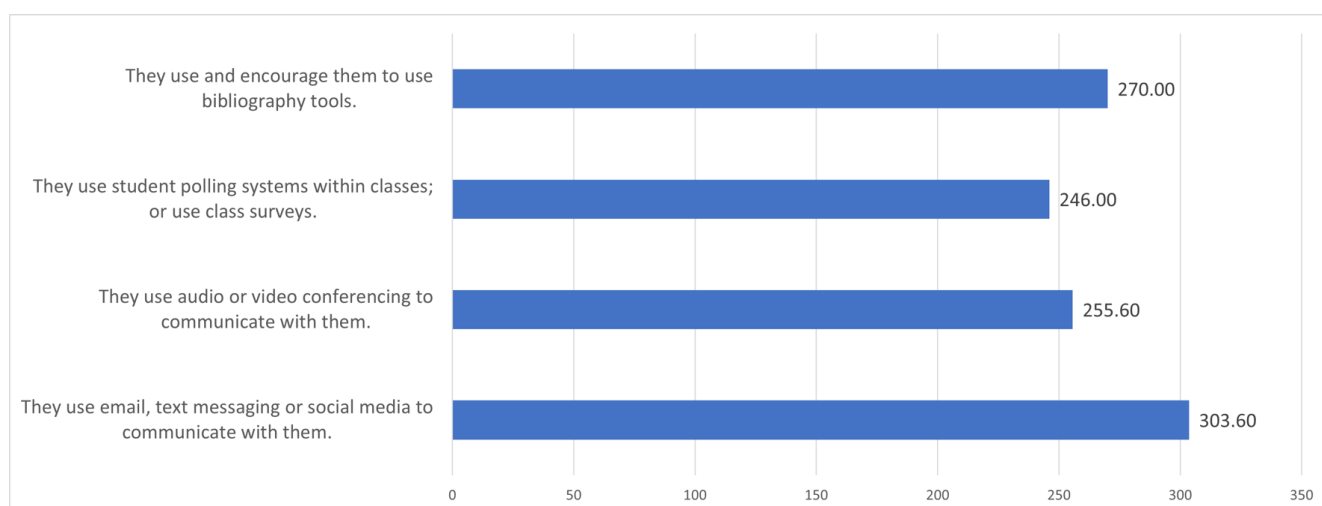
With this question we turned to the professors with intention to investigated the frequency of the digital tools' usage between them in the field of communication and information with their students.

Still reasoning on a weighted average perspective, high rates have been given to the «use of email, text messaging or social media to communicate with students» in terms of good frequency of digital communication and information tools by the professors (303.60).

With the second highest weighted average of 270.00 ranked the answer that the professors «use and encourage the students to use bibliography tools».

They also state, with a good score (255,60), that «They use audio or video conferencing for the communication with them».

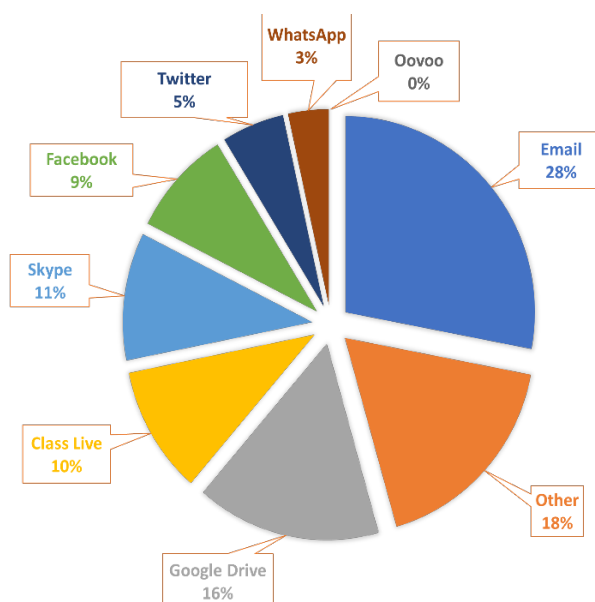
The option «They use of student polling systems within classes or using class surveys» is the least rated but still taken into consideration with weighted average 246.00.



Which tool is used as communication and information management tool in the teaching process at your institution?

Investigating about communication and information facilities, this question addressed what the most common tool is used in the teaching process at the consulted institutions.

According to our research «E-mail» with 28% (210 preferences) is the most used communication and information tool in the teaching process of the organisations. The second most voted answer was «Other» than given options with 18% (132 preferences) but remained unspecified by the respondents. The third ranked «Google Drive» with 16% (118 preferences).



Other tools ranked with following results:

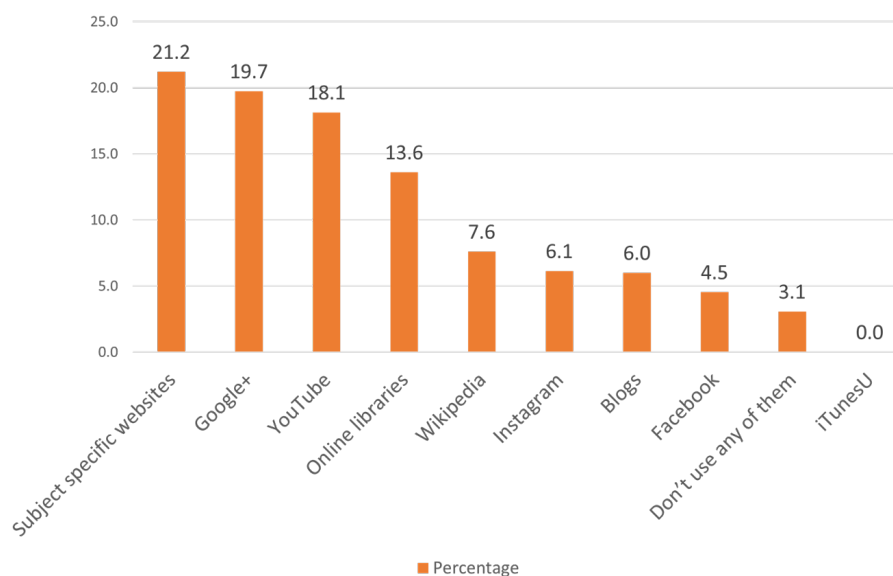
| Tool | Preferences |
|------------|-------------|
| Class Live | 79 |
| Skype | 79 |
| Facebook | 66 |
| Twitter | 40 |
| WhatsApp | 26 |
| Oovoo | 0 |

In terms of expressed preferences, only few of them have been given to «Twitter» (39) and «WhatsApp» (20) considered the total amount of 750 respondents. No one chose the option «Oovoo».

This is probably due because these latest instruments are considered less effective in the exchanging of information of significant importance, like texts or figures that are not sufficiently suitable to be shared through this communication means.

Which tool is used for finding and producing online resources for teaching purposes?

In the teaching area, we have now asked respondents to indicate their preferences about the used tools for finding and producing online resources for teaching purposes.



It stands out that the top three ones are:

1. «Subject specific websites» with 159 preferences,
2. «Google+» with 148 preferences, and
3. «YouTube» with 136 preferences.

This demonstrates that the respondents are quite skilled in terms of used tools for finding and producing online resources for teaching purposes.

2.3 School education

Which methodology do you use for your courses implementation?

This question provides a European picture of **the most implemented methodology used by the entities operating into the School Education sector** to develop their educational activities in schools. Respondents could choose at least one or more than one options among the ones proposed. The results show that the most preferred methodology are:

- «Classroom course» with the count of 33 and 21%.
- The second most voted answers are «Collaborative Learning» and «Creative learning-manipulation of existing information and creation of real-world products» (27 preferences, 17% each).
- «Integrative learning-trans discipline thematic approach» with the count of 20, 12.5%.

The other options ranked as follows:

| Options | Preferences | % |
|--|-------------|-----|
| Other | 14 | 8.8 |
| Blended learning -combination of distant learning with classrooms | 13 | 8.1 |
| Distant learning, virtual classroom | 7 | 4.4 |
| Active learning-learners learn as they do/work on real life problems | 7 | 4.4 |
| Ubiquitous learning-allowing individual learning activities | 6 | 3.8 |
| Open courses, free for certain courses or levels | 6 | 3.8 |
| Evaluative learning-student directed and diagnostic | 0 | 0.0 |

We can assume that the most voted choices are very much oriented toward the direct communication among involved parts rather than using of digitalized virtual ways.

Which methodology for your courses' implementation are you considering to develop in 3 years from now, apart from those you already use?

If the previous question provides a picture about the state of the art of the most used methodology for courses implementation, this question makes a step further and provides an overview of what could happen soon. Respondents had to rate from 1 to 4 the statements, indicating to what extent they will be willing to introduce them soon.

The other options ranked as follows:

- «Active learning-learners learn as they do/work on real life problems» with an average rate of 87.84 and

- «Ubiquitous learning-allowing individual learning activities» with an average rate of 87.84, seem to be the most preferred methodologies for classes' implementation in three years from now.
- «Combination of distant learning with classrooms», on the other hand, ranked second with an average rate of 81.51.
- «Open courses, free for certain courses or levels» has weighted average of 69.15 and
- «Classroom courses» reached the weighted average of 68.29.

The other answers scored less and gained these results:

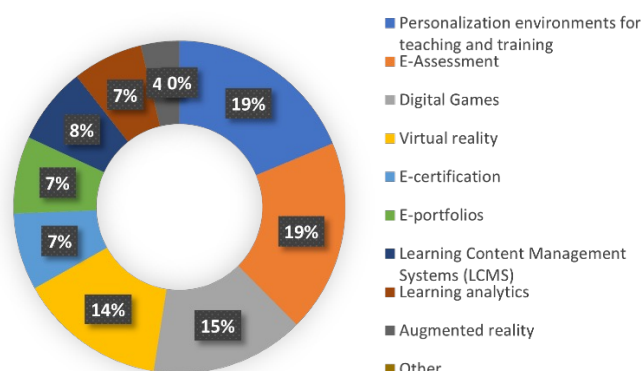
- «Integrative learning-transdiscipline thematic approach» (62.54),
- «Creative learning-manipulation of existing information and creation of real-world products» (61.96),
- «Distant learning, virtual classroom» (61.68),
- «Collaborative learning» (49.35)
- «Evaluative learning-student directed and diagnostic» with weighted average of 49.03



Which of the following ICT tools do you know?

With regards to the general knowledge of trainers/teachers about the digital tools available for class implementation, the most known digital tools are represented by

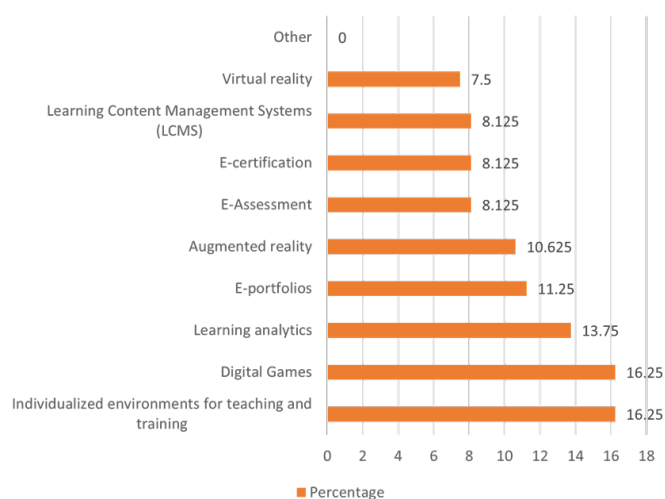
- «Personalization environments for teaching and training» (count of 30) and «E-Assessment» (count of 30),
- «Digital Games» (count of 24)
- «Virtual Reality» (count of 23), while the one which seems to be the outsider of the list is Augmented Reality. With moderate result, the



preferences have also been given to «Learning Content Management System (LCMS)», «Learning analytics» and «E-portfolios».

Please indicate which of the following ICT enabled transformations, schools can truly benefit from

In the chart we can see the different Information and Communications Technology tools that schools can truly benefit from. Among all possible answers the most of our participants chose the «Individualized environments for teaching and training» together with «Digital Games» with count of 26 (16%) for each. The second most preferred answer was «Learning analytics» with count of 22 (14%).



The less appreciated ICT tools, according to respondents, are «E-portfolios» (11%), «Augmented Reality» (10.6%), «E-Assessment» (8%), «E-certification» (8%), «Learning Content Management Systems» (LCMS) (8%) and «Virtual Reality» (7.5%).

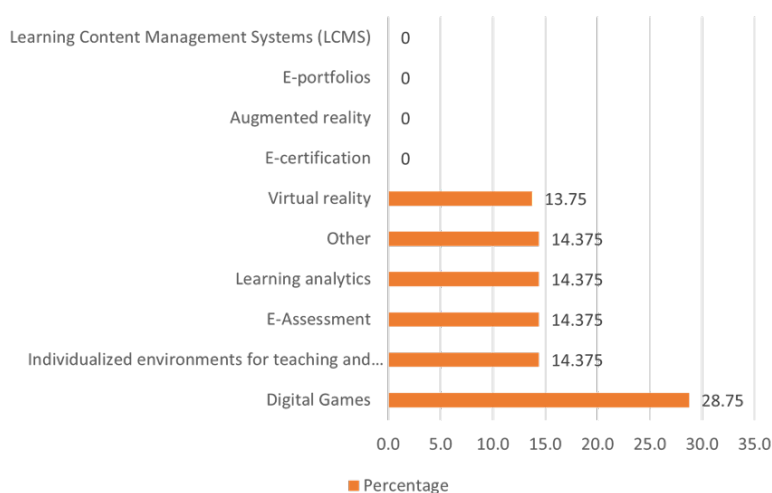
The high result of «Digital Games» can be explained by the fact that the system based on the digital learning games has a potential to influence students' school results and engagement.

Which tool do you already use?

The most used ICT tools in school are without any doubt «Digital Games» which received the count of 46 and 29%. The second position with count of 23 (14%) for each of them share:

«Individualized environments for teaching and training», «E-Assessment», «Learning analytics» and «Other», which respondents didn't specify.

One point less in count gained «Virtual reality» (22, 13.8%). Without any point remained «E-certification», «Augmented Reality», «E-portfolios», and «Learning Content Management Systems (LCMS)».

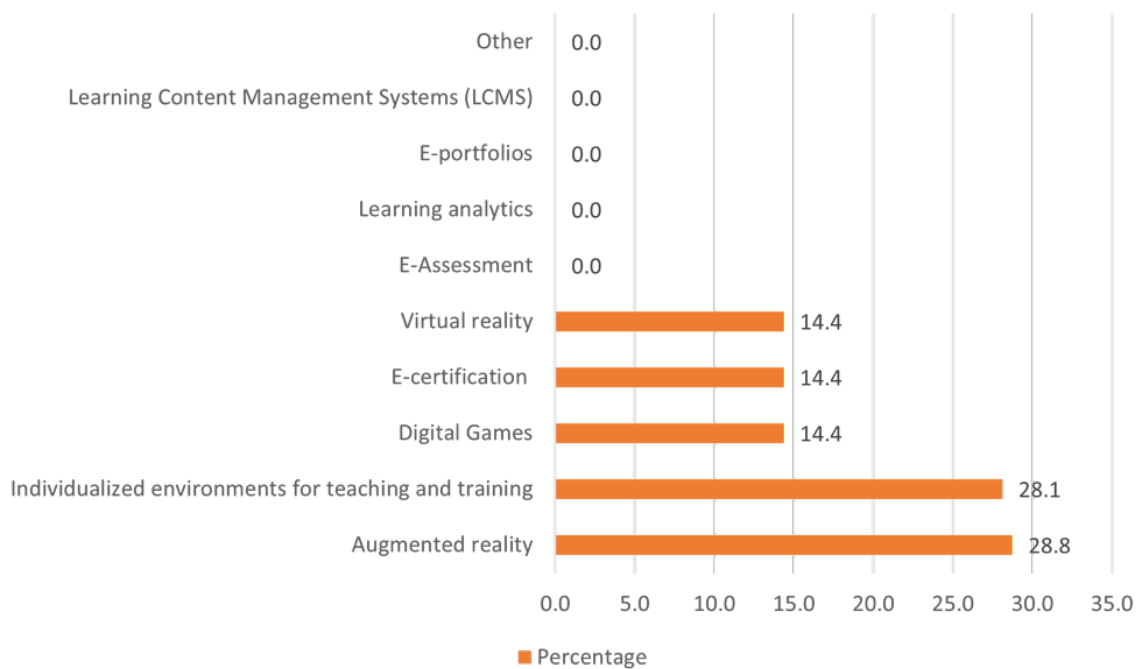


Which tool are you willing to introduce in your organization in 3 years from now?

Through this question we seek to understand which tools the respondents are willing to introduce in the next years:

- «Augmented Reality» with count of 46 and 28.8% was little more successful than
- «Individualized environments for teaching and training» received the count of 45 and 28.1%;
- equally all ranked on the third position: «Digital Games», «E-certification» and «Virtual Reality» as they received the same count of 23 and 14.4%.
- «E-Assessment», «Learning analytics», «E-portfolios» and «Learning Content Management Systems (LCMS)» did not receive any vote from the respondents.

One point less in count gained «Virtual reality» (22, 13.8%). Without any point remained «E-certification», «Augmented Reality», «E-portfolios», and «Learning Content Management Systems (LCMS)».



For the ICT transformations discussed above, how would you implement that?

The table below shows us how respondents plan to introduce those ICT transformations discussed above.

The **57.5 % of the respondents stated that schools will be equipped with the ICT tools for digital learning in three years from now**. This data is interesting and very promising as the schools are willing to invest in ICT tools for their school offer to facilitate the students' engagement in the learning process. They partially rely on the help of ministry to provide the tools.

The table also shows that **schools do not rely on companies' support in doing so**, as none of the respondents stated that companies will offer these tools to schools through sponsorship programs or similar ways, nor they expect students to bring at school their own hardware.

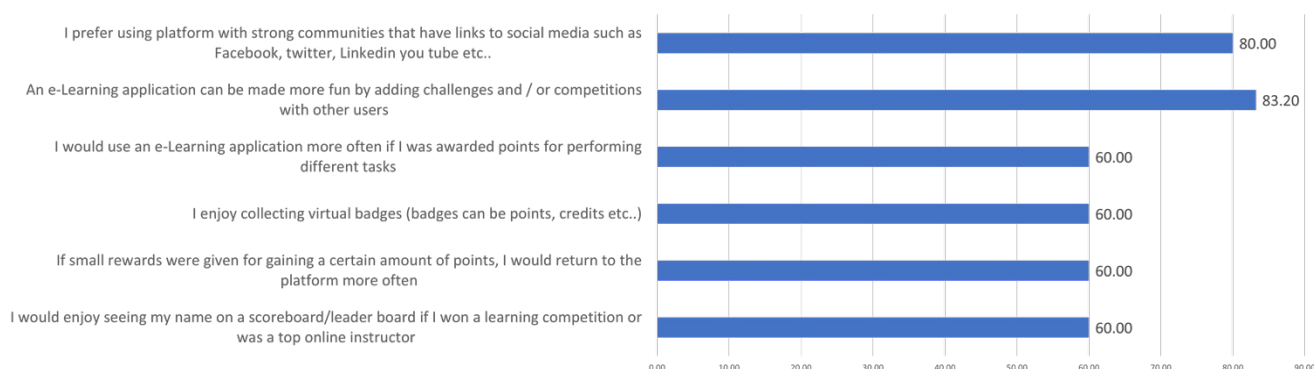
| Answers | Count | % |
|--|-------|--------|
| The school will be equipped with all tools | 92 | 57.5 |
| Ministry will provide all tools | 45 | 28.125 |
| The school is equipped | 23 | 14.375 |
| Students are expected to bring at school their own hardware | 0 | 0 |
| Sponsor Companies would offer the tools to school and students by sponsorship programs or similar ways | 0 | 0 |

Have you ever used an e-Learning Platform in your courses?

When asked about the use of an e-Learning platform by the respondents in their courses, 71.25% of the respondents (count of 114) affirm that they have used an e-learning platform for their course implementation. The rest of them have never used an e-learning platform. ICT tools and e-Learning Platform are slowly entering the school systems in Europe.

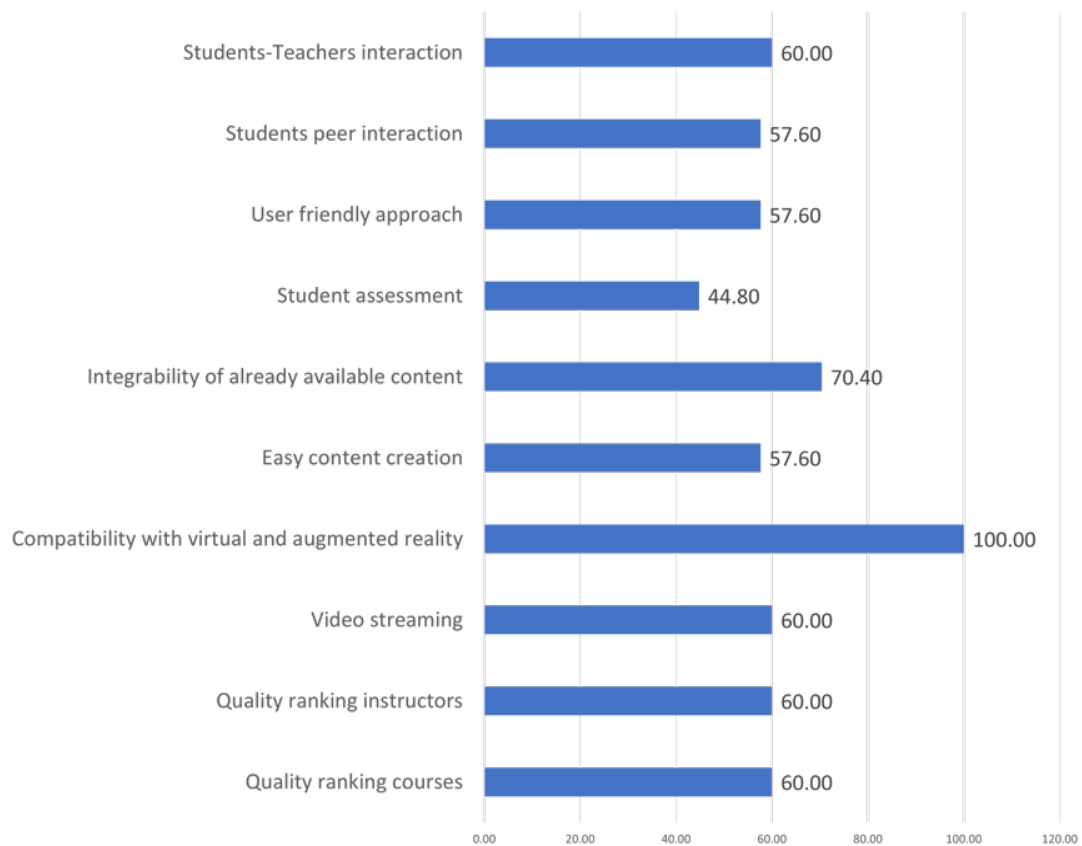
In case you use e-Learning platform as a teacher/instructor, please rate the following statement

Among the teachers/instructors who use an e-Learning platform, the most rated answer supports the idea that adding fun with challenges and/or competitions to the platform will make it more attractive for the users. Also, the possibility of linking the communities with the social media seems to support the idea of making the e-platform more attractive for the final users.



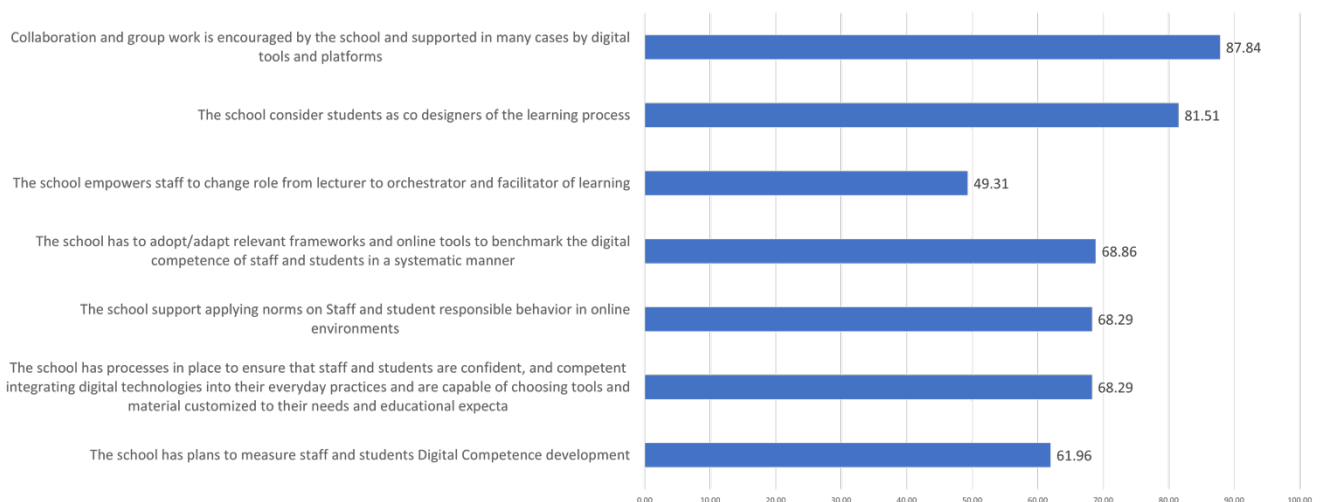
What functionalities do you consider important for an e-Learning platform?

For what concerns the most important functionality for a platform, respondents affirmed that the «Compatibility with virtual and augmented reality» (average score 100.00) is of key importance. It is followed by the «Integrability of already available content» with average score 70.40. «Quality ranking courses», «Quality ranking instructors», «Video streaming» and «Students-Teachers interaction» received all the same weighted average of 60.00 and ranked on the third position.



What practices do you consider important in teaching and learning?

We wanted to know from the respondents what practices they considered important in teaching and learning. We asked them to rate the statements from 1 to 4, when 1 stand for «not important», 2 for «less important», 3 for «important» and 4 for «very important». As a statistical method we used the comparison of the answers with the weighted average.



The result we have got shows that the most preferred answer is «Collaboration and group work is encouraged by the school and supported in many cases by digital tools and platforms». It gained the weighted average of 87.84. On the second position ranked «The school considers students as co designers of the learning process» with average result of 81.51. The third most preferred one, with the weighted average of 68.86 is «The school has to adopt/adapt relevant frameworks and online tools to benchmark the digital competence of staff and students in a systematic manner». «The school supports applying norms on Staff and student responsible behaviour in online environments» and

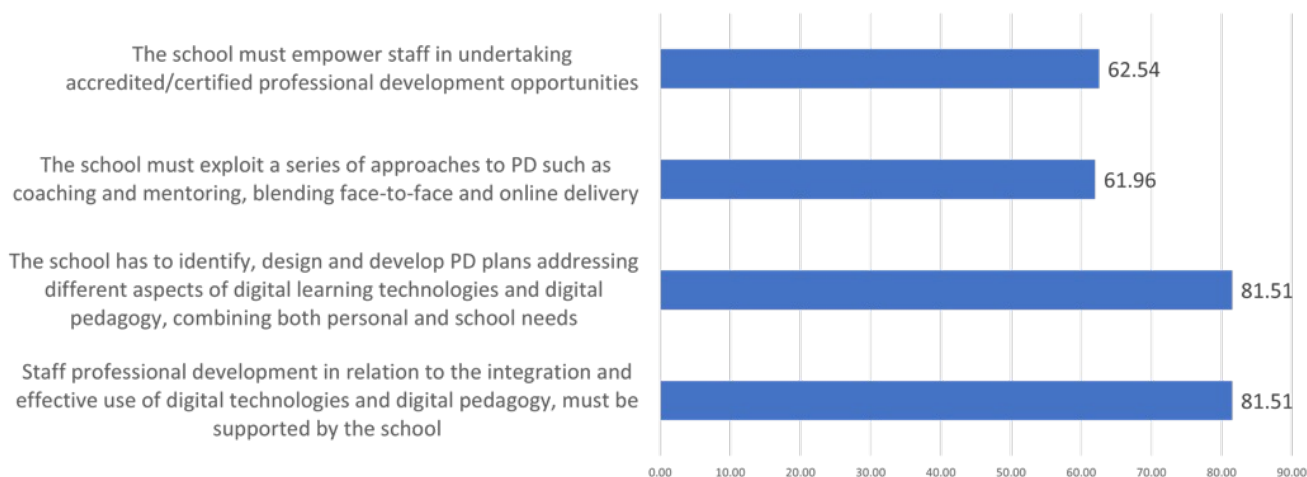
«The school has processes in place to ensure that staff and students are confident, and competent integrating digital technologies into their everyday practices and are capable of choosing tools and material customized to their needs and educational expectations» gained equally the weighted average of 68.29.

In general, we can say that the most important part is the «Collaboration, group work and giving students the chance to actively contribute to the learning process». The technical skills and having the «framework and online tools to support the activities, applying the norms for responsible behaviour in online environments and competencies of students and teachers» resulted as important, too. Just a little less important seems to be «measuring staff and students Digital Competence development» (weighted average of 61.96). As the least important according to the respondents is that «the school empowers staff to change role from lecturer to orchestrator and facilitator of learning» (weighted average of 49.31).

Ratings of the statements regarding Teachers' Professional Development

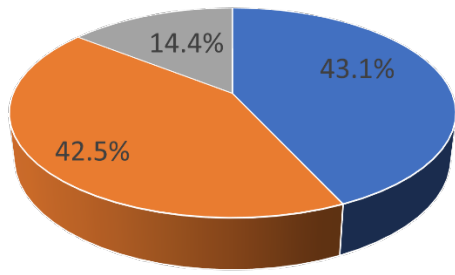
Our respondents were asked to rate from 1 to 4 (1: «don't agree», 2: «partially agree», 3: «agree», 4: «totally agree») the statements regarding Teachers' Professional Development (PD). As the most important statements resulted two statements with equal weighted average of 81.51 each: «The school has to identify, design and develop PD plans addressing different aspects of digital learning technologies and digital pedagogy, combining both personal and school needs» and «The Staff professional development in relation to the integration and effective use of digital technologies and digital pedagogy, must be supported by the school».

On the second position ranked statement with weighted average of 62.54 is «The school must empower staff in undertaking accredited/certified professional development opportunities» and on the third position with weighted average of 61.96 belongs to the opinion that «The school must exploit a series of approaches to PD such as coaching and mentoring, blending face-to-face and online delivery».



Did you face marginalisation issues for teachers because of lack of skills and/or equipment during the Covid-19 pandemic?

The recent events in our society caused by the pandemic of Covid-19 significantly impacted the world of education. We asked the respondents whether they faced marginalisation issues for teachers because of lack of skills and/or equipment during the Covid-19 pandemic. Their replies offered very equilibrated result.



■ Yes, definitely ■ Not at all ■ Other

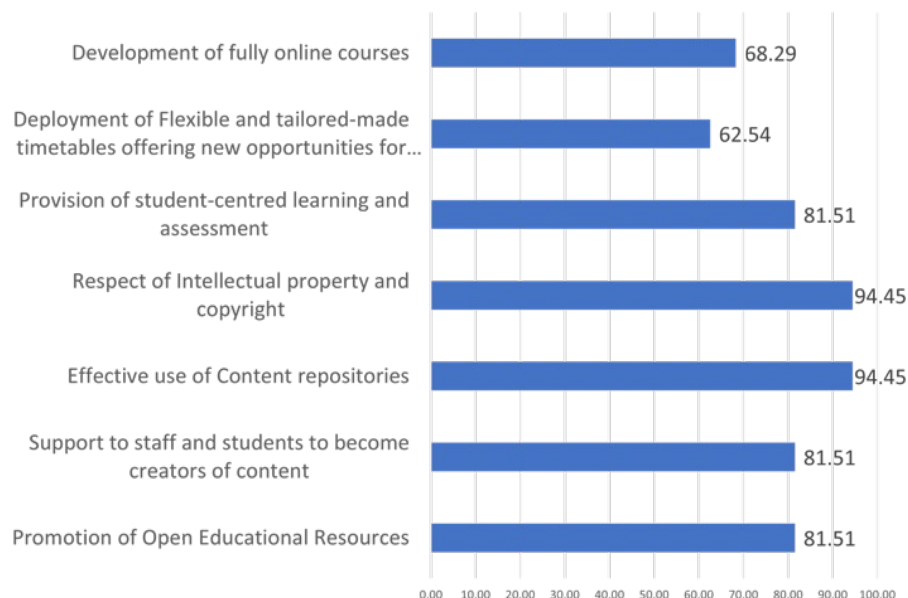
- “Yes, definitely” received the count of 69 and 43.1%
- “Not at all” gained the count of 68 which is 42.5%.

There were 23 of those who answered with the option “Other” (14.4%) but did not leave any further comment to this topic.

Which of the following elements should be considered in a post-Covid curriculum?

When we asked this question to the respondents, we offered them the statements to rate from 1 to 4, when 1 goes to «not important», 2: «less important», 3: «important» and 4: «very important». Their answers were calculated into a weighted average each statement received, a value which allows us to compare the preferences given. We have received these results:

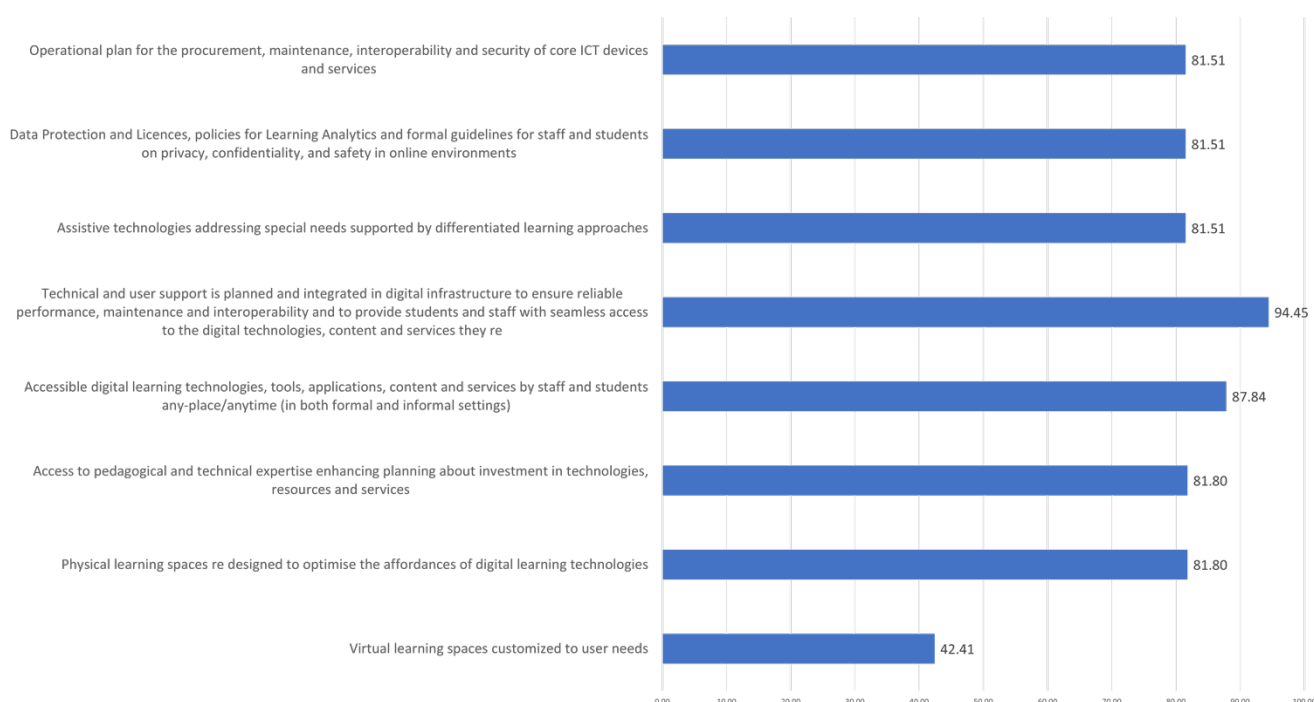
- On the first rank with weighted average of 94.45 are two statements: «Respect of Intellectual property and copyright» and «Effective use of Content repositories»,
- «Provision of student-centred learning and assessment», «Support to staff and students to become creators of content» and «Promotion of Open Educational Resources» gained weighted average of 81.51 each and got on the second position,
- the third rank belongs to «Development of fully online courses» with weighted average of 68.29,
- and finally the last among the statements ranked «Deployment of Flexible and tailored-made timetables offering new opportunities for ubiquitous learning» gained the average rate 62.54.



What infrastructure you consider important in a school's digital environment?

The participants of the survey gave us their opinions on what digital infrastructure do they think is crucial for a school. We asked them to give the rates to each statement from 1 to 4, when 1: «not important», 2: «less important», 3: «important», 4: «very important», and compared weighted average of each statement.

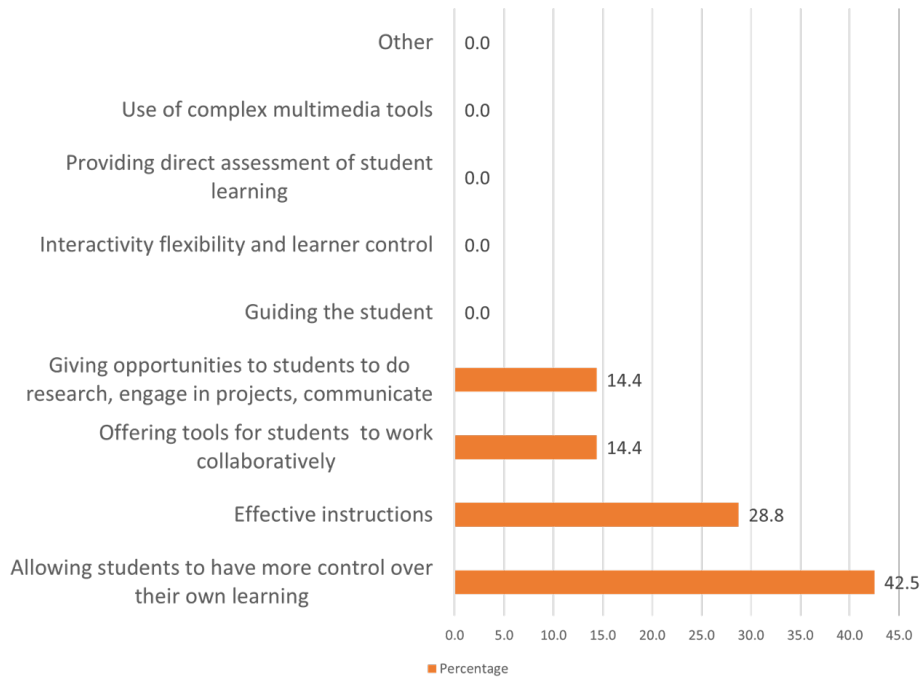
The most popular choice gained the weighted average of 94.45 is «Technical and user support is planned and integrated in digital infrastructure to ensure reliable performance, maintenance and interoperability and to provide students and staff with seamless access to the digital technologies, content and services they require». The second most chosen statement was the «Accessible digital learning technologies, tools, applications, content and services by staff and students any-place/anytime (in both formal and informal settings)» with weighted average of 87.84. On the other side of the spectrum ranked the least preferred statement with weighted average of 42.41 is «Virtual learning spaces customized to user needs».



What makes a school course effective in your opinion?

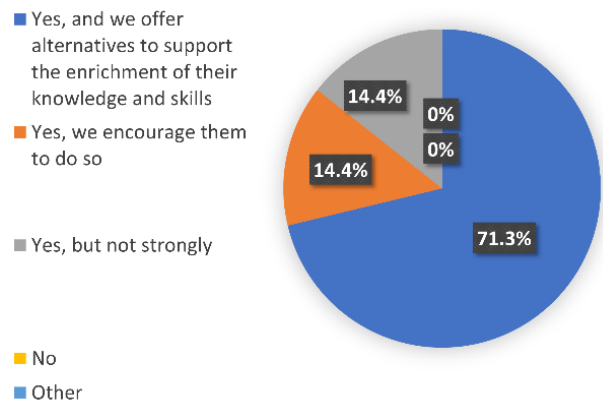
This question investigates about the most effective methodologies for course implementation, courses effectiveness and if they guide the students into their learning process. 42.5% of votes have been given to the possibility of «Allowing students to have more control over their own learning». The second appreciated answer is related to the fact that a course needs to have «Effective instructions» (28.8%) and, the third, to «Offer tools for students to work collaboratively» and «Giving them opportunities to do research, engage in projects, communicate» (14.4% each).

The options which seem not to influence the effectiveness of the courses are related to «Guiding the student», «Interactivity flexibility and learner control», «Providing direct assessment of student learning” and «Use of complex multimedia tools».



Do you propose engagement of extra activities to your students?

The learning engagement of students into extra school activities through ICT tools is encouraged by the entities working into the school education system while offering them alternatives to support the enrichment of their knowledge and skills (71.3%). 14% of the respondents declare to encourage them and the same number of respondents do it but not strongly. No one denies doing so and no extra comment was received to this question of the survey.

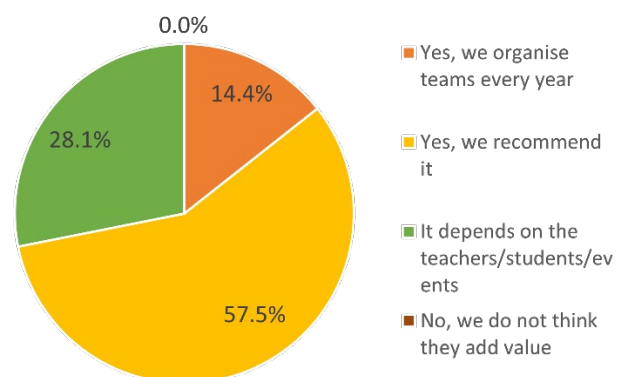


Do you think contests/challenges for your students are useful (innovation, design, IT etc.)?

About student engagement, the graph shows that contests and challenges through ICT tools can facilitate teachers and instructors into their courses' implementation.

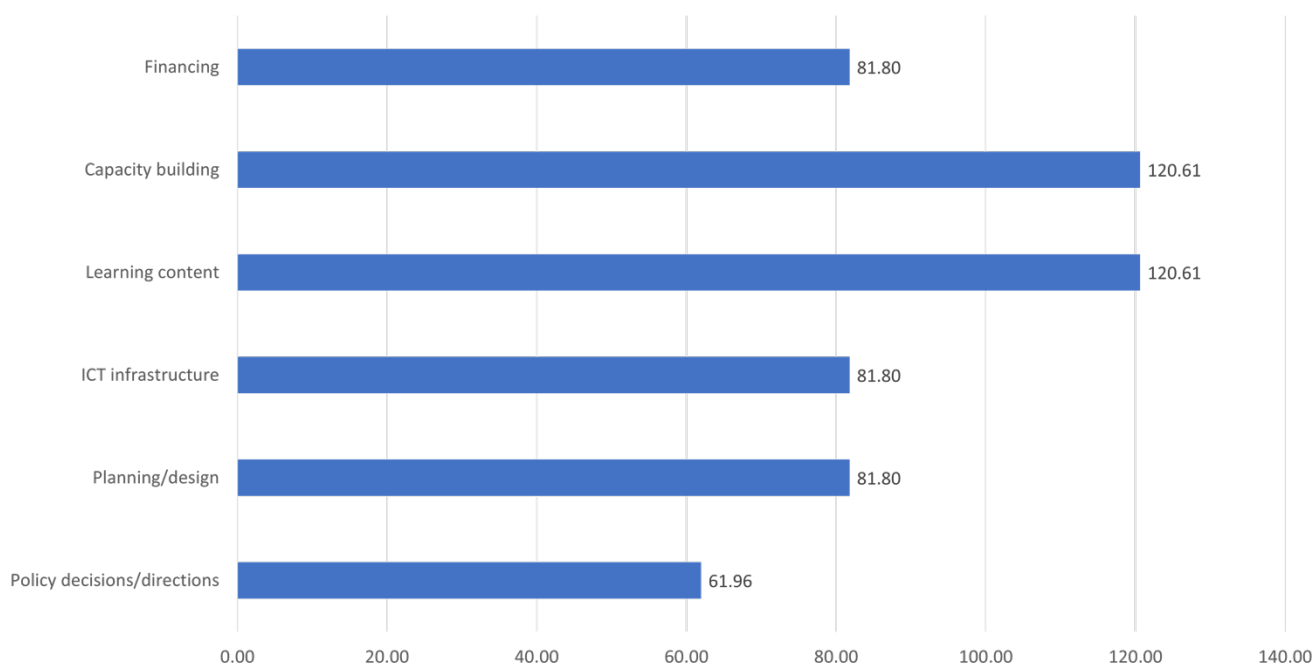
Answers to this question tells that **teachers and instructors recommend to their schools' contest and challenges to support the students into their learning process (57.5%)** and **organise teams every year (14.4%)**.

Teachers and instructors also claim that the usefulness depends on the teachers, students and events (28.1%). The respondents believe in the good influence of contests and challenges which is also shown in the zero votes for a negative response.



Which key factors/challenges do you consider important in ICT related excellence in school education system?

This question provides a deep understanding of the factors and challenges that are considered relevant in the digitalization process of the school system. The most crucial factor for respondents is the necessity to have «Capacity building» and «Learning content» (both of average rate 120.61). Without them it is not possible to exploit the potential of digital education. The second challenge is related to the availability of «financing» (weighted average of 81.80), equally important is «ICT infrastructure» and «planning/design», with the same average rate. «Policy decisions/directions» according to the respondents have the smallest impact which resulted into weighted average of 61.96.



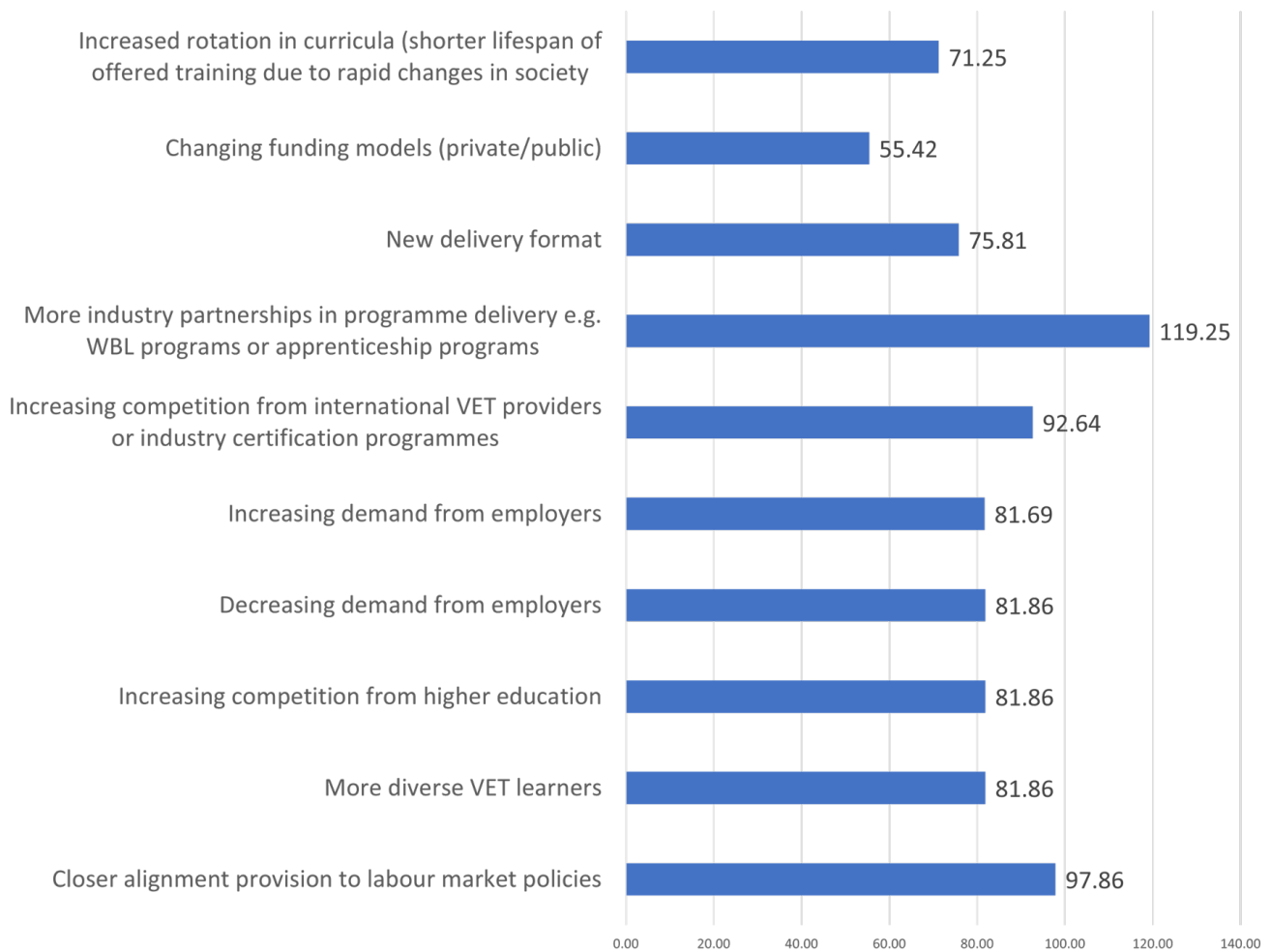
2.4 Vocational Education and Training

What do you think will shape VET in 3 years now?

This section has an ambition to reveal **which type of changes the Vocational sector will face**, according to the respondents, in 3 years. The question analysed different issues which were rated from 1 to 4, i.e., from the least likely to happen to very probable.

The most rated issues, as very probable to happen, are:

- «More industry partnerships in programme delivery e.g. WBL programs or apprenticeship programs» (weighted average of 119.25),
- «Closer alignment provision to labour market policies (weighted average of 97.86)» and
- «Increasing competition from international VET providers or industry certification programmes» (weighted average of 92.64).

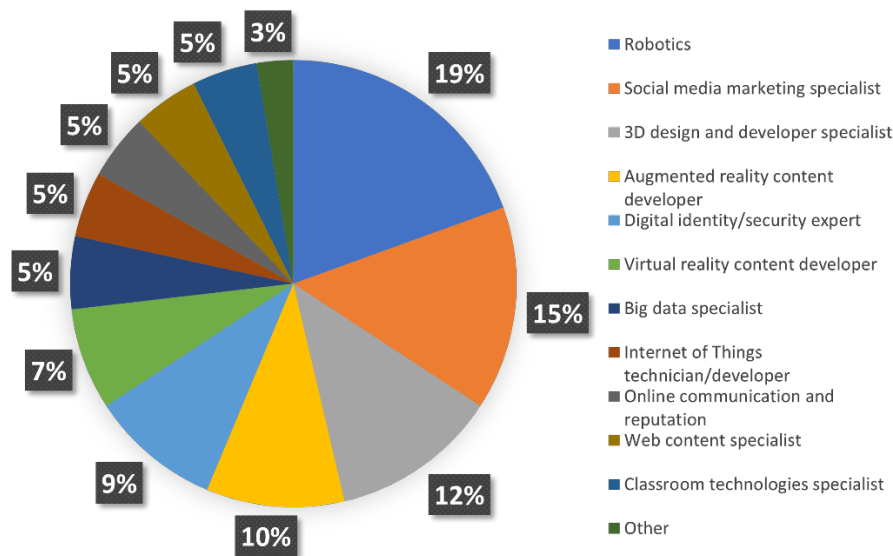


These results show that **most of the respondents consider highly probable that in 3 years from now VET will increase its relations with industry through WBL and apprenticeships**, as well as they do for closer alignment provision to labour market policies and «Increasing competition from international VET providers or industry certification programmes».

It is also interesting to analyse which of the issues were considered the least likely to happen: «Changing funding models (private/public)» with the weighted average of 55.42 and «Increased rotation in curricula - shorter lifespan of offered training due to rapid changes in society» with the weighted average of 71.25.

What are the future professions that you plan/consider to be included in your training offer over the next 3 years?

Regarding the professions that respondents consider implementing in the near future, the highest percentage of results are for «Robotics» (count of 37, 19.5%), «Social media marketing specialist» (count of 28, 14.7%) and «3D design and developer specialist» (count of 23, 12.1%). Follows «Augmented Reality content developer» with 10%, «Digital identity/security expert» with 9.5%, «Virtual Reality content developer» with 7.4%, «Big data specialist» with 5.3%, «Internet of Things technician/developer», «Online communication and reputation», «Web content specialist and Classroom technologies specialist», all four with the same percentage of 4.7. Some respondents (2.6%) chose the option «Other», but did not specify this choice.



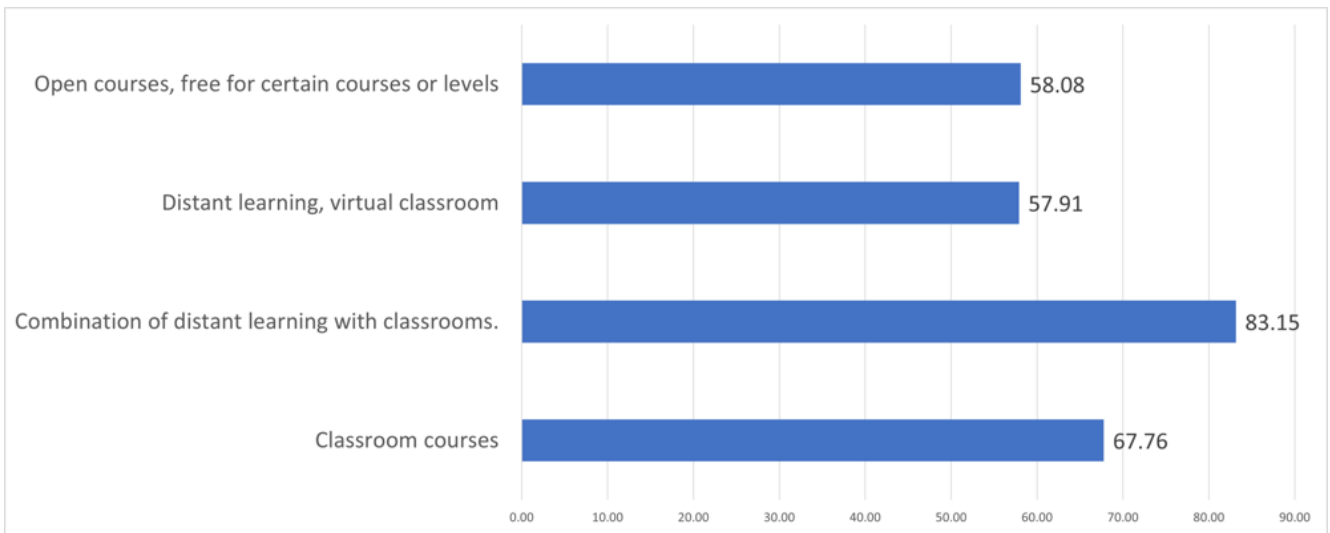
Which methodology do you use for your courses implementation?

The question was meant to understand which type of teaching methodology is used the most. As you can see in the table below, «Combination of distant learning with classroom» is the most used method for teaching in VET. It is followed by the «Open courses, free for certain courses or levels», while only 13.2% respondents have chosen «Distant learning, virtual classroom». 20% of respondents chose the option «Other» but did not leave any further comment.

| Answers | Count | % |
|--|-------|------|
| Combination of distant learning with classrooms | 89 | 46.8 |
| Open courses, free for certain courses or levels | 38 | 20.0 |
| Other | 38 | 20.0 |
| Distant learning, virtual classroom | 25 | 13.2 |

Which methodology for your courses implementation you will take into consideration to implement in 3 years from now?

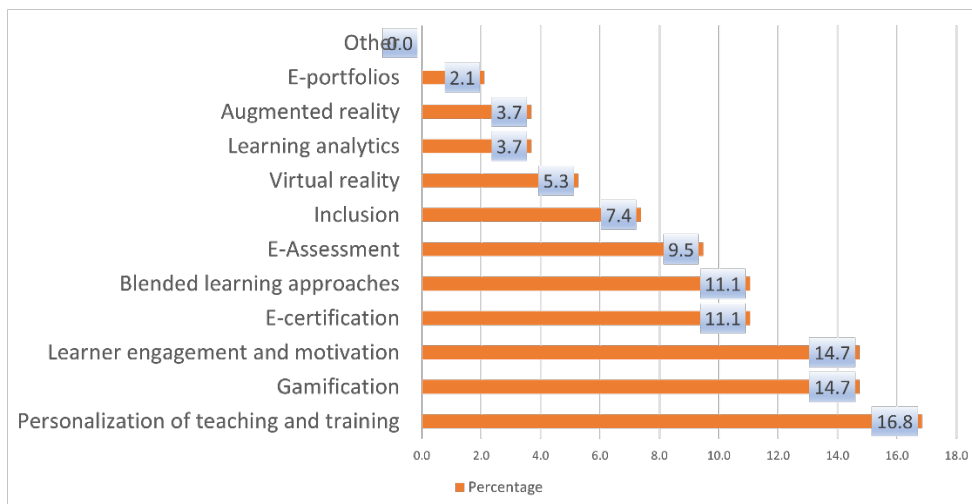
Respondents were also asked to choose which methodology they would like to implement in the future, in comparison with the one they are using today. Most of the results, gathered through a rating between 1 to 4, (where 1 is for «not interested» and 4 is for «very interested»), have been collected for the «combination of distant learning with classroom activities». This rate clearly shows that respondents are willing to improve their teaching methodology towards a more “distant teaching” method. However, the second most preferred methodology is «Classroom courses», which suggests that the direct contact between students and teachers is still needed.



In the following question we analysed ICT tools and how these affect VET. First, we have asked respondents to express which ICT tools do they already know.

Which of the following ICT tools do you know?

The most voted answer is «Personalization of teaching and training» with 16.8% (count of 32), follow «Gamification» and «Learner engagement and motivation» each with 14.7% (count of 28 each) and «E-certification» and «Blended learning approaches» with 11.1% and count of 21 each. The chart below summarizes the answers.



Please indicate which of the following ICT enabled transformations, VET can truly benefit from

ICT transformation can be beneficial to the VET sector. The participants indicated which of the following transformations triggered by ICT, VET can truly benefit from. As you can see below in the table the most voted ones are these: «Personalization of teaching and training» (15.8%), «Gamification» (14.2%) and «Blended learning approaches (13.2%). The table below shows the complete summary of the answers.

| Answers | Count | % |
|--|-------|------|
| Personalization of teaching and training | 30 | 15.8 |
| Gamification | 27 | 14.2 |
| Blended learning approaches | 25 | 13.2 |
| Learner engagement and motivation | 21 | 11.1 |
| E-Assessment | 15 | 7.9 |
| E-certification | 15 | 7.9 |
| Inclusion | 15 | 7.9 |
| Augmented reality | 15 | 7.9 |
| Learning analytics | 12 | 6.3 |
| Virtual reality | 9 | 4.7 |
| E-portfolios | 6 | 3.2 |
| Other | 0 | 0.0 |

Which tool do you already use?

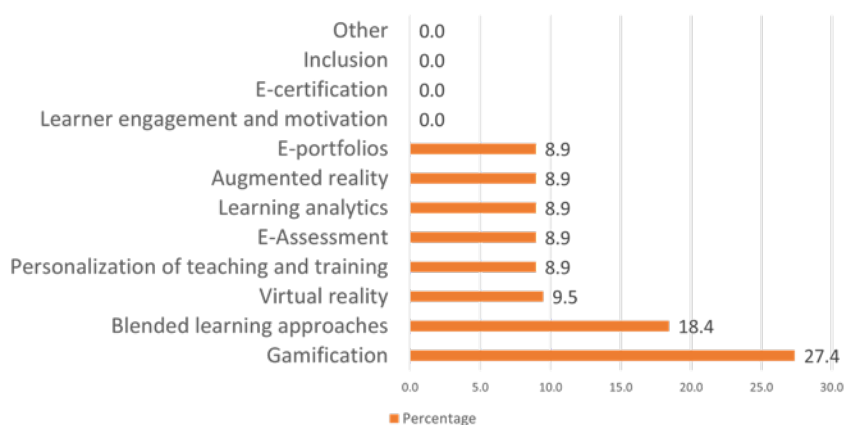
These results are linked to the next question, which investigates the type of tools do respondents already use. Results show that the most used tool is «Personalization of teaching and training» together with «Gamification», which in the previous question received highest votes, too. On the other hand, «E-Assessment» which scored average in the previous question, now ranked on the highest position as well with 27.4%. The next most preferred tools are «Learner engagement and motivation» and «Blended learning approaches» received significantly less preferences - 8.9% each. Thanks to this question, we can also see that the respondents do not use «E-certification», «Inclusion», «Learning analytics», «Virtual Reality», «Augmented Reality», or «E-portfolios».

| Answers | Count | % |
|--|-------|------|
| Personalization of teaching and training | 52 | 27.4 |
| Gamification | 52 | 27.4 |
| E-Assessment | 52 | 27.4 |
| Learner engagement and motivation | 17 | 8.9 |
| Blended learning approaches | 17 | 8.9 |
| E-certification | 0 | 0.0 |
| Inclusion | 0 | 0.0 |
| Learning analytics | 0 | 0.0 |
| Virtual reality | 0 | 0.0 |
| Augmented reality | 0 | 0.0 |
| E-portfolios | 0 | 0.0 |
| Other | 0 | 0.0 |

Which tool are you willing to introduce in your organization in 3 years from now?

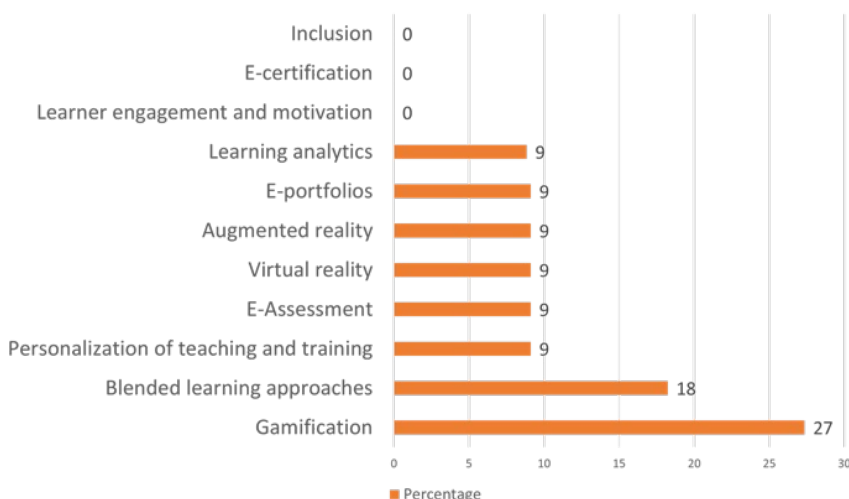
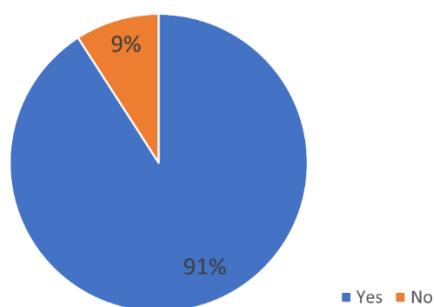
«Gamification» resulted as the most considered tool to be used by the respondents in their organisations in 3 years from now. It reached 27.4%. The next most successful answer was «Blended learning approaches» (18.4%) and «Virtual reality» (9.5%).

Equally with 8.9 % each follow «Personalization of teaching and training», «E-Assessment», «Learning analytics», «Augmented reality» and «E-portfolios».



Have you ever used an e-Learning platform in your courses?

We were more specific in our next question to the respondents when we asked them whether they have ever used an e-Learning Platform in their courses or not. We were pleased to learn that 91% of our respondents affirmed that they are using it, while 9% affirmed not to use it.

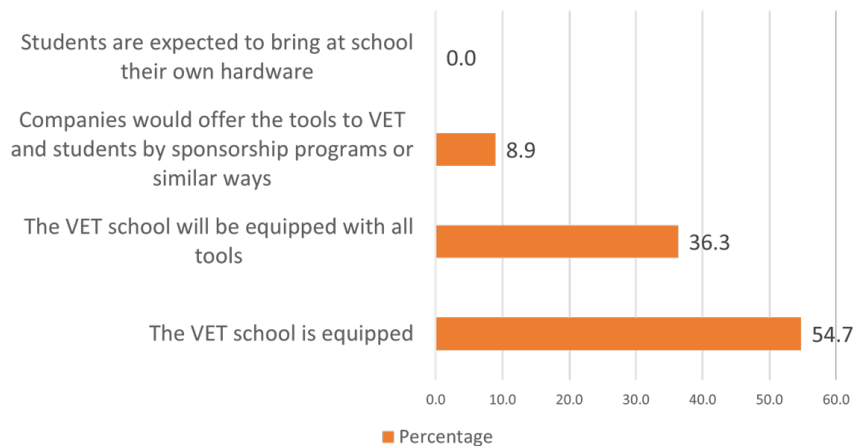


Finally, we also asked the respondents **which tool they were willing to introduce in 3 years from now**. These results demonstrate that the most interesting tool for them is «Gamification» (102 preferences). Quite far behind the first one ranked «Blended learning approaches» (68 preferences). Here we can note that some tools as «Learner engagement and motivation», «E-certification» or «Inclusion» are still not in the plans of respondents.

For the ICT enablers discussed above, how would you implement that?

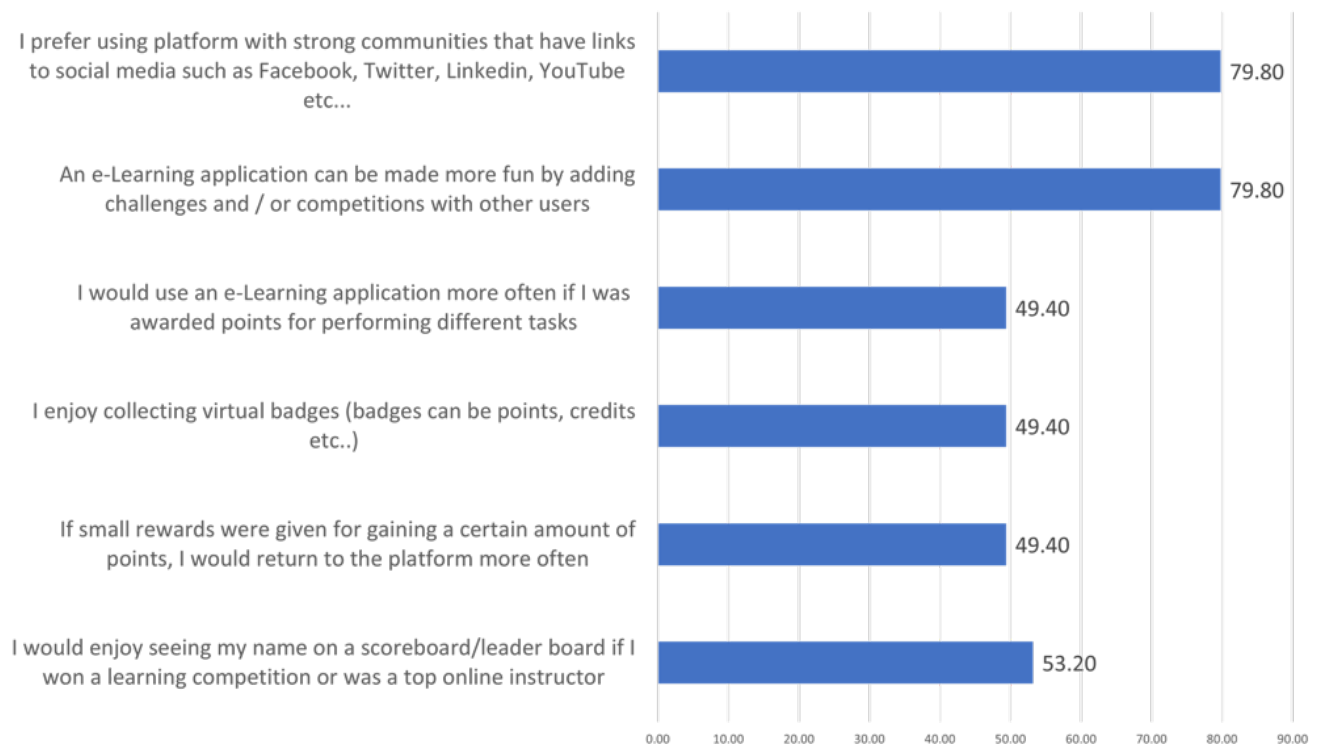
We have also asked the respondents how they would implement the ICT tools that they are willing to introduce, trying to understand which needs they will face soon.

- 54.7% declared that «the VET school is equipped»,
- while the 36.3% affirmed that «The VET school will be at that time equipped with all tools»,
- and 8.9% rely on the help of companies to sponsor the implementation of ICT tools «by sponsorship programs or similar ways».
- No respondent affirmed that «Students should bring their own hardware».



Use of the e-Learning platforms by teachers/instructors

Those that are using e-learning platforms were asked also to rate some statements concerning the use of the platform.



The results show that most of the respondents prefer using those «platforms, which allow users to build up a strong community through social media». The same result (weighted average of 79.80) belongs also to the answer that «An e-Learning application can be made more fun by adding challenges and / or competitions with other users».

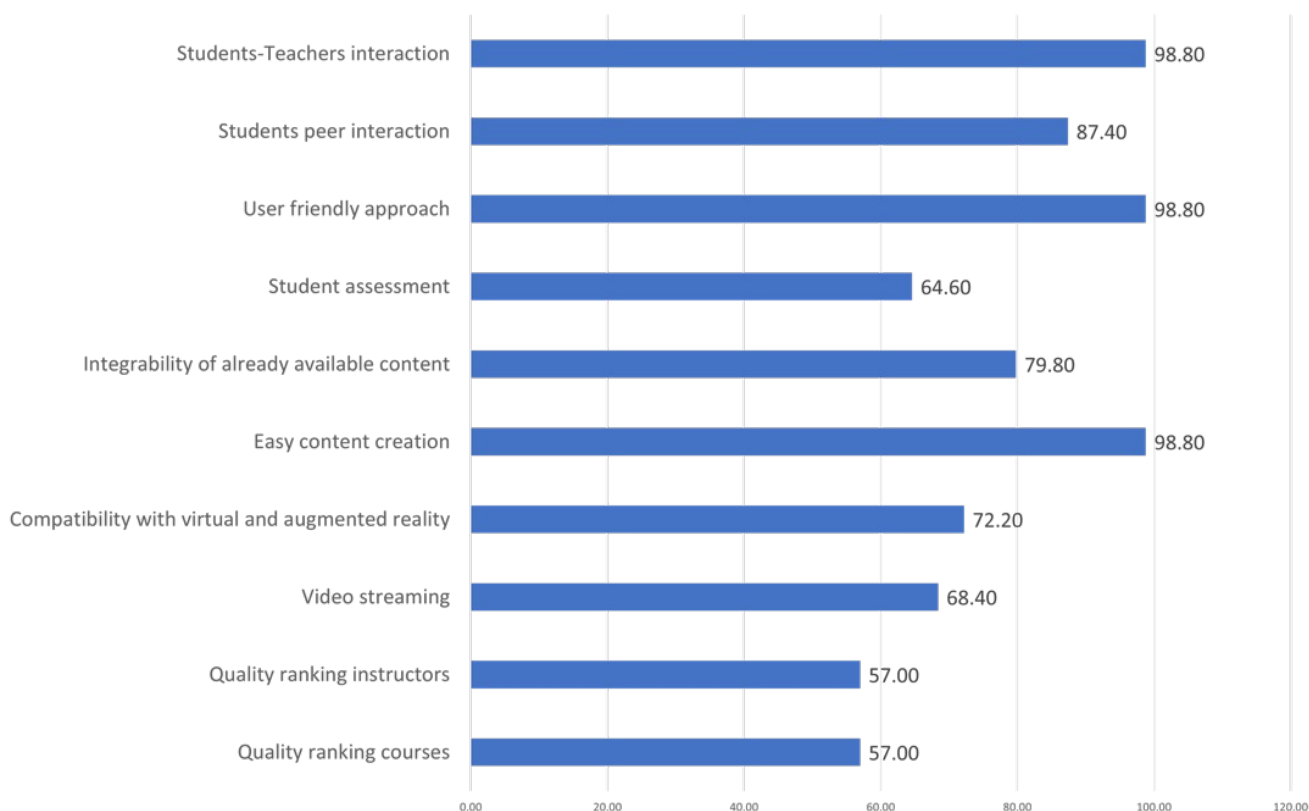
The second most appreciated statement with weighted average of 53.20 was «I would enjoy seeing my name on a scoreboard/leader board if I won a learning competition or was a top online instructor». Three other answers got the same weighted average of 49.40: «I would use an e-Learning application more often if I was awarded points for performing different tasks», «If small rewards were given for gaining a certain amount of points, I would return to the platform more often» and «I enjoy collecting virtual badges (badges can be points, credits etc..)».

Which functionalities you consider important in an e-Learning platform?

The functionalities that respondents consider the most important on a e-learning platform are these:

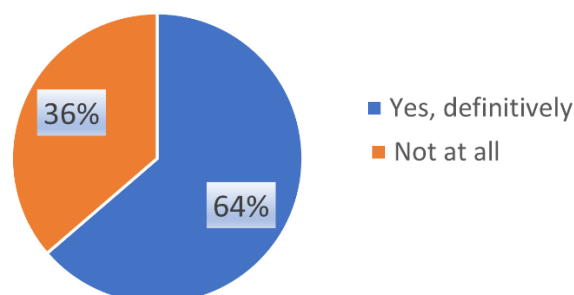
- «Easy content creation», «User friendly approach» and «Students-Teachers interaction» (weighted average of 98.80),
- «Students peer interaction» (weighted average of 87.40),
- «Integrability of already available content» (weighted average of 79.80).

On the other hand, those features considered to be the least important are Quality ranking instructors and Quality ranking courses. Both got weighted average of 57.



Did you face marginalisation issues for trainers and/or trainees because of lack of skills and/or equipment during the pandemic?

As in the previous sections also here we wanted to know how much the Covid-19 pandemic impacted the VET sector. We asked the respondents whether they did or did not experience marginalisation issues for trainers and/or trainees due to a lack of skills and/or equipment during the pandemic. As



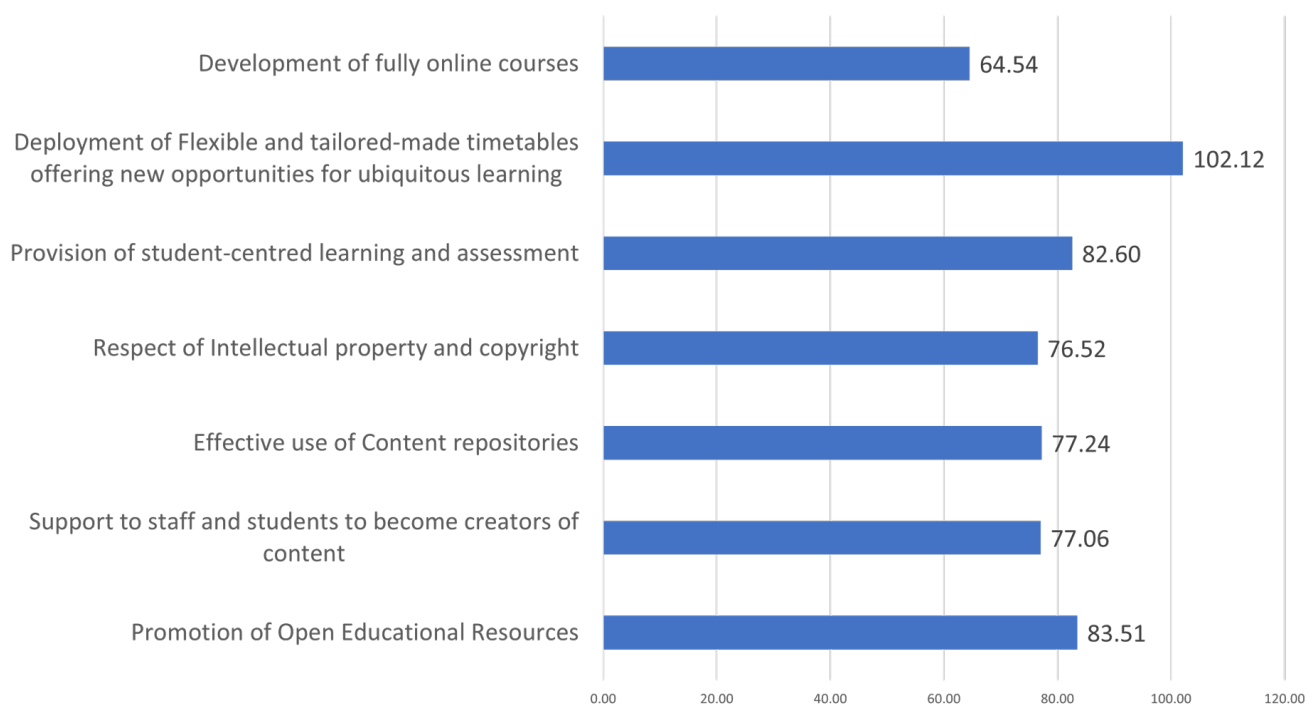
we could have expected, neither this sector remained immune to these issues. A little less than two thirds of participants replied with «Yes, definitively», while just a bit more than one third said «Not at all».

Which of the following elements should be considered in a post-Covid curriculum?

Here the respondents gave us their opinions on the question which of offered elements should be considered in a post-Covid curriculum. They rated them from 1 to 4 (1: «not important», 2: «less important», 3: «important», 4: «very important») and their votes made it possible for us to see through weighted average the most popular ones.

The most preferred one with the highest weighted average of 102.12 was the «Deployment of Flexible and tailored-made timetables offering new opportunities for ubiquitous learning». On the second position with weighted average of 83.51 ranked «Promotion of Open Educational Resources». «Provision of student-centred learning and assessment» gained the weighted average of 82.60 and takes the third position.

The least voted option, «Development of fully online courses», received the weighted average of 64.54.



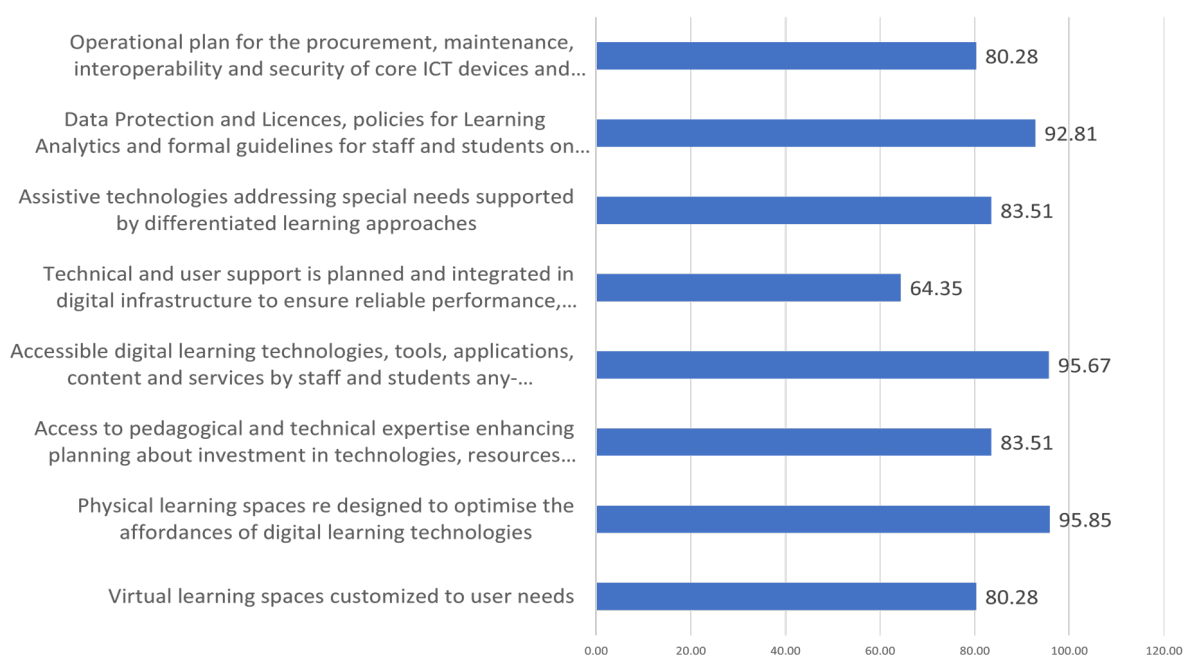
What infrastructure you consider important in a VET's digital environment?

We looked closely at the infrastructure which the participants of the survey take in account in a VET's digital environment. With their ratings from 1: «not important» to 4: «very important» using the value of weighted average received by the statements we can say the following:

- the most favourite infrastructures, with weighted average of 95.85, is «Physical learning spaces redesigned to optimise the affordances of digital learning technologies».
- With the slight difference and the weighted average of 95.67 on the second position ranked «Accessible digital learning technologies, tools, applications, content and services by staff and

students any-place/anytime» (in both formal and informal settings).

- As the third most important for our respondents is «Data Protection and Licences, policies for Learning Analytics and formal guidelines for staff and students on privacy, confidentiality, and safety in online environments» (weighted average of 92.81).
- The fourth rank share two answers with the weighted average of 83.51 each, «Assistive technologies addressing special needs supported by differentiated learning approaches» and «Access to pedagogical and technical expertise enhancing planning about investment in technologies, resources and services».
- The fifth position belongs to «Operational plan for the procurement, maintenance, interoperability and security of core ICT devices and services» and «Virtual learning spaces customized to user needs» (weighted average of 80.28 for each).
- The last, sixth, position got, with the result of 64.35, «Technical and user support is planned and integrated in digital infrastructure to ensure reliable performance, maintenance and interoperability and to provide students and staff with seamless access to the digital technologies, content and services they require».



The last group of questions addresses the role of VET in the labor market and the use of apprenticeship in VET. As the first we asked what makes a VET course effective.

What makes a VET course effective?

| Answers | Count | % |
|--|-------|------|
| It has a well-structured work-based learning programme | 104 | 54.7 |
| Is highly recognised by employers and the students to find quickly good jobs | 34 | 17.9 |
| Directed to re-skilling | 18 | 9.5 |
| The instructors are well-known experts in their field | 17 | 8.9 |
| It encompasses an apprenticeship period | 17 | 8.9 |
| Attracts “academically good” students | 0 | 0.0 |
| Other | 0 | 0.0 |

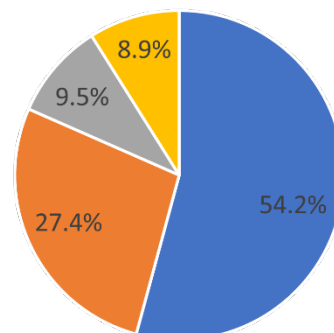
As showed in the results, the success key for a VET course is the presence of a «well-structured work-based learning programme», followed by being «highly recognised by employers and the students to find quickly good jobs». The third most appreciated is the structure addressed to «re-skilling», «the instructors who are well-known experts in their field» and «the presence of an apprenticeship period». On the other hand, the potential to attract «academically good» students is recognised not so important.

Do you offer apprenticeship in your courses?

The graph shows the percentage of respondents that offer apprenticeship in their courses – 54.2%, and those who offer apprenticeship but only in some cases – 8.9%.

A little more of them are not interested in offering apprenticeship at all. 27.4% of respondents affirmed that they do not but would like to run them soon.

- Yes, we have several apprenticeship programmes
- No, but we would like to run them soon
- No, we are not interested in it at all
- Yes, but we have only some cases



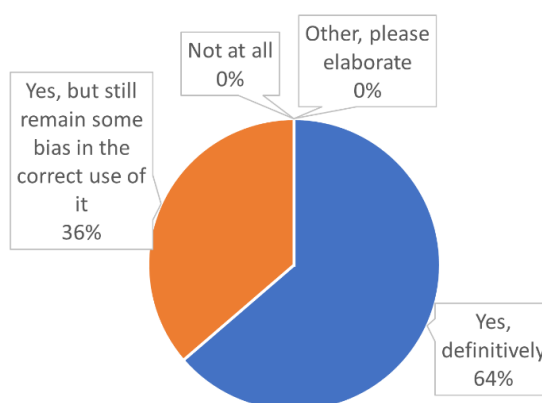
What is the added value you see from apprenticeship?

| Answers | Count | % |
|---|-------|------|
| Connection to the job market | 121 | 63.7 |
| Hands-on experience | 52 | 27.4 |
| There is no specific value for the VET courses we offer | 17 | 8.9 |
| Feedback from employees that is translated into our curricula | 0 | 0.0 |

The added value that respondents see in apprenticeship is the «Connection to the job market». «Hands-on experience» that learners can acquire is the second most voted. 9% of the respondents claim that «There is no specific value for the VET offered courses». And the last position belongs to the «Feedbacks from employees that can be used in the curricula». This one did not receive any vote.

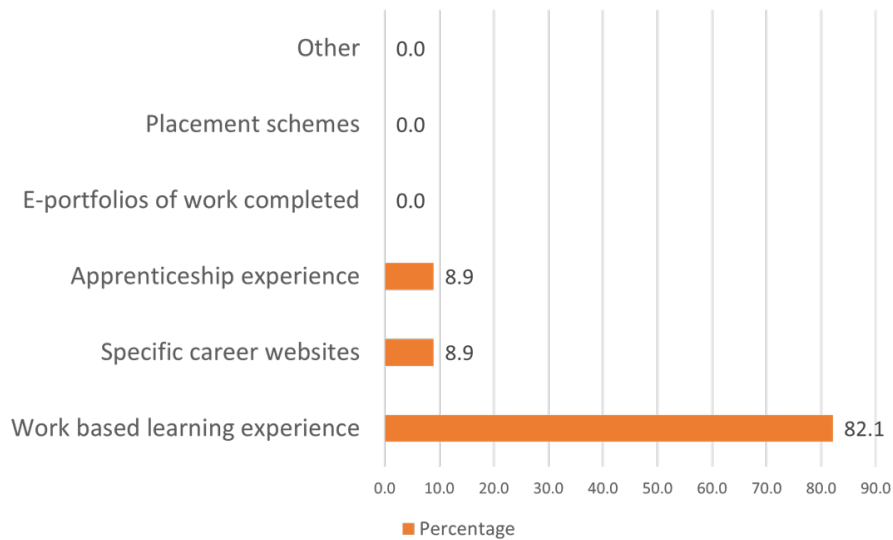
Do you think that apprenticeship will be regarded differently for the future professions?

The importance of apprenticeship is demonstrated also by the results of this question that addresses the future of apprenticeship. In fact, 64% stated that apprenticeship will be viewed differently for the future professions, while 36% believe that there will still be some bias in the correct use of it. No one voted for the possibility that it will not happen and also no one left any other comment to this question.



What is in your view the most effective way to assist VET students in their transition to employment?

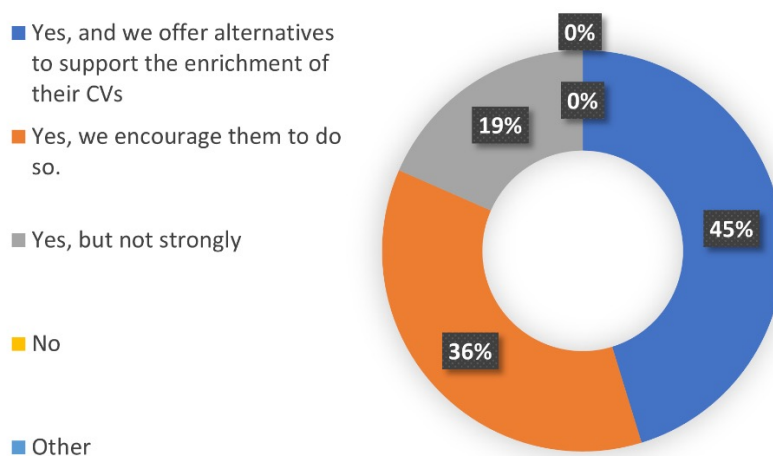
As far as what concerns effective measures to assist students in the transition to employment, «Work-based experience» is considered the most effective, together with the «Specific career websites» and «Apprenticeship experience». On the other hand, «E-portfolios of work completed» and «Placement schemes» are, according to respondents' answers, not effective.



Do you propose engagement of extra activities to your students?

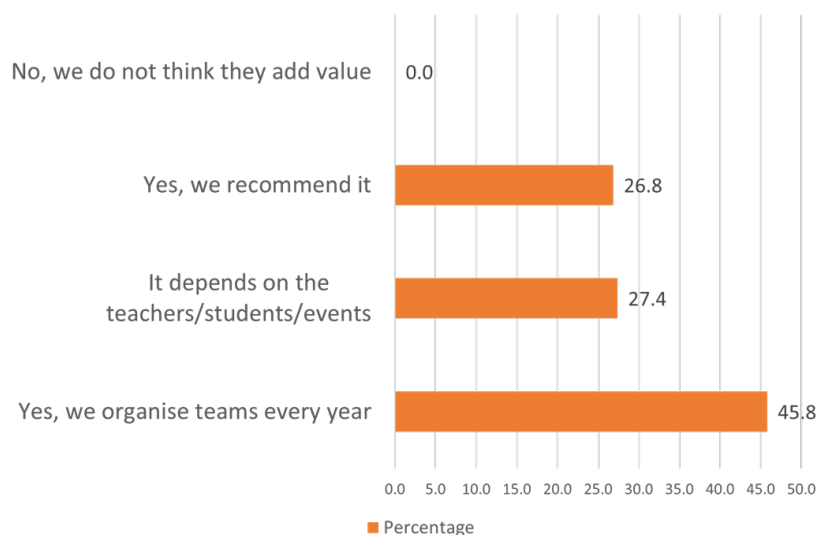
As far as what concerns extra activities offered in VET training courses:

- most respondents affirmed that they offer alternatives to support the enrichment of the learners' CV – 45%,
- while 36% affirmed to encourage them to do so.
- Yet still 19% of respondents chose the answer “Yes but not strongly” and
- no respondent answered negatively.



Do you think contests/challenges for your students are useful?

The survey investigates also if organizations are offering any type of contests or challenges for their learners. As one can see in the chart below, the most respondents 45.8% affirmed that they «organise teams every year». However, a high percentage 27.4% think that «it depends on teachers, students, or events». 26.8% of respondents answered that they «recommend it». It is a positive message that none of the respondents chose the negative answer.



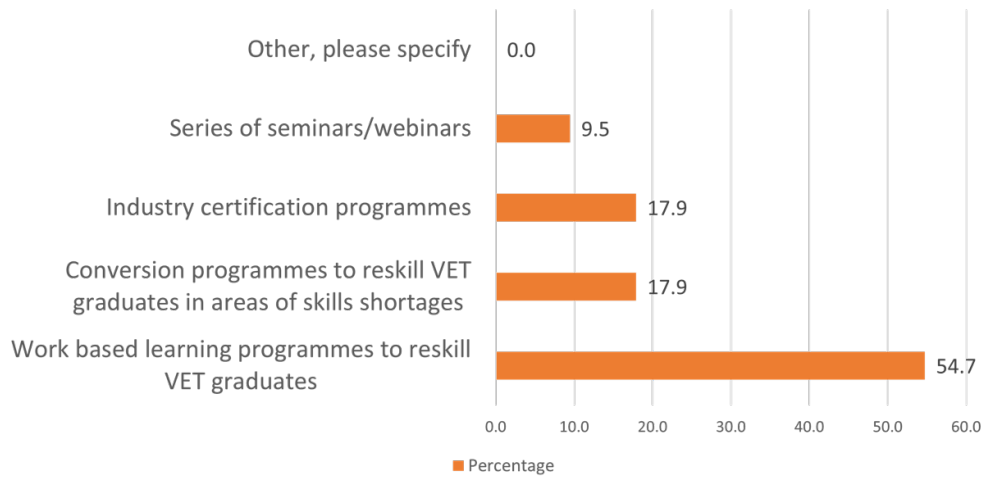
Do you think contests/challenges for your students are useful?

As for **the most effective way to assist VET students** in their transition to further/higher education, 45.8% of respondents chose the «Agree curriculum for progression pathways with further education institutes», follows «Reserved places on progression programmes for VET graduates» with 36.3% and the last ranked «Career days/open days» with 17.9%.

| Answers | Count | % |
|---|-------|------|
| Agree curriculum for progression pathways with further education institutes | 87 | 45.8 |
| Reserved places on progression programmes for VET graduates | 69 | 36.3 |
| Career days/open days | 34 | 17.9 |
| Other | 0 | 0.0 |

What is in your view the most effective way to reskill VET graduates to skills shortage areas?

For what concerns the methodologies to reskill VET graduates, respondents preferred «Work-based learning programmes» up to the 55%, followed by «Conversion programmes for reskill in the areas with skills gap». Equally 17.9% of participants choose «Industry certification programmes». 9% chose «Series of seminars/webinar».



These results show that **there is a high appreciation or trust in work-based learning methodology** as a whole – this is also shown in the previous questions results – and to solve the issue of skills gap.

3. Five years later: what differences between the 2017 and 2022 editions?

Both reports show that the Adult Education sector, as well as the School and VET sectors, have a certain preference for **conventional channels of communication and engagement of learners**, although in the last two groups the **use of social networks** has continued to grow in 2022 and 2023.

Both reports defend that, as far as it concerns **learners' engagement, attraction and retention**, these aspects are **very important by respondents** and at the centre of their interests as issues that can be solved using ICT tools and different methodologies

Financial aspects are equally considered as one of the factors that are inevitably shaping digital education take off and, on the other hand, learners' engagement be it 2017 or 2022/23.

Referring to financial aspects, 2017's report shows that respondents of the Adult Education sector affirmed strongly that financial issues are the greatest obstacle for adult learners. In the report of 2022/23, the sector appears to be more optimistic about it, defending that the improvement of the financial situation is the greatest motivator for adult learners. In the same group of respondents, the survey shows that while finances are motivators, they are also less important obstacles than poor access to information about education opportunities or negative learning experience from the part together with the fear of new challenges.

The previous report defends that the results of all 4 sectors, especially Adult, highlighted a **lack of skills from educators/teachers/instructors**, which is hindering the true take off of digitalization in education. The new report, however, acknowledges a lack of skills on both sides: the side of the educators, teachers or/and instructors, and the side of the students.

Regarding ICT tools, both documents show that the use of ICT tools which support teaching, according to respondents, allows the personalisation of programs. Nevertheless, 2022's report defends that for the 4 sectors adoption of digital methodologies means to be competitive in the market, whereas 2023's report all sectors defend that adoption of digital methodologies means the only way and the future of education.

Both documents show that the 4 sectors agree that **augmented reality and virtual reality are not valued as teaching methodology worth to be used today**. In the old report, when asked to rate both the most used methodologies and those that organizations are willing to implement in the future, Augmented and Virtual reality were not at the top of the list. However, in the new one, Augmented Reality resulted at the top of the list of the school sector and in the VET sector ranked on the relatively high position as a profession that is planned or considered to be included in the training offer over the next 3 years.

When it comes to learning analytics, both documents have in common that there is an intention to use them in the future, more than in the reality of these days.

Regarding **E-portfolios**, in both documents, in Higher Education it is considered one of the tools which can help students progress in the labour market. But, while the latest report shows that E-portfolios in the School sector are underestimated and not even seen as a tool to be implemented in the future, in the one of 2022, the VET sector is the one with that opinion or perception.

Regarding **ICT tools**, in the 1st edition recommended that investments and improvements must be made in ICT to progress in personalisation features on learning systems, as well as the possibility to build up strong communities of learners which can engage with teachers or instructors. The latest one adds that improvements must be made in the access to information about education opportunities.

Both editions defend that the **digitalisation of teachers or/and tutors is still under-developed**. Therefore, it is recommended that there should be a quicker action in improving teachers or/and tutors' digital skills.

Since the use of tools such as YouTube, Facebook, Wikipedia etc. is wide in education, both editions recommend that there should be information and awareness about how to use them and in general about how to convey information sourced from the web into actual education material.

Both editions show that Augmented Reality and Virtual Reality are still not very well known. That is why, there is a need for more information and specific training about how they can be applied in education and showcase possibilities and implications in case of adoption (costs, methodologies, skill needed etc.).

Both documents agree that the general results give the opportunity to reflect on various issues that are shaping education, not only since digitalization is bringing major transformation, but also because the whole educational structure is changing over the different economic and political situations.

4. Conclusions

In the previous sections we have analysed in detail the quantitative and qualitative results of the survey, both for the demographic part and for the ones addressing the 4 specific sectors. In this last section, we will try to draw the conclusions on the base of a cross analysis among the 4 sectorial results and finally formulate our recommendations.

We have started the analysis with the Adult Education sector, which highlights from the beginning a certain preference for conventional **channels of communication** and engagement of learners. This is something which is also confirmed in other questions' results of the School and VET sector, even though a growing use of social media is proved. As far as it concerns learners' engagement, attraction and retention, these aspects are very important by respondents and at the centre of their interests as issues that can be solved using ICT tools and different methodologies.

As the results show, **financial aspects** are considered as one of the factors that are inevitably shaping digital education take off and, on the other hand, learners' engagement. For example, respondents of the Adult Education sector affirmed strongly that the improvement of the financial situation is the **greatest motivator** for adult learners. In the same group of respondents, the survey shows that while finances are motivator, they are also less important obstacle than **poor access to information** about education opportunities or negative learning experience from the part together with the fear of new challenges.

The results of all 4 sectors, especially Adult, highlighted a certain **lack of skills** on both sides – the educators/teachers/instructors and students, which is hindering the true take from digitalization in education. This issue is also reflected in the results of those questions which investigated about the **readiness** to face the time of Covid-19 pandemics. During the Covid-time, majority of the sectors confirmed that they faced marginalisation issues for teachers because of lack of skills and/or equipment during pandemics.

The use of ICT tools which support teaching, according to respondents, allows the personalisation of programs. This is in our opinion the key aspect of digital teaching methodologies, which can strongly shape the education of tomorrow. It's positive that also respondents from all 4 sectors understood this point and that it is crucial to them. This is linked also to their vision and future planning. Adoption of **digital methodologies** means, for them, the only way and the future of education.

However, if from one side ICT tools allow personalisation in learning – as improvement in teaching methodologies – on the other side **classroom courses** are still considered at the core of teaching approaches in all 4 sectors. We think this is not a step back from the growing use of distance learning platform or other techniques, such as flipped classroom or blended learning. Considering that these techniques are still quite new and that a school or a university shall have the necessary equipment to visualise and understand the real benefit from their implementation, therefore education institutions affirm to opt more for collaborative learning and for a mixture of online/offline teaching and learning.

This aspect may also be linked to another result that we have noticed from the survey. Both **Augmented Reality and Virtual Reality** are not valued as teaching methodology worth to be used today. We think that these tools are still much complicated for many educators/teachers and also linked to the registered lack of skills. But the good sign is that when asked to rate tools that organizations are willing to implement in the future, augmented resulted at the top of the list of the school sector and

in VET sector ranked on the relatively high position as a profession that is planned/considered to be including in the training offer over the next 3 years. We can see the intention for future more than the reality of these days.

This is also true for the tool of “**learning analytics**”, even though such instrument may give very good insights about students’ performances, engagement and help instructors in designing their programmes and courses. Only the School sector has started to use this tool to the extent that can be helpful. The participants from this sector confirmed that they already use it and can benefit from using this tool. The intention expressed by VET sector is to introduce the learning analytics in the future.

The perception of **E-portfolios** and their scope and usage is rather low. While in Higher Education it is considered one of the tools which has low importance in students’ progress in the labour market, in School sector today it is still underestimated and not even seen as a tool to be implemented in the future.

The general results give us the opportunity to reflect on various issues that are shaping education, not only since digitalization is bringing major transformation, but also because the whole educational structure is changing over the different economic and political situation. We are convinced that development of the education, implementing ICT tools and development of the digital skills must be reviewed and analysed closely and constantly to allow rapid adjustments and improvements, keeping pace with the ICT evolution.

From these conclusions and through the analysis of the quantitative results of the 4 sectors we draw the following recommendations which have been categorised as:

- Transversal, i.e., true for all the sectors
- Specific, i.e., true for a certain sector.

5. Recommendations

Even this second edition recommend that the **communication techniques should improve in order to attract more students and learners**. In this regard, the power of conventional channels for communication should not be underestimated, while communication through social media must improve in credibility.

Regarding **ICT tools**, the 1st edition recommended that investments and improvements must be made in ICT to progress in personalisation features on learning systems, as well as the possibility to build up strong communities of learners which can engage with teachers or instructors. The latest one adds that improvements must be made in the access to information about education opportunities.

Both editions defend that the **digitalisation of teachers or/and tutors is still under-developed**. Therefore, it is recommended that there should be a quicker action in improving teachers or/and tutors' digital skills.

Since the **use of tools such as YouTube, Facebook, Wikipedia etc.** is wide in education, both editions recommend that there should be information and awareness about how to use them and in general about how to convey information sourced from the web into actual education material.

Both editions show that **Augmented Reality and Virtual Reality** are still not very well known. That's why, there is a need for more information and specific training about how they can be applied in education and showcase possibilities and implications in case of adoption (costs, methodologies, skill needed etc.).

It is recommended that education organizations should be facilitated in **creating links with local stakeholders and businesses** to ease the learners or students' progress in the labour market. In both editions it is recommended to increase knowledge on **learning analytics** and to raise awareness on the usefulness of them.

5.1 Recommendations: Adult education

In both editions it is recommended that, as far as what concerns the different methodologies of distant learning (such as blended learning, flipped classroom etc.), awareness raising on this matter should be improved with more practical examples and sharing of practices.

Both editions recommend that there should be a more structured way to share experiences between former students/learners to those willing to enroll in courses. This will allow the constant attraction of new learners and improvement in motivation.

Both reports include the recommendation that educational organisations should be more aware of skill shortages and education gaps by establishing a closer relation with the labour market, so as to quickly adjust to market changes and offer up to date courses.

Both reports include the recommendation that educational organisations should be more aware of skill shortages and education gaps by establishing a closer relation with the labour market, so as to quickly adjust to market changes and offer up to date courses.

This last edition suggests that the access to information about education opportunities must improve, as it may create the obstacle preventing adults at risk from entering education programs.

While in the 1st edition it is recommended not to underestimate E-portfolios as a different way to present knowledge, skills and competences which has been proved to be useful in certain contexts, the latest one defends the same idea, but using Learning analytics.

It is recommended that in a post-Covid curriculum it is important to pay attention to promotion of Open Educational Resources and provision of student-centered learning and assessment.

5.2 Recommendations: Higher education

In both editions it is recommended that educational organisations should be facilitated in creating links with local stakeholders and businesses to ease the learners/students' progress in the labour market.

In the 1st edition it is believed that web lessons and cloud teaching are considered as the future of education. In the new one, however, personalisation of teaching and training, and e-certification is considered the future of education.

In both editions it is recommended that there should be a more structured way to share experiences between former students/learners to those willing to enroll in courses. This will allow the constant attraction of new learners and improvement in motivation.

Both editions defend that Higher Education is considered to be in the future more and more research-oriented and cloud based. Therefore, it is recommended that those important aspects should be taken into consideration by those who structure courses and the system as a whole.

2023's edition includes that improving digital skills and equipment of teachers is another goal to be set for the future in the sector of Higher Education, as it showed to be the current issue which showed more visible mainly during the time of pandemics.

The latest edition recommends the deployment of flexible and tailored-made timetables offering new opportunities for ubiquitous learning is the element which should definitely be considered in a post-Covid curriculum.

5.3 Recommendations: School education

It is recommended that, as far as what concerns the different methodologies of distant learning (such as blended learning, flipped classroom etc.), awareness raising on this matter should be improved with more practical examples and sharing of practices.

In this new report, it is recommended to contemplate the ubiquitous learning-allowing individual learning activities and active learning-learners learn as they do/work on real life problems as new methodologies for courses' implementation to be developed.

Augmented Reality is a tool preferred to be implemented in the future, that's why the latest report recommends that schools will need a certain help from the ministries to make this intention a reality.

Regarding Teachers' Professional Development (PD), the same report as the one above recommends to schools to identify, design and develop PD plans addressing different aspects of digital learning technologies and digital pedagogy, combining both personal and school needs, just as that the schools' support the staff professional development in relation to the integration and effective use of digital technologies and digital pedagogy.

In 2023's edition it is recommended to improve digital skills and equipment of teachers.

It is recommended to plan and integrate in digital infrastructure technical and user support to ensure reliable performance, maintenance and interoperability and to provide students and staff with seamless access to the digital technologies, content and services they require

5.4 Recommendations: Vocational Education and Training

Both editions defend that Augmented Reality and Virtual Reality are still not very well known. Therefore, they highlight the need for more information and tailored training about how they can be applied in education and showcase possibilities and implications in case of adoption (costs, methodologies, skill needed etc.)

In both editions it is recommended that there should be a more structured way to share experiences between former students/learners to those willing to enroll in courses. This will allow the constant attraction of new learners and improvement in motivation.

Both editions suggest that educational organisations should be facilitated in creating links with local stakeholders and businesses to ease the learners/students' progress in the labour market.

Both editions also recommend that educational organisations should be more aware of skill shortages and education gaps by establishing a closer relation with the labour market so as to quickly adjust to market changes and offer up to date courses.

While the 1st edition focuses on the importance of the use of E-portfolios, the latest one defends the same idea, but using Learning Analytics. It recommends increasing knowledge on Learning Analytics and to raise awareness on the usefulness of it.

Work based learning and apprenticeship are considered a key practice for the success of VET courses in both reports. However, there are still difficulties in their implementation, which are not necessarily linked to the economic conditions. That is why, in both editions it is suggested that the use of ICT may ease the adoption of these measures and improve VET offer.

The latest edition recommends introducing more industry partnership in programme delivery e.g., WBL programs or apprenticeship programs as it is most likely to shape the VET in the future.

It is also recommended the deployment of flexible and tailored-made timetables offering new opportunities for ubiquitous learning is the element which should be considered in a post-Covid curriculum.

Finally, it is recommended that the goal of digital skills and equipment of teachers be set for the future in the sector of VET, as it showed to be the current issue which showed more visible mainly during the time of pandemics.



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