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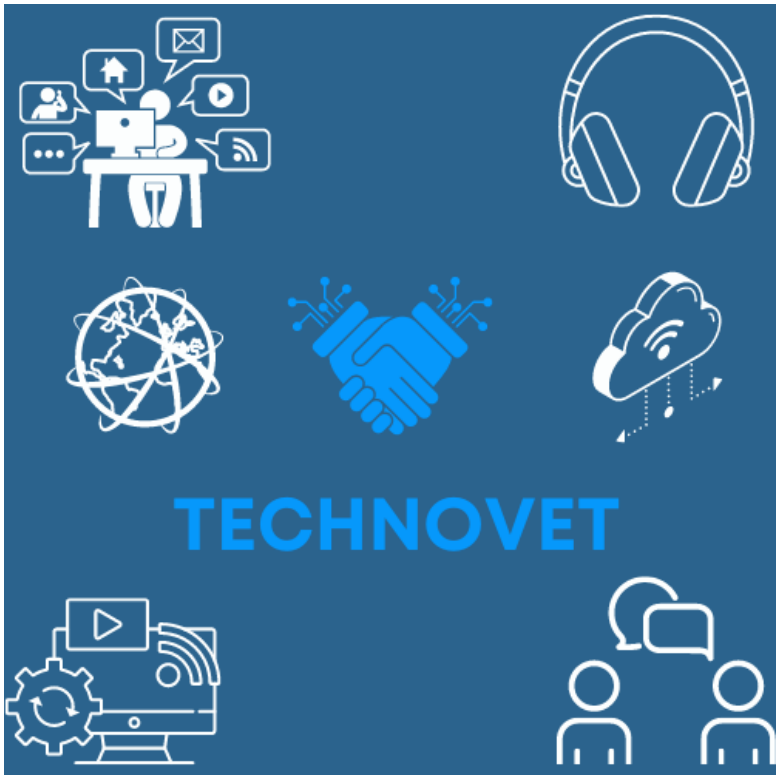


# Technological Resources to improve the digitalization of VET

## Manual of useful technologies

# Content

# Introduction

TechnoVET is an Erasmus+ funded project and aims to achieve the following objectices:

"(..) to advance digitalization in the field of vocational training, to improve it and to spread the guiding idea of digitalization in vocational training."

"(..) specifically to respond to the changes brought about by the pandemic in the three areas of technology, soft skills and administrative organization with concrete solutions.

Through a survey in the 5 different parnter countries Spain, Germany, Belgium, Lithuania and Italy we found out how teachers, students and training centres have faced the challenges of the necessary digitalization of learning content, exams and practice implementations in the last two years of the pandemic. Here we have been interested in what exactly has changed for them, what solutions they have found and where they see improvements and need for further development.
The survey focus on three sub-areas: Technical Implementation, Soft Skills, Administrative Handling.

Our report about the conclusions of the survey should provide guidance to stakeholders on digitalization in the VET field.

Based on the shortcomings that we detected through our survey, we are creating Solutions for the different target groups, that help to fix these deficiencies in the following steps of TechnoVET.



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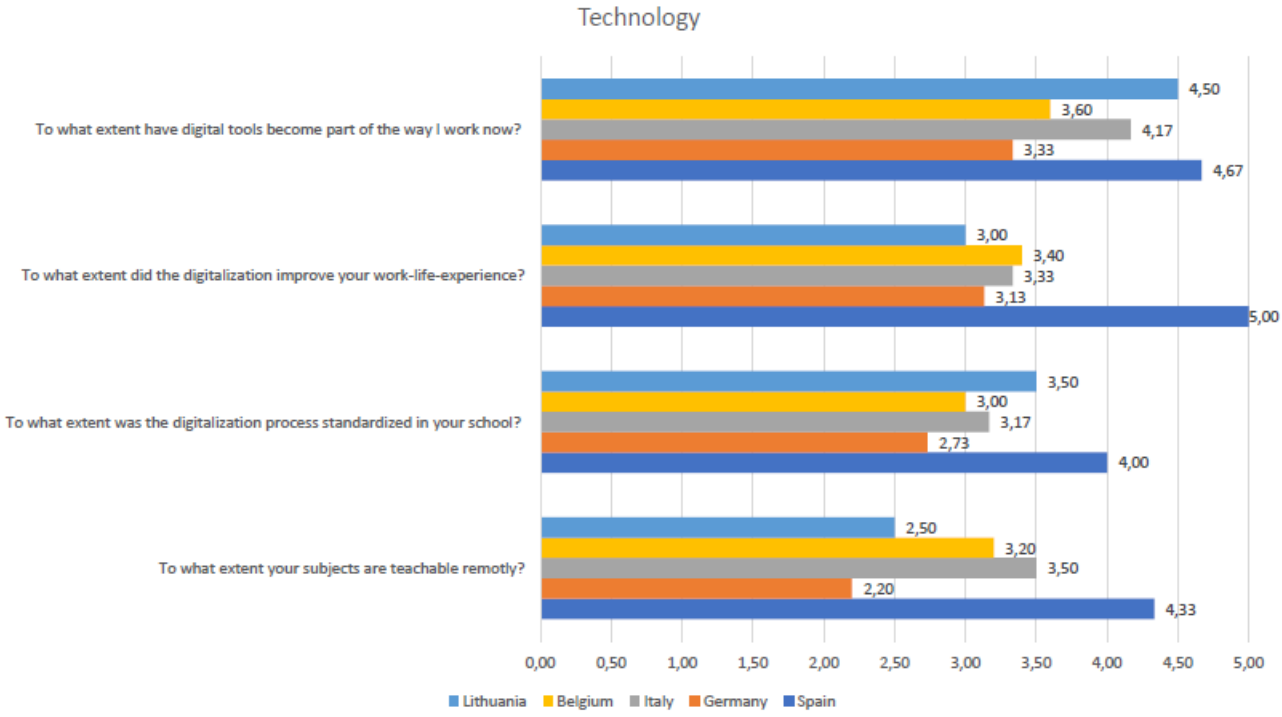
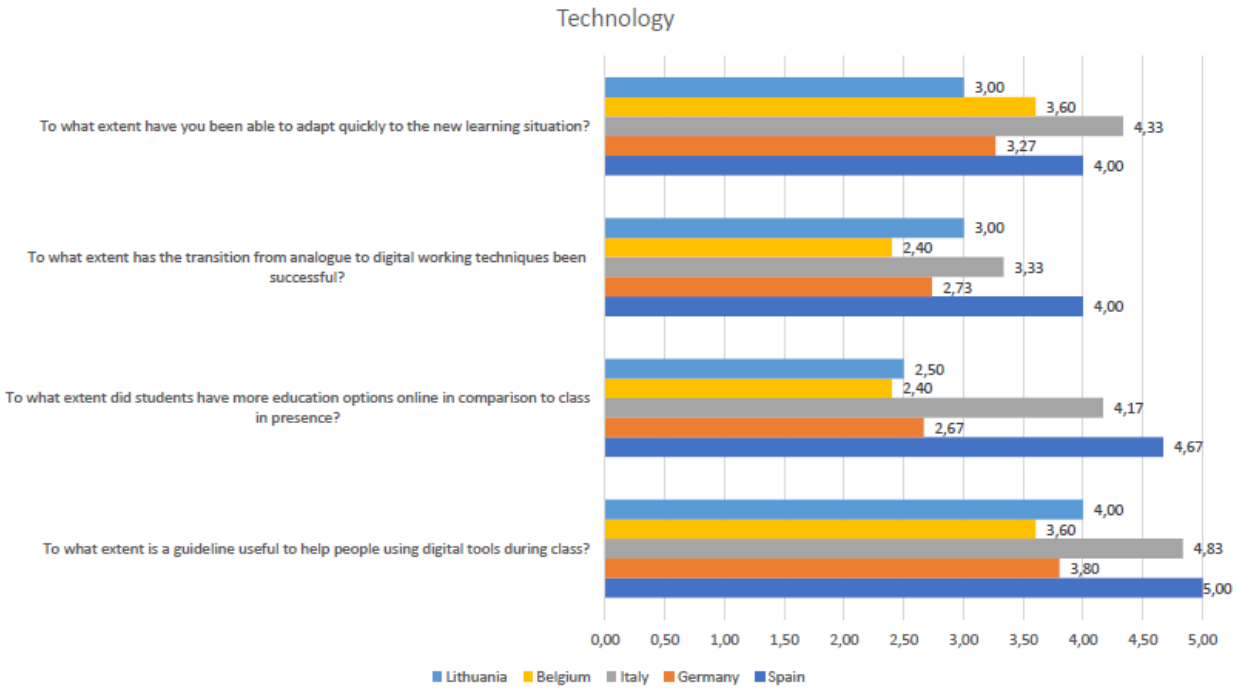
# 1. Countryreports

*Spain, Germany, Belgium, Lithuania, Italy*



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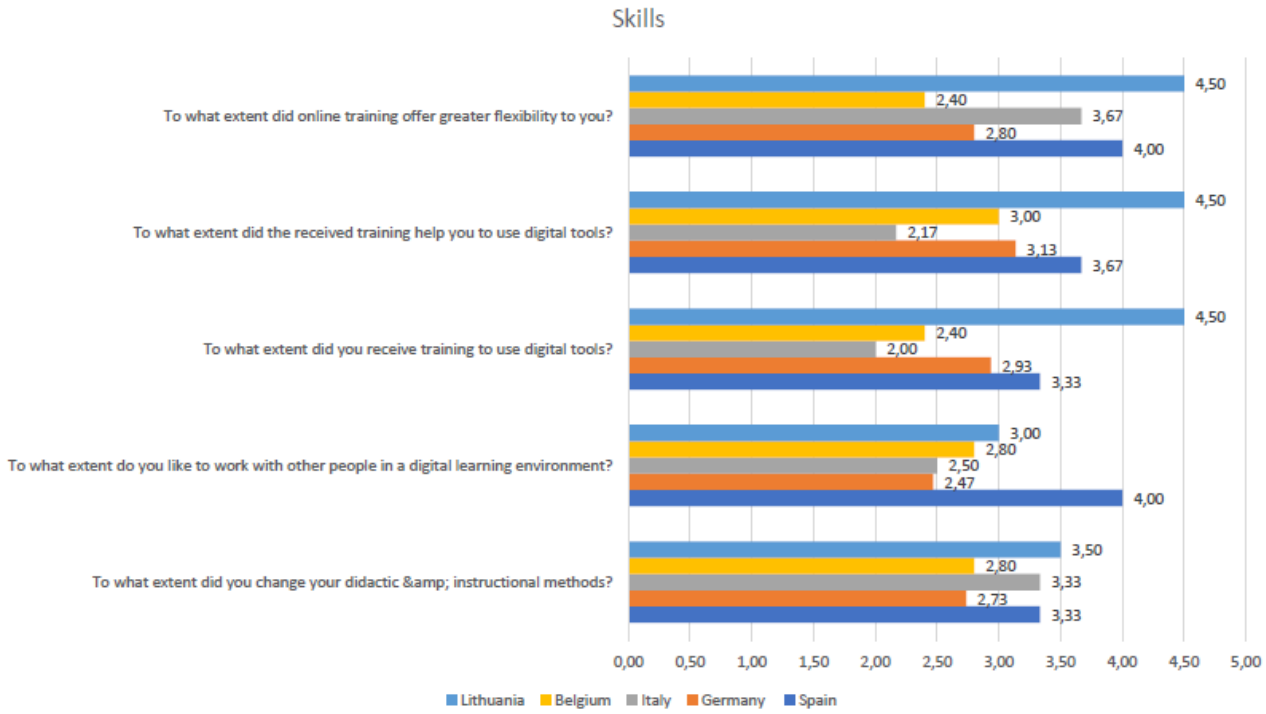


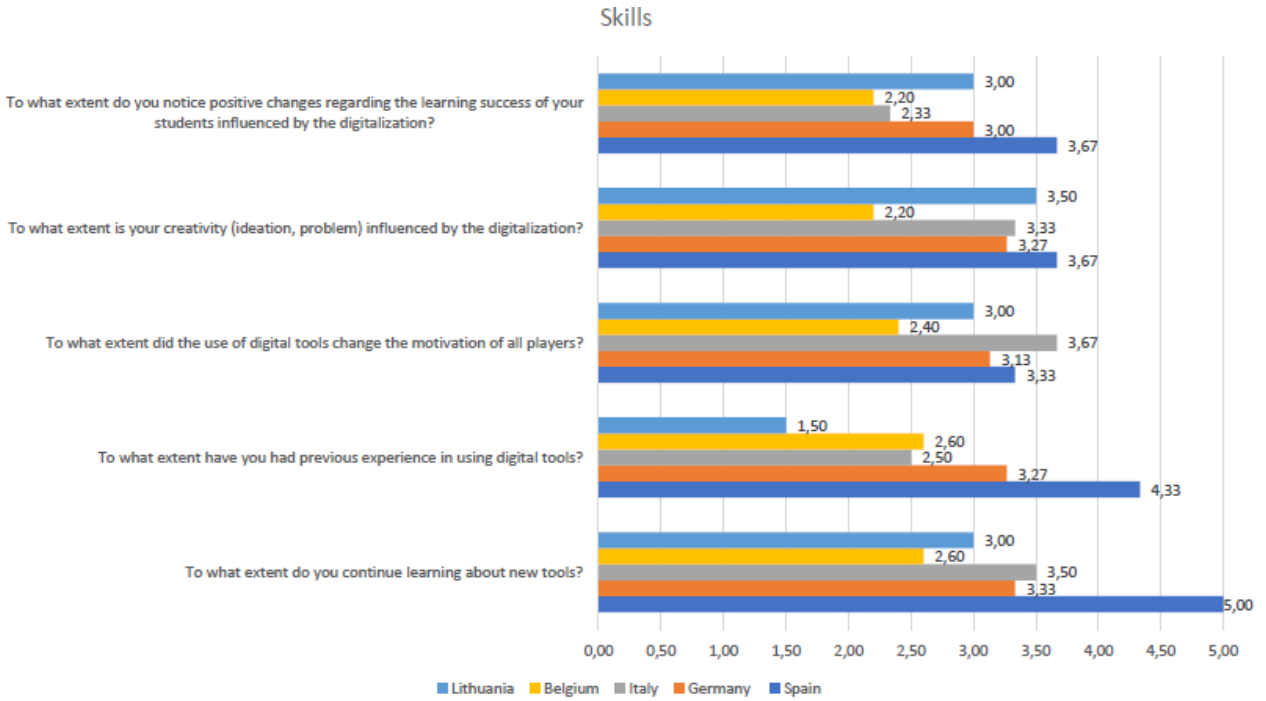




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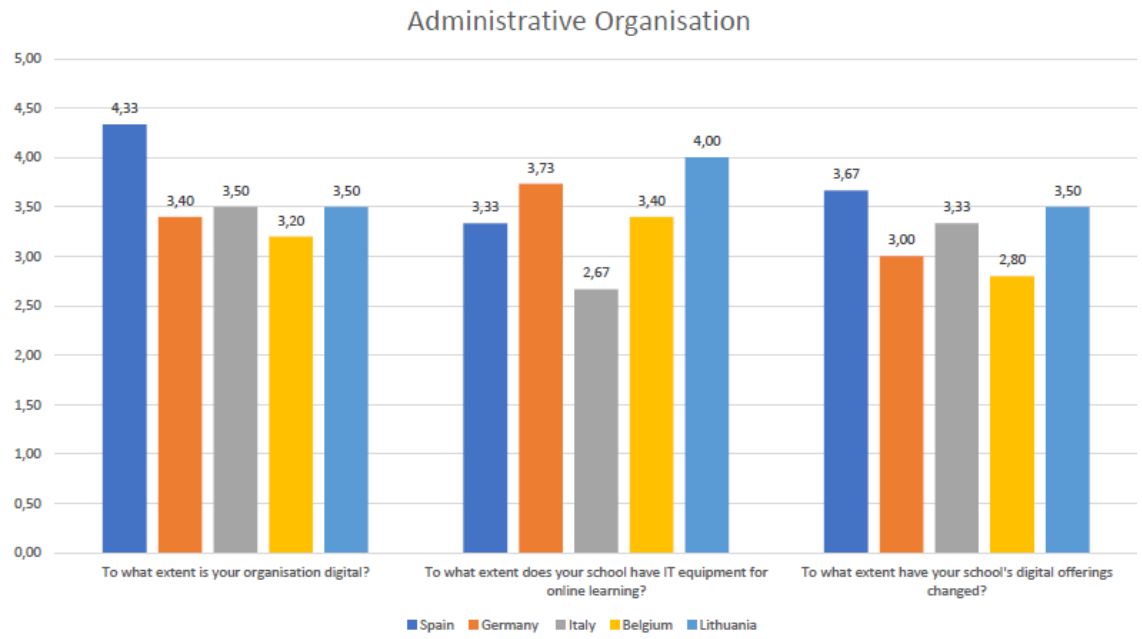


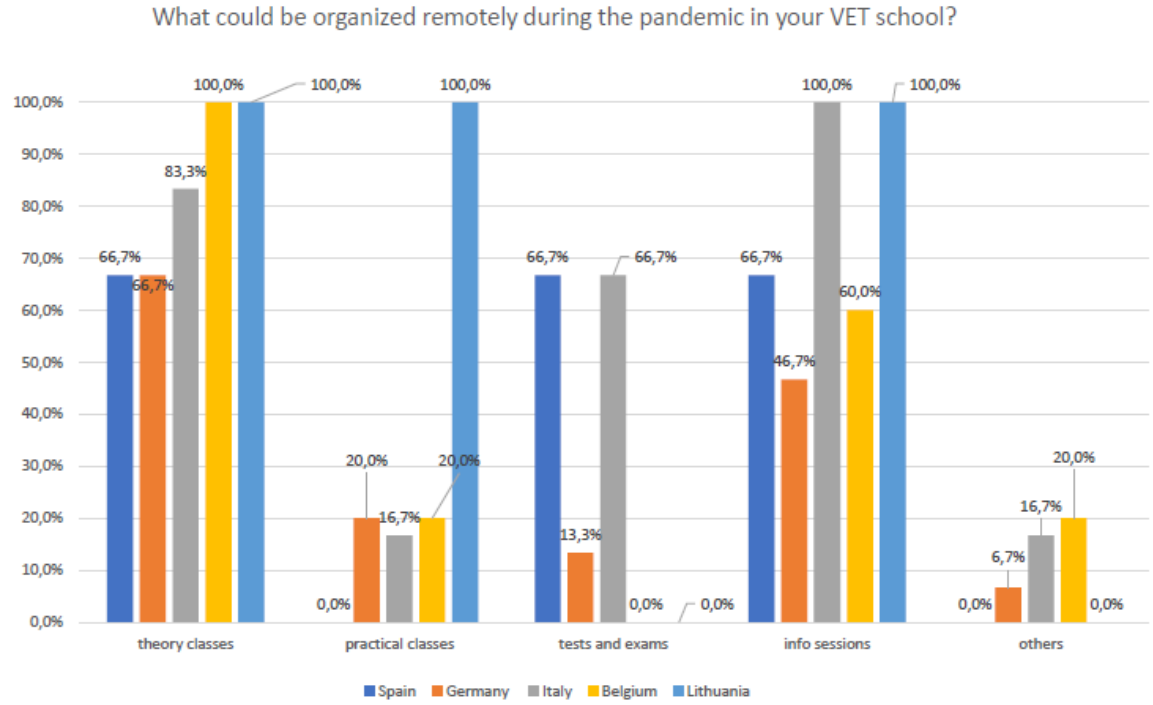




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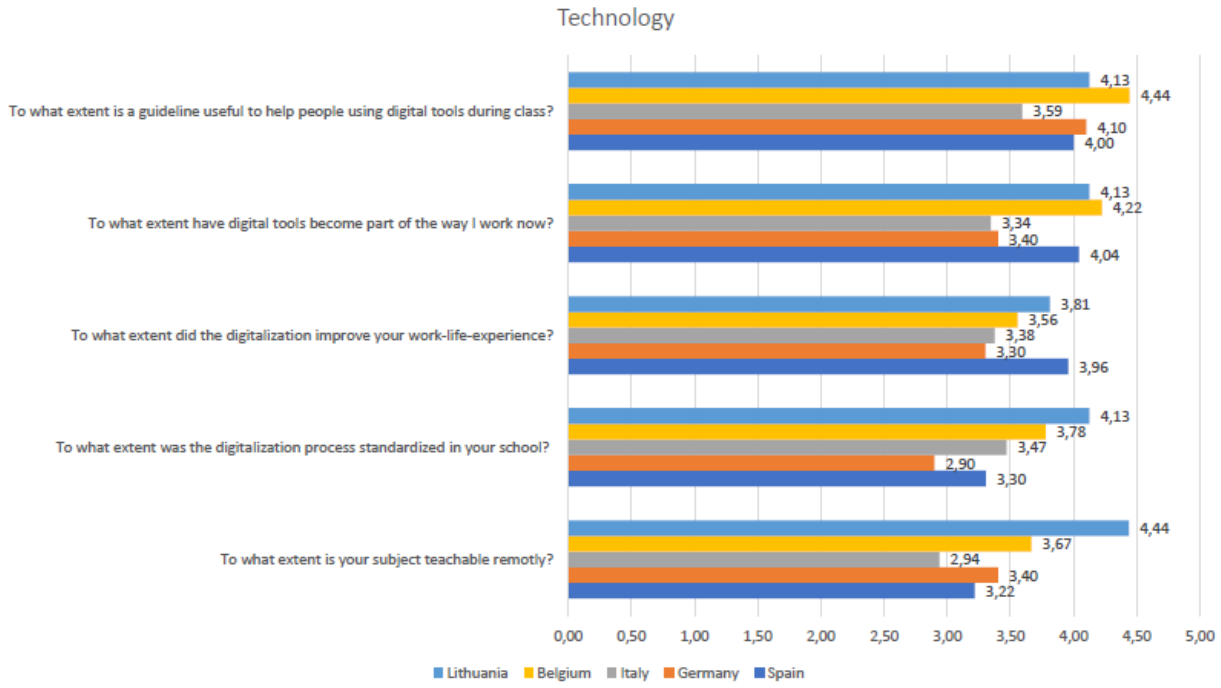


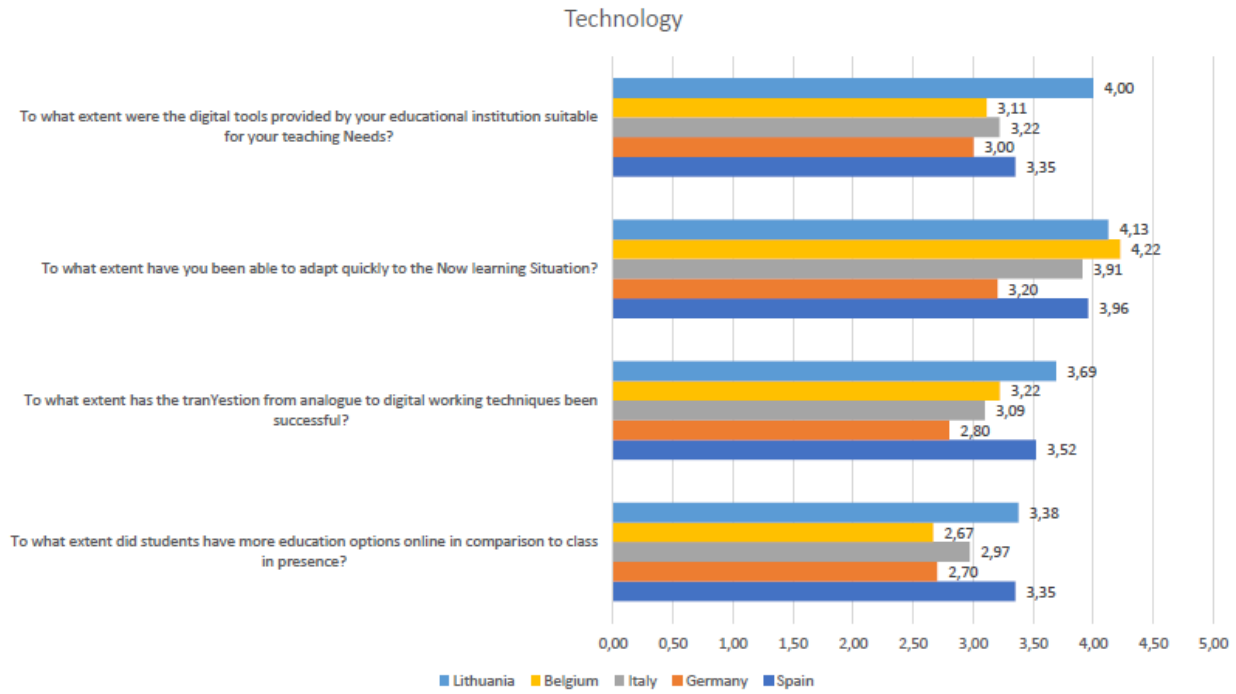




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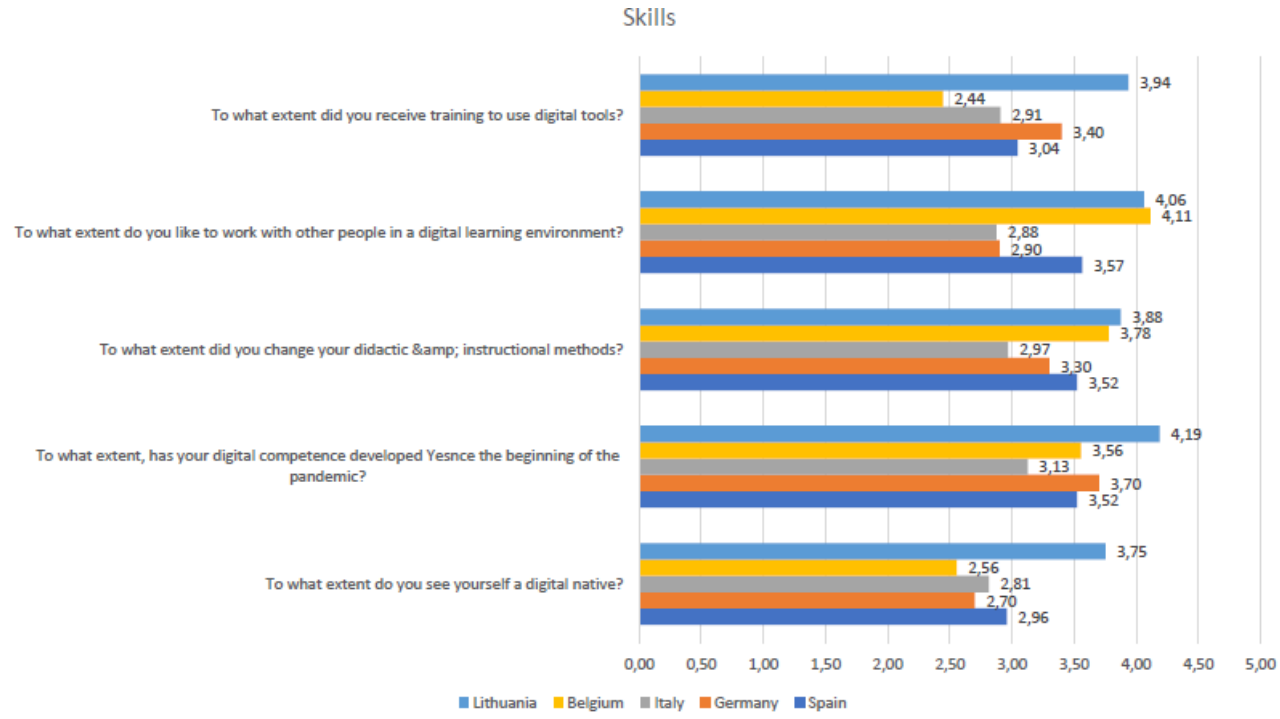


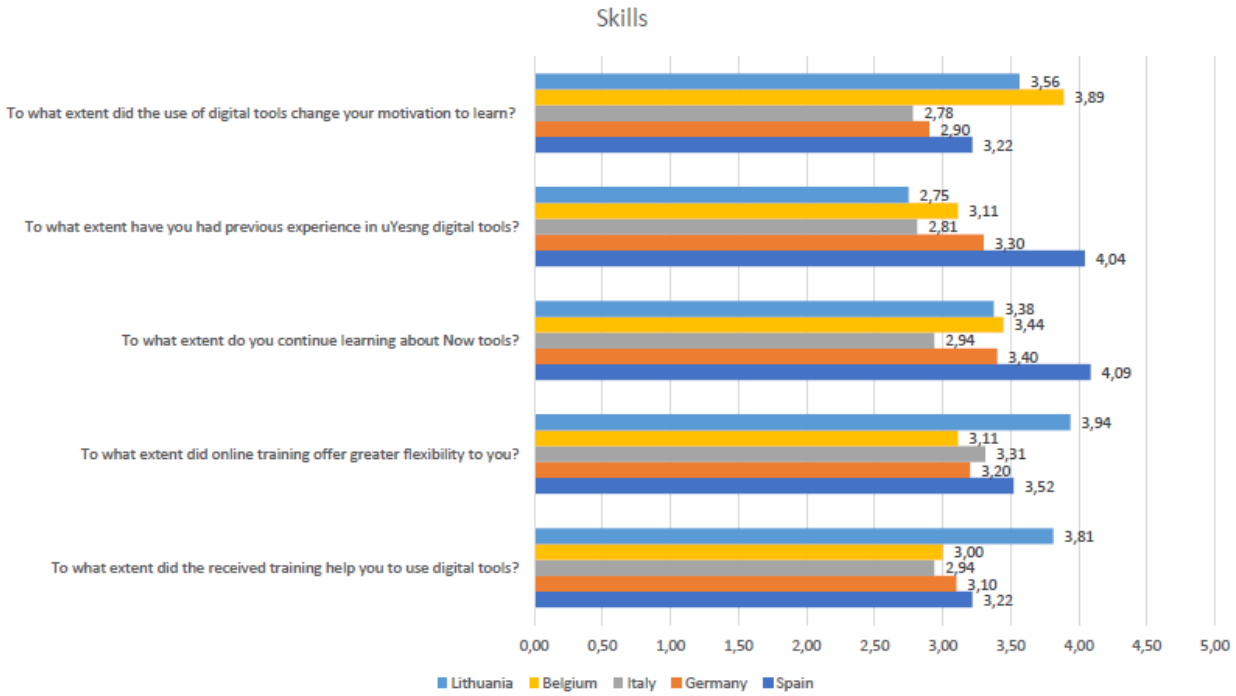




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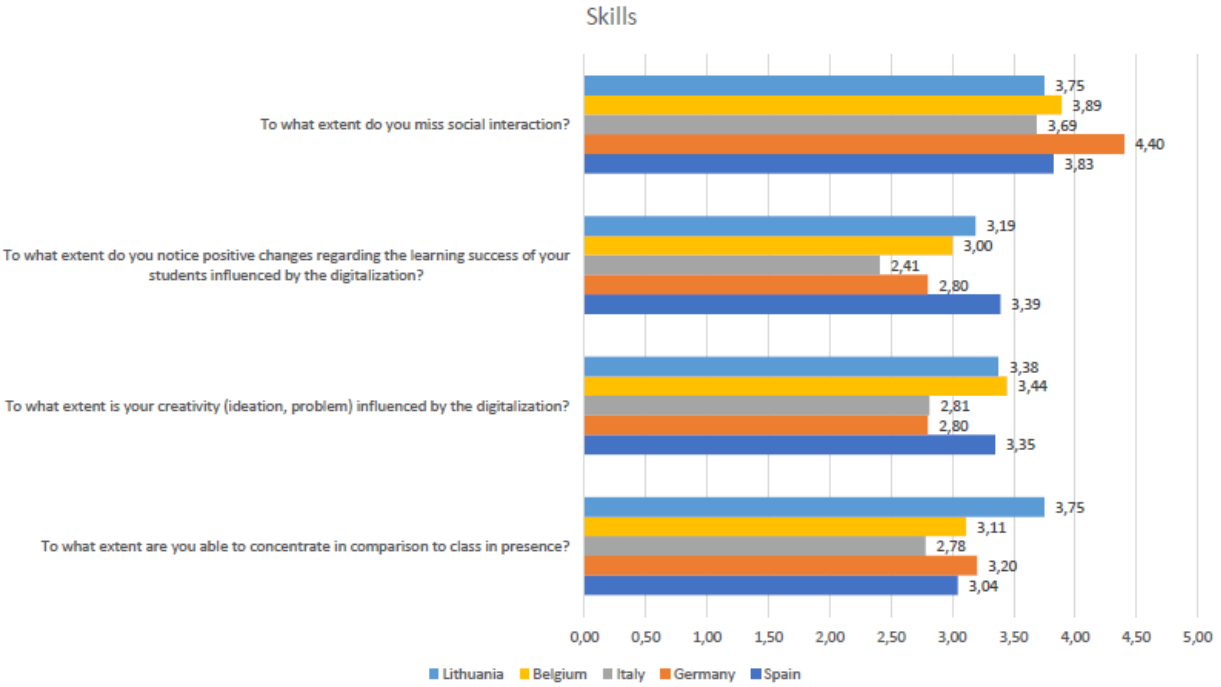


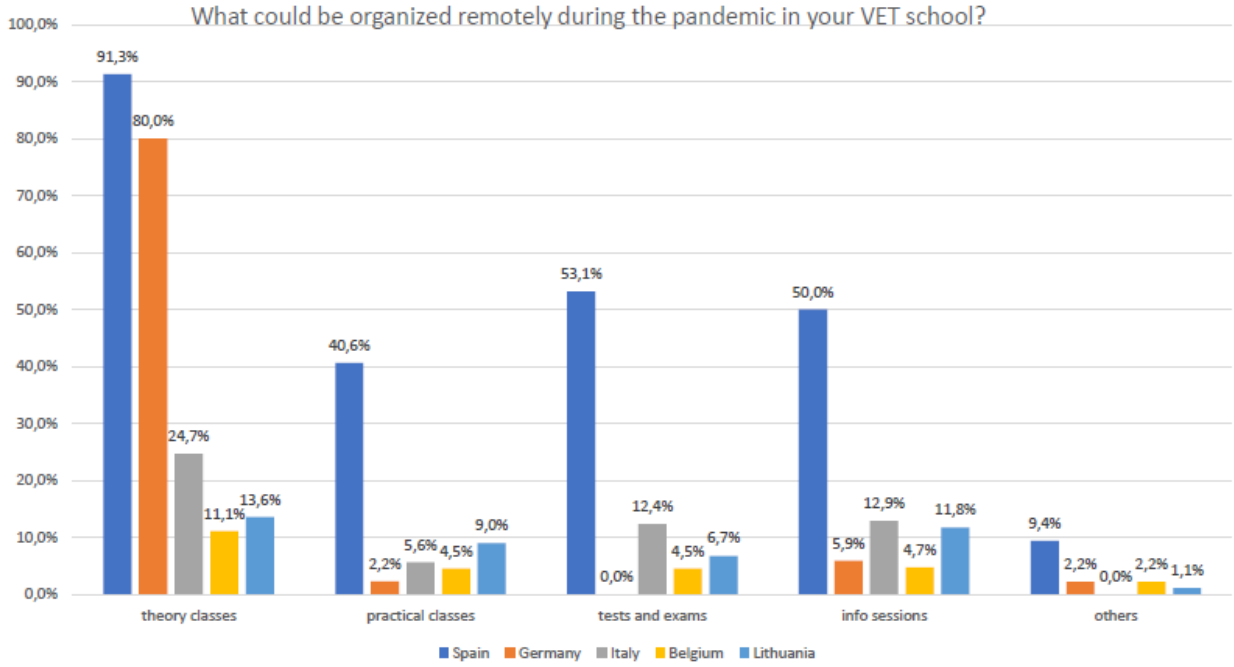




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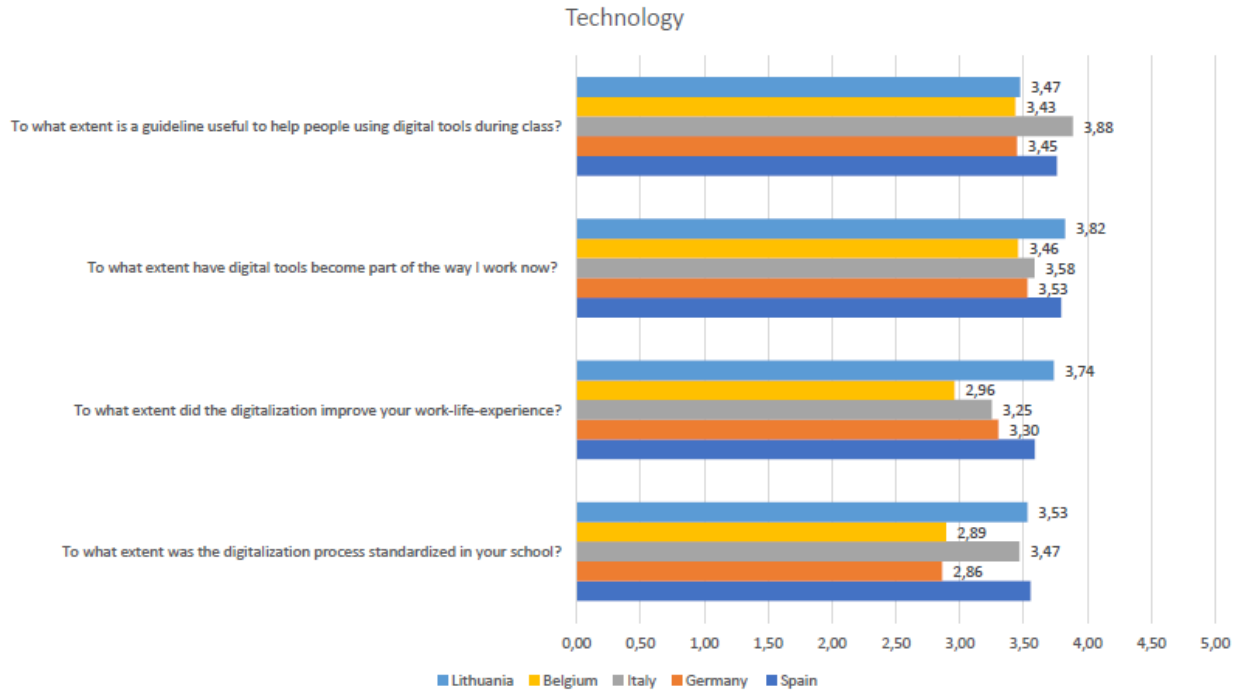


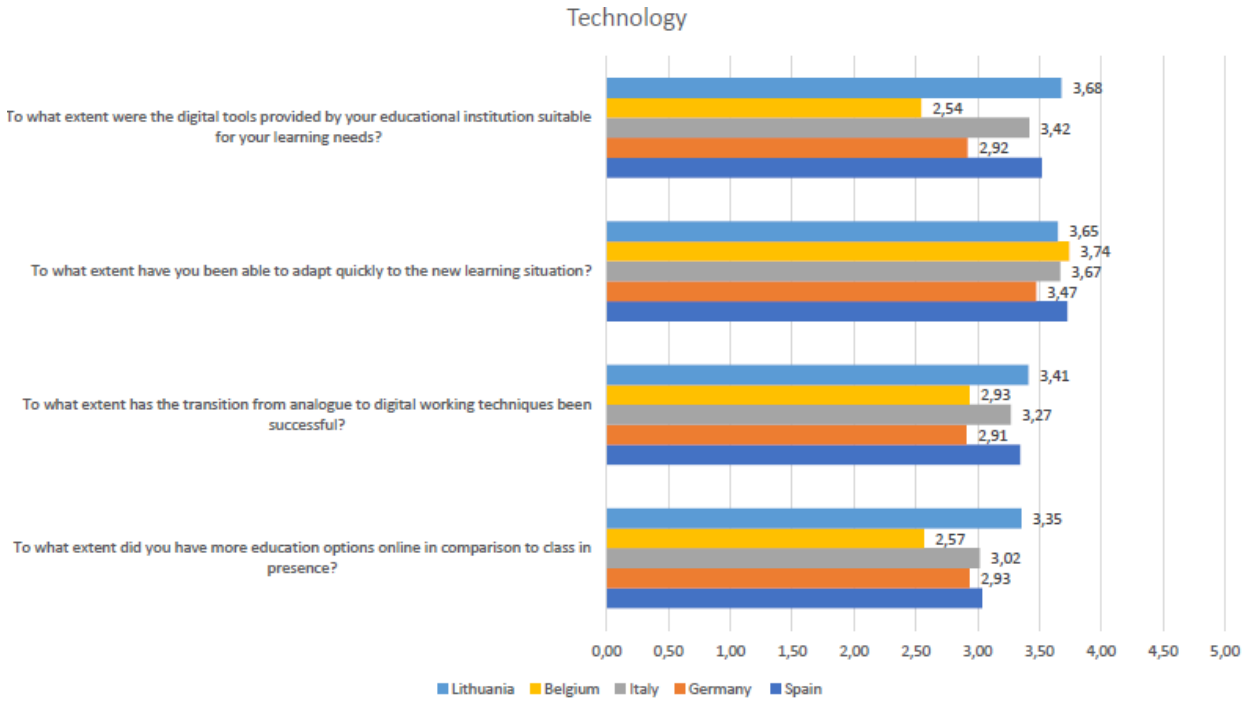




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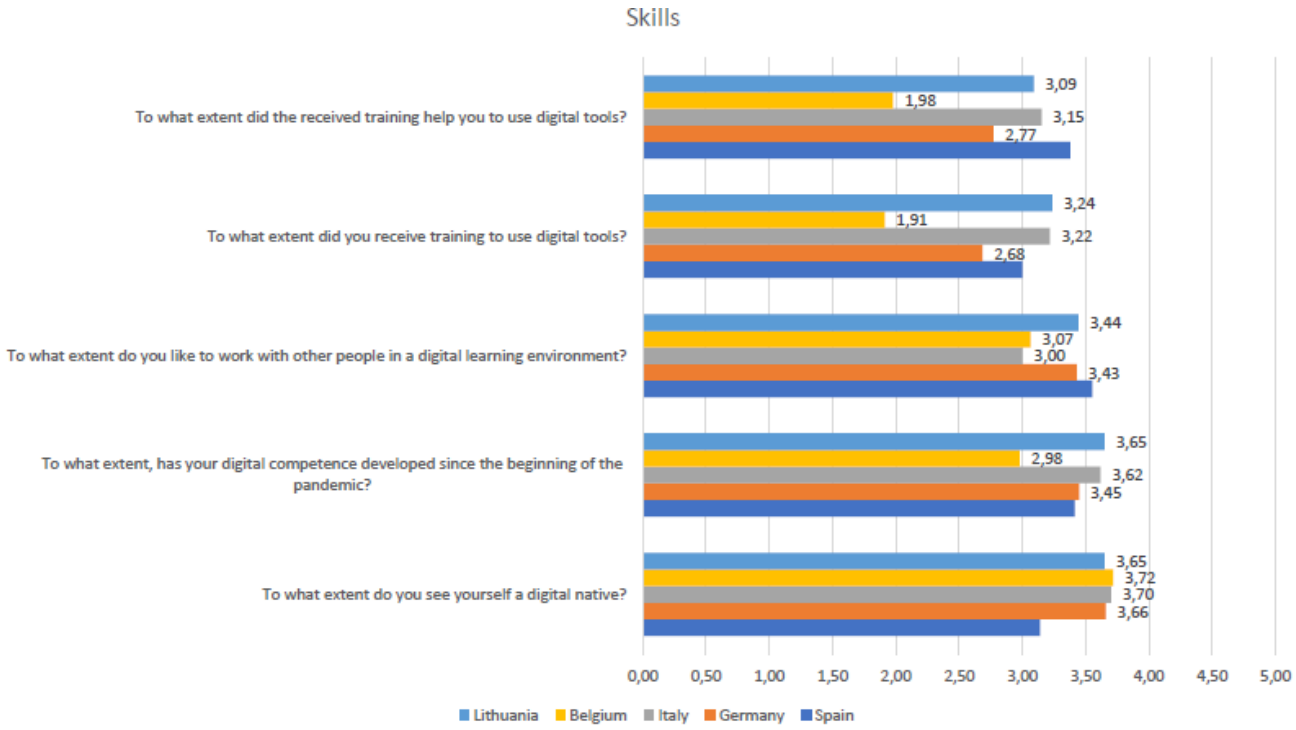


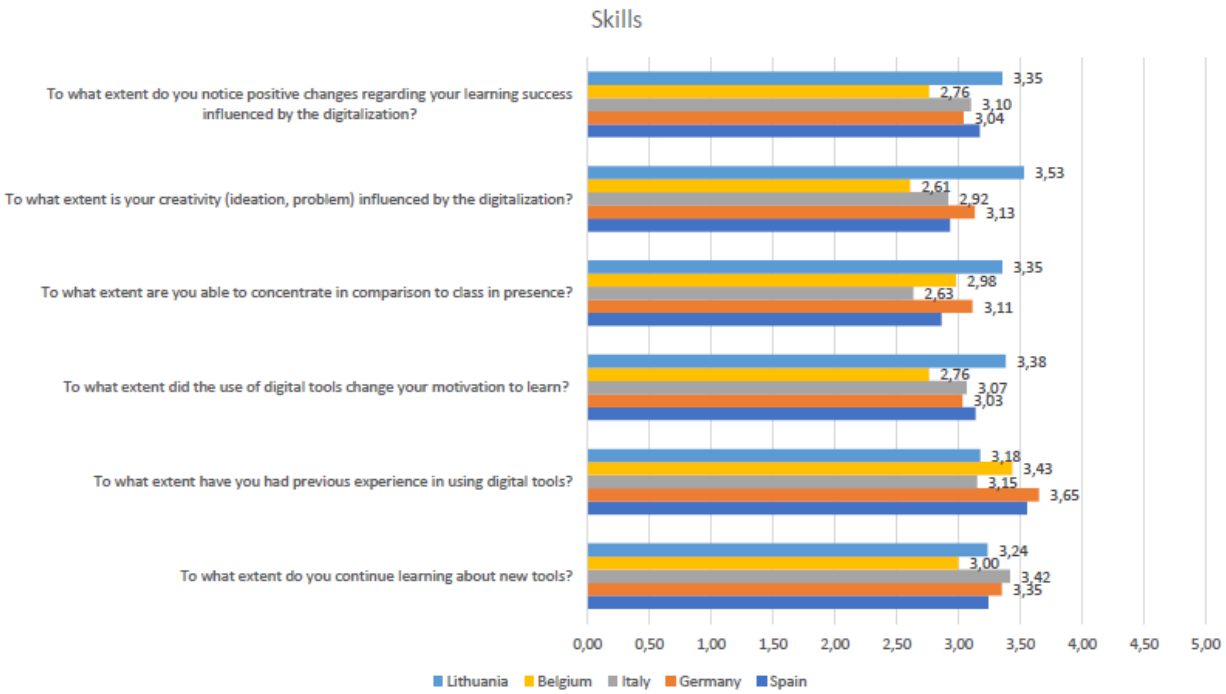




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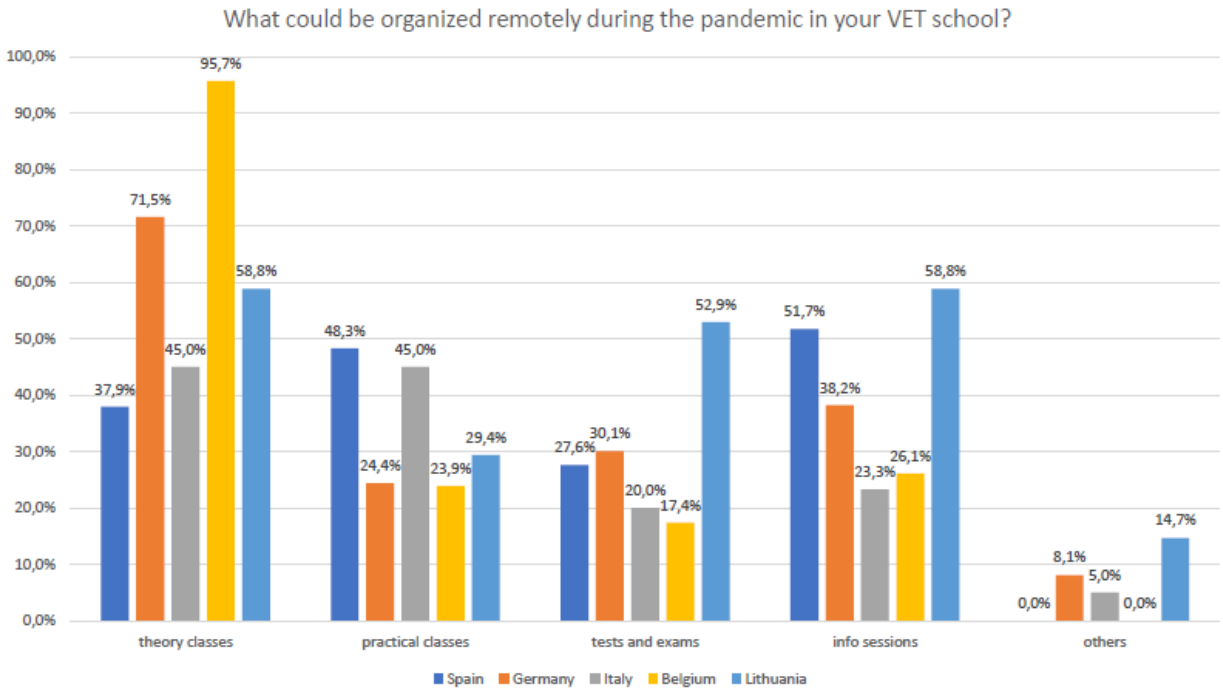


# Spain

*How teachers, students and training centers have faced the challenges of the necessary digitalization of learning content*

## a) Technology

### VET centers

*In Spain 3 VET centers took part in the questionnaire about the current state of digitalisation in vocational education and training.*

According to the VET centers, the use of digital tools in their daily work is in the higher range. Regarding the work-life experience, it has improved a lot as a result of digitalisation. Furthermore, the standardisation of the digitalisation process in the VET centers and the extent to which their topics can be taught remotely are rated very high.

Following the survey results, the VET centers have been able to adapt quite fast to the new (digital) learning situation. This statement is being strengthened with the assessment of how successful the transition from analogue to digital working techniques was. In this context the VET centers also valued that there are more digital learning options for the students in comparison to class in presence. A guideline for the use of digital tools in class is considered highly helpful.



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When asked which online and offline tools were used, everyone rated Microsoft Office and Email as the most used tools. Secondly 66,7% said Microsoft Teams, Moodle, Jitsi, Google Tools, WhatsApp and Youtube are used. With 33% of them they mentioned Zoom and others as the used tools. Miro, Mural, Cryptpad, Scratch, Big Blue Button, Slack, Trello, Mentimeter and Doodle were not used at all in the VET centers.

**Trainer**

*In Spain 23 VET trainers took part in the questionnaire about the current state of digitalisation in vocational education and training.*

The trainers consider a guideline for the use of digital tools in classrooms as helpful. The use of digital tools in daily work is becoming more integrated and is quite highly rated. Also to a more higher extent, the work-life experience improved. With regard to the standardisation of the digitalisation process in the schools, the teachers/trainers rated this point in the middle range. The VET trainers rate the possibility of teaching the subjects remotely rather in the middle range.

Following the trainers' answers about how appropriate digital tools provided by the educational institutions for their teaching have been, they rated these with a medium value. On the other side, the teachers/trainers surveyed have been able to adapt to the new (digital) learning situation very quickly and are in the higher range here. The assessment of how successful the transition from analogue to digital working techniques was is rated in the middle range with the tendency to higher values.

The question to what extent the students/trainees had more educational options online than with in class presence is also seen in the middle range with the tendency to higher values.

With regard to online and offline tools, Moodle and email were in first place for teachers/trainers with 87% and 91%. Followed by, Zoom with 73,9% and Jitsi and Youtube with 65,2%. WhatsApp (56,5%), Microsoft Office (47,8%), Microsoft Teams (43,5%) and Google Tools (43,5%) are also one of the tools that are used the most.

Trello (8,7%), Menitmeter (4,3%), Doodle (13%) and Mural (4,3) have been rated lower among teachers/Trainers. Miro, Big Blue Button, Cryptpad, Scratch and Slack are not used at all. On the other side 30,4% mentioned using other tools then the ones asked for in our survey.



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### Students

*In Spain 29 VET students took part in the questionnaire about the current state of digitalisation in vocational education and training.*

Students' use of digital tools during their work is more in the upper range. Similarly, the results on improving work-life experience through digitalisation, on standardising the digitalisation process in schools and on a guideline to the use of digital tools in class are all more located in the upper range.

The students' satisfaction with the digital tools provided by the educational institution is in the upper middle range. Regarding the question to what extent the students were able to adapt quickly to the new learning situation, the students have been able to adapt quite quickly. The transition from analogue to digital working techniques was rated as middle successful which is similar to the question to what extent the students have more educational options online compared to in class lessons.

When asked which online and offline tools were used, the students rated WhatsApp (69%), Email (58,6%) and Youtube (58,6%) as the most used tools. Secondly 41,4% said Zoom is used. With 31%, 27,6% and 20,7% of them they mentioned Moodle, Microsoft Teams and Microsoft Office Online as other used tools. Jitsi and Scratch are rated as not being used so often with 13,8%. Also Google Tools and Slack are not used frequently with just 3,4% as well as Doodle with 6,9%. 17,2% mentioned to use other tools than the ones the survey specifically asked for. Miro, Mural, Cryptpad, Big Blue Button, Trello and Mentimeter were not used at all in the VET centers.

## b) Skills

### VET centres

*In Spain 3 VET centers took part in the questionnaire about the current state of digitalisation in vocational education and training.*

The question asked about online training offering greater flexibility, Spain got a high range (4/5) second to Lithuania, however when asked how helpful these tools are for them it turns out to be just in the upper midfield (3.67/5).

Another question was asked due "To what extent did you receive training to use digital tools?" We were given feedback on the upper midfield (3.33/5), but for students and teachers, there is so much motivation given in working with other people giving a high range (4/5) seems more likely so they can connect/interact with each other, such as



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playing mini educational games on kahoot! building a better relationship with both parties.

Around upper midfield (3.33/5) was given to what extent did they change their didactic & instructional methods, on the other hand Spanish students took digitalisation learning more positively then the other countries such as Belgium with 2.20/5, Italy 2.33/5, Lithuania and Germany were both given a 3/5, meanwhile Spain got upper midfield 3.67/5 and a similar score their creativity (ideation, problem).

The use of digital tools was well accepted by Spain with a high range (4.33/5), which seems to be a very good reason to keep learning new tools giving the highest range of all (5/5).

**Trainer**

In Spain 23 VET trainers took part in the questionnaire about the current state of digitalisation in vocational education and training.

The survey of teachers and trainers to the question asked "To what extent did you receive training to use digital tools?" was a good the upper midfield ·(3,04/5).That said, they were motivated to work with other people in a digital learning environment giving a high range (3.57/5). Teachers/trainers also somewhat found a way to improve or change their didactic and instructional methods giving yet again a good feedback of upper midfield (3.52/5).

To what extent has your digital competence developed Since the beginning of the pandemic? This question was given a range of upper midfield (3.52/5), and "To what extent are you a digital person yourself?" was just placed in the midfield (2.96/5).

Teachers/trainers were asked about the use of digital tools to change their motivation to learn. It seems that they enjoyed it, giving feedback of upper midfield (3.22/5), however, answering the question if they already had previous experience in using digital tools, the feedback was very high (4.04/5). A very good reason to continue learning about new tools is that they gave a high feedback (4.04/5).

Another question was asked for the teachers/trainers on how the training that they received helped them to use digital tools; they were pretty happy giving a upper midfield range (3.22/5),however when asked about the question if they miss social interaction the feedback is high giving upper midrange (3.83/5) meaning it is somewhat important to feel, to see each other and to interact in person rather than talking to a person on a screen.

Teachers/trainers noticed that giving online class / learning digitally turns out to be a good way for some students to learn more or pay more attention, might just be because



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nowadays kids grew up using gadgets (3.35/5). These gadgets/tools are also a landinghand for some of our teachers/trainers to express their creativity giving an upper midrange (3.04/5). For example, CANVA is a good way to showcase your imagination on what you want to share in class.

### Students

In Spain 29 VET students took part in the questionnaire about the current state of digitalisation in vocational education and training.

Spanish students were asked the question "To what extent did the received training help you to use digital tools?" and they gave an upper mid rate meaning it really helped them with their studies. The received training to use digital tools was also given an upper midrange.

Students here in Spain seemed to really like working with other people in a digital learning environment either with their teacher or their classmates giving a range in upper midfield. Digital competence that they developed during the pandemic also has an upper midrange due to what they have learnt. However there is a slight downfall on how they see themselves as a digital native giving just right up midrange.

Digital tools have brought students a positive success influenced by the digitalisation giving a high midrange, and the creativity (ideation, problem) influenced by digitalisation is slightly lower.

The next question was about how they were able to concentrate in comparison to class in presence, the students gave an upper midfield rating. And a little bit higher on how motivated they are to learn using digital tools. An even higher range was given when asked if they had previous experience in using digital tools, this might be because of the fact that modern Schools/Universities etc. have already been working on these tools before the pandemic. The majority of the students have voted a high middle range to continue learning about new tools.

## c) Administration

### VET centres

In Spain 3 VET centers took part in the questionnaire about the current state of digitalisation in vocational education and training.



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The question "To what extent is your organization digital?" Spain seems to have embraced and adapted to it quickly giving the highest field (4.33/5) of all the four countries, however there is a lower rating on the IT equipment for online learning giving just an upper midfield (3.33/5).

Due to the pandemic, the lack of theory classes in Spain have fallen down to 66.7% / 100% parallel to Germany. Unfortunately, practical classes are down to 0% / 100%. However tests and exams had good results with a 66.7% / 100% thanks to the given theory classes.

### Trainer

In Spain 23 VET trainers took part in the questionnaire about the current state of digitalisation in vocational education and training.

Teachers/Trainers agreed that theory classes could be organized more during pandemic raising up to 91,3%, meanwhile practical classes are down to 40,6%. Even though practical classes are much lower than the theory classes, tests and exams results were good, raising up to 53,1%. Info sessions are flat 50%.

### Students

In Spain 29 VET students took part in the questionnaire about the current state of digitalisation in vocational education and training.

The question "To what extent does your school have IT equipment for online learning?" students gave an upper midfield range. During the pandemic 34,8% of the Spanish students voted that theory classes could be more organized remotely while practical classes had 52,2%. And 34,8% of tests and exams, info sessions are up to 43,5%.

*Which technology has been the most useful*

In our study, we asked 3 VET centers, 23 teachers/trainers, and 29 VET students in Spain specifically which category of digital tools were most useful to them. A common result for all three groups is that a majority of respondents answered that digital communication tools were most helpful. Furthermore, there are some differences in what additional technologies were rated as useful by the three target groups:

### VET centres



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All of the respondents choose the category of digital communication tools and data storage as most helpful. Moreover, more than half of the respondents (66,7%) considered collaboration tools as most helpful, followed by learning management systems (LMS) and learning apps with each 33,3%. Meanwhile the categories “ideadion (mindmap)”, and “others” have not been rated.

**Trainer**

With 91,3% the trainers rated the category of digital communication tools as most helpful. Followed by 60,9% of respondents that considered data storage tools as most helpful. Another 47,8% rated collaboration and learning apps as the most useful tools. Only 26,1% rated learning management systems and only 4,3% ideation tools as useful. 8,7% said that other tools that have not been asked for in our survey are useful.

**Students**

58,6% of respondents choose the category of digital communication tools as most helpful. Followed by 34,5% that rated Learning Apps and another 31% that rated learning management systems and data storage tools as most helpful. Whereas collaboration and ideation tools have not been considered most helpful, with only 27,6% and 13,8%. Also just 3,4% said that other tools that have not been asked for in our survey are useful.

*Need for further development and improvements*

**a) VET centres**

**Technology**

The standardisation of the digitalisation process was rated good by the VET centers but still there is space for improvement.This also stands for the extent to which subjects are teachable remotely. The shift from analogue to digital ways of working are rated good but could be managed even better in the future. Also there could be an improvement regarding the adaptation to the new learning situation. Here guidelines and courses may help.

**Skills**

Vet centers noticed a small positive change regarding the learning success. Here, VET centers would need more training and insights on how to take advantage of the digitalisation to improve the learning success. Vet centers noticed a small positive change regarding the creativity impacted by digitisation. Here it would be desirable to



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further increase creativity through digital tools. This also stands for the extent to which the motivation of all parties increased.

### Administration

Following the survey results, VET centers are just moderately equipped with digital tools for online learning. This stands also for the schools digital offerings, which just changed moderately. An increment of digital offerings is desirable here. Also it was not possible to teach practical classes remotely. Regarding this point, there is a high need for further innovation on developing strategies on remote practical classes.

Overall, in all the categories (theory classes, tests and exams and info sessions), there is potential for better implementation of online organisation.

## b) Teachers

### Technology

The standardisation of the digitalisation process was rated in the middle range with the tension to be good but still there is space for improvement. This also stands for the extent to which subjects are teachable remotely. There is a need for increment here.

Regarding the suitability of the digital tools provided for the teaching needs, the adaptation to the new learning situation, the transition from the analogue to the digital working techniques and the extent to which students have more education options, are all rated in the middle range with the tendency to be good. Especially here, we see a need for further improvement of the current digital situation.

### Skills

The motivation to learn using digital tools had an upper midfield, meaning there is still space for improvements while previous experience in using digital tools have given a very high range and just a little gap to fill for improvements, the same as by continuing to learn about the new tools. However online training is not giving a good flexibility to teachers/trainers which needs to improve as well as the training that they have received.

On the other hand, missing social interaction together with positive exchange regarding the learning success of your students and creativity (ideation, problem) influenced by digitalisation, needs a lot of improvements. Also the ability to concentrate in comparison to class in presence needs to be improved.



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### Administration

Remote theory classes just have a little space to improve, getting a 91.3% in range. Meanwhile, practical classes need a lot more attention and improvement showing a 40.6% in range. Tests and exams however are higher than the percentage of practical classes by 53,1% but still show a need for improvement. Info sessions also have the same level as tests and exams.

## c) Students

### Technology

According to the survey of students, the digital tools provided by the educational institution which are suitable for their learning needs were given an upper midfield and needs some improvement. A small difference of the same field yet still needs to be improved is the adaptability of the new learning situation. The transition from analogue to digital working techniques needs to be considered here. Online education options in comparison to class in presence was rated low meaning it limits courage and enthusiasm which indeed needs more attention and improvement.

The two categories: a guideline to help people using digital tools during class and the fact that digital tools become part of the way of work now, both given a rating in the upper midfield. It shows that there is still room for improvement. However, there is more space to improve on the digitisation process standardised in school than the digital improvement in work-life-experience.

### Skills

There is room for improvement on how students receive the help to use digital tools since the survey shows a high midfield rating. A slightly lower rating but still in the midfield was given on how the training was received to use digital tools. However, students like working with other people in a digital learning environment giving a high midrange but also here there's plenty room for improvement.

Students were asked if their digital competence developed since the beginning of the pandemic. This question was given a rating in the upper midfield . A slightly lower rating was given to the question “To what extent do you see yourself as a digital native”. It seems like they need more lessons and practice for a genuine improvement. We got the same result on positive changes regarding their learning success influenced by



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digitalisation. Creativity (ideation,Problem) and the ability to concentrate compared to class in presence really needs a lot of improvement giving just a midfield of range. However a high midrange was given on how digital tools change their motivation to learn and an even higher range was given to the question if they ever had a previous experience in using digital tools. All respondents said they're willing to continue learning about new tools to fill any voids to cover for improvements.

**Administration**

Theory classes and practical classes could be organized remotely and could have improved during the pandemic giving just a 37% and 48%. This resulted in a low percentage of tests and exams with a rating of 27,6%. Nevertheless info sessions are much higher giving a score of 51,7% and both categories need a lot of attention and improvements.

# Germany

*How teachers, students and training centres have faced the challenges of the necessary digitalization of learning content*

## a) Technology

**VETcenters**

According to the VET centres, the use of digital tools in their daily work is in the middle range. In their opinion the work-life experience has improved only moderately as a result of digitalisation. In addition, the standardisation of the digitisation process in the VETcenters and the extent to which their topics can be taught remotely are rated rather low.

In their opinion, the VET centres surveyed in Germany have not been able to adapt particularly quickly to the new (digital) learning situation. They are in the mitddle range here. This statement is consistent with the assessment of how successful the transition



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from analogue to digital working techniques was: rather low. Stringent to this is also the opinion of the VET centres that there were fewer digital learning options for the students in comparison to class in presence. A guideline for the use of digital tools in class is considered rather helpful.

When asked which online and offline tools were used, more than half said Microsoft Teams, Youtube and e-mail. In second place, with 40% each, were Zoom and Doodle. And in third place, with 26,7% each, were Google Tools, Mentimeter and Whatsapp. Mural, Cryptpad, Slack and Trello were not used at all in the VET centres, Moodle, Jitsi, Microsoft Office Online and BigBlueButton 20% each, Miso just over 13% and Scratch by just under 7%.

### Trainers

The use of digital tools in daily work is somewhat higher among the teachers/trainers surveyed than among the VET centres, but is still in the middle range. Likewise, in their opinion, the work-life experience has only improved moderately as a result of digitalisation. With regard to the standardisation of the digitisation process in the schools, the teachers/trainers come to a still mediocre and thus slightly better result than the VET centres. Interesting, on the other hand, is the difference in the evaluation of remotely teachable topics: While the VET centres rate this possibility rather low the teachers/trainers see a medium to high potential here. A guideline to the use of digital tools in classrooms is also rated better and as very helpful.

Just like the VET centres, the teachers/trainers surveyed do not think they have been able to adapt to the new (digital) learning situation very quickly and are in the middle range here. And the assessment of how successful the transition from analogue to digital working techniques was and to what extend the students/trainees had more educational options online than with in class presence is also seen by the teachers/trainees as rather low, as it is by the VET centres. Finally, the appropriate digital tools provided by the educational institutions for their teaching are rated with a medium value.

With regard to online and offline tools, Microsoft teams and e-mail were in first place for teachers/trainers as well as for VET centres. each with 70%. Similarly, Zoom came second for teachers/trainers, albeit with a higher overall share of 50%. Youtube, which is also in first place among VET centres in terms of use, only reaches 30% here and is in third place together with Moodle, Miro, Microsoft Office online and Trello. Doodle, Mentimeter and Google Tools also score lower with 20% each among teachers/Trainers, while Jitsi and BigBlueButton - also 20% - are just as popular as among VET centres. Whatsapp, Mural and Cryptpad (10% each) and Scratch and Slack (0% each) bring up the rear among teachers/trainers.



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### Students

Student' use of digital tools during their work is also only in the middle range, although it tends to be in the upper-middle range compared to the other groups surveyed. Similarly, the results on improving work-life experience through digitisation, on standardising the digitisation process in schools and on a guideline to the use of digital tools in class are all in the middle range.

Slightly better ratings compared to the other two groups surveyed, VET centers and teachers/trainers, are recorded for the questions to what extent the students were able to adapt quickly to the new learning situation, if the transition from analogue to digital working techniques was successful and to what extent the students have more educational options online compared to in class lessons. However, it should be noted that the ratings are still in the middle range. The students' satisfaction with the digital tools provided by the educational institution is also in the medium range.

As far as online and offline tools are concerned, Microsoft Teams is also used most by students (60%), followed by Zoom (53,7%). E-Mail and Whatsapp are in third and fourth place with 45,5% and 42,3% respectively. In the 20% range are Moodle (26%) and Microsoft Office online (20,3%). Jitsi, Mentimeter and Doodle score 14,6%, 12,2% and 10,6% respectively. Miro, Mural, BigBlueButton, Cryptopad, Scratch, Google tools, Slack and Trello are below 10% and Youtube even at 0%.

## b) Skills

### VET Centres

The answer to the question to what extent they were trained to use digital tools is in the middle range. the result on how helpful these trainings were turns out to be slightly better, but is also still in the midfield.

A poor "3" was given to the question of the extent to which online training gives VET centres more flexibility and the extent to which didactic and instructional methods have been changed. There is rather little interest in working together with other people in a digital learning environment.

The impact of the use of digital tools is assessed somewhat better across the board by the VET centres surveyed - even if they are only in the midfield or upper midfield. In comparison with the other countries, Germany is in the upper range when it comes to the positive efforts of digitalisation on the learning success of students. The VET centres definitely recognise (at least slight) positive effects on the motivation of the participants and on their creativity (ideation, problem) and they are still learning (at least



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somewhat) with regard to new tools. However, this may also be influenced by previous experience in using digital tools.

### Trainers

The assessment of the extent to which teachers/trainers have been trained to use digital tools is in the upper-middle range, which is better than for the VET centres. However, the result on how helpful these trainings have been is slightly worse than for the VET centres. This means basically that it was good that training took place, but the training itself could have been better. In the upper midfield, the teachers/trainers rank the development of their digital competences since the beginning of the pandemic. Fewer see themselves as digital natives.

It is interesting to note that compared to the VET centres, the teachers/trainers also rated higher the questions to what extent online training gives teachers/trainers more flexibility and to what extent didactic and instructional methods have been changed: In contrast to VET centres, their rating is more in the upper-middle range. They also rate slightly better the interest in working with other people in a digital learning environment.

To what extent the use of digital tools has changed the motivation to learn is rated in the middle range by teachers/trainers. Like the VET centres, they are still learning about new tools. And like them they also had prior experience of using digital tools. Both ratings are in the upper-middle range, like those of the VET centers. The teachers/trainers do see an impact of digitalisation on the learning success of the students, but to a lesser extent. This also applies to the influence of digitalisation on their own creativity (ideation, problem). They see their ability to concentrate in comparison to in class presence in the slightly upper-middle range. However, what they strongly miss is social interaction.

### Students

The students' assessment of the extent to which they have been trained in the use of digital tools is somewhat worse than that of the other two groups surveyed. It is in the lower middle range. The difference to the teachers/trainers and VET centers is more apparent when it comes to how helpful the training was: in this case the tendency among the students is rather low. They are also the group most likely to work with other people in a digital learning environment. Their rating is in the upper-middle range compared to the rather low interest of VET centers and the rating in the (lower) middle range of the teachers/trainers. It is not surprising that the students see themselves to a high degree as digital natives and that they have used digital tools before the pandemic.



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However, on the other hand, their assessment of the extent to which they have further developed their digital skills since the beginning of the pandemic is still at a rather high medium level. On the question of the extent to which they learn about new tools, their rating is similar to that of VET centres and teachers/trainers in the middle range. The same applies to positive effects of digitalisation on learning success, the influence on creativity (ideation, problem) through digitalisation, weather they can concentrate better compared to in class presence and to what extent the use of digital tools increases their motivation to learn.

### c) Administrative organisation

#### VET Centers

In terms of administrative organisation, the VET centres surveyed are reasonably well equipped with IT equipment for online learning: They rate the equipment at their disposal as "high". The extent to which the organisation is digital is assessed with a good average value, and a medium result is also shown in the question of the extent to which the digital offers of the school have changed.

In the pandemic, remote courses were mainly offered in theory classes (66,7%) and to a lesser extent in info sessions (46,7%). At least 20% used the remote offer for practical classes and 13,3% for tests and exams.

#### Trainers

With regard to IT equipment for online learning, the teachers/trainers give a rating in the upper-middle range and thus rate it slightly worse than VET centres.

According to teachers/trainers, with the exception of theory classes (80%), hardly anything has been offered remotely: Info sessions 5,9%, practical classes 2,2%, tests and exams not at all. The difference between these results and the answers provided by the VET centres is large: they stated that practical classes had been offered at 20% and tests or exams about 13%.

#### Students

Regarding the equipment of their school with IT equipment for online learning, the students give a rating in the lower middle range. This is the worst rating of all three surveyed groups.



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Surprising is the result of the students in comparison with the teachers/trainers regarding the remote offers: the students see the highest remote share in theory classes (71,5%). But they also name info sessions (38,2%), practical classes (24,4%) as well as tests and exams at 30,1%. Concerning the practical classes, they are close to the result of VET centers with 20%.

### *Which technology has been the most useful*

In our study, we asked German VET centers, teachers/trainers, and students specifically which technologies were most useful to them. A common result for all 3 groups is that a majority of respondents answered that digital communication tools were most helpful. In addition, there are some differences in what additional technologies were rated as useful by the three target groups:

**VETCentres**

67% of respondents choose the category of digital communication tools as most helpful. Almost half of respondents (47% ) considered collaboration tools as most helpful, followed by learning management systems (LMS) whereas the categories “ideadion (mindmap)”, “learning apps” or “data storage” have not been highly rated.

**Trainer**

80% of respondents choose the category of digital communication tools as most helpful. 50% of respondents considered data storage tools as most helpful, followed by collaboration tools (40%) whereas the categories have not been highly rated.

**Students**

Almost 70% of respondents choose the category of digital communication tools as most helpful. 46% of respondents considered collaboration tools as most helpful, whereas other categories have not been considered most helpful by a considerable number of respondents.

### *Need for further development and improvements*

**a) VET Centres**



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In the context of "digitalisation" in the area of VET Centres, there is a need for further developments and improvements in the categories of technology, skills and administration.

**Technology:**

There is a need for the introduction of remote working facilities compared to other countries. VET centres are not sufficiently equipped with digital tools. The shift from analogue to digital ways of working is rare or non-existent. Introducing augmented reality could help address the need for practical training, especially in situations where remote training is necessary.

**Skills:**

Trainers need support to teach online. Appropriate regulations are needed to facilitate the process. Pedagogical help and advice from external experts could support trainers in teaching online and using digital tools effectively.

**Administration:**

Because digitisation has not been identified as a process, VET Centres face problems.

The supply of digital content has not developed to the same extent and at the same speed as digitalisation itself. Defining and setting up a digital strategy for schools, including legal and financial aspects, could help address the problem of digitalization not being determined as a process in VET Centres. Customized support for different schools and training programs based on their profile could help address the issue of VET centres not being adequately equipped with digital tools. In addition, the following recommendation could also be integrated:

Technology and Administration:

Digitalization can help fill in the staff gap in VET schools, which is a problem that affects both technology and administration.

Overall, there is a clear need for further development and improvement in the area of digitalisation in VET Centres in Germany in order to meet the requirements and expectations of the digital world.

### b) Trainer



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## Technology:

Improving distance education: Responses indicate that there is room for improvement in the way distance education is delivered. Teachers may need more support, training and resources to deliver quality distance education.

Standardization of digitisation processes in schools is needed. This could help ensure that all teachers and students have access to the same tools and resources.

Teachers could benefit from more digital tools and resources to improve their working lives. This could include tools to help with lesson planning, grading and communication with students and colleagues.

Integration of digital tools: Teachers need more support in integrating digital tools into their teaching practice. This could include training on how to use digital tools effectively and how to integrate them into lesson planning.

There is a lack of guidelines for the use of digital tools. This could help ensure that students use the tools in productive and effective ways.

Digital transformation includes a wider range of online courses. Teachers may need more support and resources to make this transition successful. In addition, there seems to be a need for more appropriate digital tools for teaching needs. This could include tools that are specifically designed for the educational context and that meet the particular needs of teachers and students.

## Skills

Based on the responses from the survey, the following recommendations and insights can be drawn regarding the digital skills of German trainers:

Trainers should improve their digital skills to meet the demands of a digital learning environment. The pandemic has increased the digital know-how of trainers and forced them to adapt to new technologies. Trainers should strive to adapt their didactic and methodological approaches to digital learning environments.

Trainers should show more interest in working with others in a digital learning environment. More training and education is needed to help trainers use digital tools effectively. Training should be improved to enable trainers to use digital tools effectively. Online trainings offer more flexibility and should therefore be used more in the future.



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Trainers should continuously learn about new digital tools and technologies. Trainers should increase their experience in using digital tools. Digital tools should be made more engaging and interactive to increase the motivation of trainers. Trainers should strive to improve their concentration in a digital learning environment. Trainers should be encouraged to try new digital tools and technologies to increase their creativity.

The digital learning environment can have a positive impact on learning outcomes, but more research needs to be done. Trainers should also have opportunities for social interaction in the digital learning environment.

**Administration**

VET centres should agree to standardise their digitisation processes to ensure that all teachers and students have access to the same tools and resources. Trainers should receive more support and training to provide quality distance learning and effectively integrate digital tools into their teaching practice.

The training of trainers should be improved to support them in the effective use of digital tools and to enhance their digital competences. Trainers need to be trained in learning apps, learning management systems, etc. and motivated to use them.

Digital tools should be made more engaging and interactive to increase the motivation of trainers and students. More research should be done to understand and improve the impact of the digital learning environment on learning outcomes. It is important to create opportunities for social interaction in the digital learning environment to foster a sense of community and collaboration.

### c) Students

**Technology**

It can be deduced from the students' survey that there is a need for improvement in the area of technology in education in Germany. The students' answers show that the digitisation process in VET-schools is not yet fully standardised and that there is room for improvement.

However, students now seem to use digital tools more and consider them part of their way of working. There is also an interest in guides and support for the use of digital tools in the classroom, suggesting that students need support to improve their skills in using digital technologies.



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However, there are also indications that the transition from analogue to digital working techniques has not yet been fully achieved, which suggests that further measures are needed to facilitate students' use of digital tools.

Overall, the student survey shows that there is a need for support and improvements in the area of technology to improve the learning process in education and to better meet the needs of students.

**Skills**

Overall, the trainees have average digital literacy and experience in using digital tools. Training on the use of digital tools has helped them only to a limited extent, but they remain open to learning new tools. The trainees have moderate learning motivation and concentration in digital learning environments and see little impact of digitalisation on their creativity and learning success. However, there is potential for improvement, especially through targeted training and the provision of interactive learning environments.

**Administration**

VET centres need to invest in technology infrastructure to ensure it meets the needs of students and enables seamless integration of digital tools. This can be hardware such as laptops, tablets or smartboards, but also network and internet connections to ensure a fast and reliable connection.

Students need support and training to improve their skills in using digital tools. Training on how to use software or apps can help, but also training on how to create digital content and use online resources. Guides or tutorials can also be provided to help students use digital tools.

Providing interactive learning environments can help to increase students' motivation to learn and improve their concentration. This can be achieved, for example, through the use of gamification elements, interactive videos or virtual realities.Students should be encouraged to explore creative uses of digital tools.

It is important that the digitisation process is standardised in schools and educational institutions to ensure that students have a consistent digital learning environment and that there are no discrepancies in terms of digital tools or resources.

## Belgium



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*How teachers, students and training centres have faced the challenges of the necessary digitalization of learning content*

## a) Technology

### VET Centres

*In Belgium 5 VET centres have responded to the survey.*

The vocational training centres that responded to the survey in Belgium score average in terms of rapid adaptation to the new learning context (score of 3.6 out of 5). However, they are less positive about the transition from analogue to digital working methods (score of 2.4 out of 5, significantly lower than in other countries) and about the greater number of online learning options compared to face-to-face courses (score of 2.4 out of 5, also the lowest score among the surveyed countries).

Responding vocational training centres in Belgium report average scores on the extent to which digital tools have become an integral part of their way of working (score of 3.6 out of 5) and the extent to which digitalisation has improved their work life experience (score of 3.4 out of 5). However, they report lower scores on the standardisation of digitalisation in their school (score of 3 out of 5) and the remote teachability of their subjects (score of 3.2 out of 5).

Finally, responding vocational training centres scored average in terms of a guideline being useful to help people using digital tools in class (score of 3.6 out of 5, lowest score among the countries surveyed).

### Trainer

*In Belgium 9 VET teachers/trainers have responded to the survey.*

The VET teachers/trainers that responded to the survey in Belgium generally consider that they were able to adapt quickly to the new learning situation (score of 4.22 out of 5, highest score among the surveyed countries), even though they are less positive about the suitability of the digital tools provided by their educational institution (score of 3.11 out of 5) and about the transition from analogue to digital working methods (score of 3.22 out of 5). They also scored rather low about the greater number of online learning options compared to face-to-face courses (score of 2.67 out of 5).

VET teachers/trainers are particularly keen on a guideline to help people use digital tools in the classroom (score of 4.44 out of 5, the highest score among the countries surveyed). Most of them also consider that digital tools have become part of their way of



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working (score of 4.22 out of 5, the highest score among the countries surveyed). They are also quite positive regarding the standardisation of the digitalisation process in their school (score of 3.78 out of 5) and the remote teachability of their subjects (score of 3.67 out of 5). They report an average score regarding the improvement of work-life experience through digitalisation (score of 3.56 out of 5).

### Students

*In Belgium 46 VET learners have responded to the survey.*

The VET learners that responded to the survey in Belgium generally consider that they were able to adapt quickly to the new learning situation (score of 3.74 out of 5, highest score among the surveyed countries), even though they are critical about the suitability of the digital tools provided by their educational institution (score of 2.54 out of 5) and about the transition from analogue to digital working methods (score of 2.93 out of 5). Like responding VET centres and VET trainers, VET learners also scored rather low about the greater number of online learning options compared to face-to-face courses (score of 2.57 out of 5).

VET learners generally agree that a guideline is useful to help people using digital tools in class (score of 3.43 out of 5) and that digital tools have become part of the way they work (score of 3.46 out of 5).

VET learners are less convinced that digitalisation process improved their work experience (score of 2.96 out of 5) and that this process is standardised in their school (score of 2.89 out of 5).

## b) Skills

### VET Centres

*In Belgium 5 VET centres have responded to the survey.*

Responding VET centres in Belgium report generally low scores on question on skills compared to the other countries surveyed. They had rather limited previous experience in using digital tools (score of 2.60 out of 5) and still do not dedicate much time now to learning about new tools (score of 2.60 out of 5, significantly lower than in other countries surveyed).



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Respondents generally didn't receive training to use digital tools (score of 2.40 out of 5) and, when they received training, they rated it as only moderately helpful (score of 3 out of 5).

Also, respondents don't consider that online training offers greater flexibility (score of 2.40 out of 5), nor did they particularly enjoy working in a digital learning environment (score of 2.80 out of 5) or changed their didactic and instructional methods (score of 2.80 out of 5).

Respondents didn't notice that digitalisation brought positive changes regarding students' learning success (score of 2.20 out of 5) or changed motivation of all players (score of 2.40 out of 5). Also, they consider that their creativity is not influenced by digitalisation (score of 2.20 out of 5).

## Trainer

*In Belgium 9 VET teachers/trainers have responded to the survey.*

Responding VET trainers don't consider themselves as digital natives (score of 2.56 out of 5), however they rather enjoy working in a digital learning environment (score of 4.11 out of 5, highest in the countries surveyed) and consider that the use of digital tools changed their motivation to learn (score of 3.89 out of 5, highest in the countries surveyed) and influence their creativity (score of 3.44 out of 5).

Responding VET trainers did change their didactic and instructional methods (score of 3.78 out of 5) and they consider that they developed their digital competences since the pandemic (score of 3.56 out of 5). Improvement of digital competence doesn't seem to be linked to specific trainings: trainers indicate that they did not receive training to use digital tools (score of 2.44, much lower than in other countries) and, when they received training, they rated it as only moderately helpful (score of 3 out of 5).

Responding VET trainers had rather limited previous experience of using digital tools (score of 3.11 out of 5), but they seem keen to continue learning about new tools (score of 3.44 out of 5).

Responding VET trainers indicate that they missed social interaction (score of 3.89 out of 5) and are also less positive on the influence of digital tools on learning success of VET learners (score of 3 out of 5) and their ability to concentrate in comparison to face-to-face classes (score of 3.11 out of 5).

## Students



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*In Belgium 46 VET learners have responded to the survey.*

Contrary to VET trainers, responding VET learners in Belgium consider themselves as digital natives (score of 3.72 out of 5) and report previous experience in using digital tools (score of 3.43 out of 5).

Compared to other countries, VET learners in Belgium score very low on receiving training to use digital tools (score of 1.91 out of 5) and the helpfulness of such received trainings (score of 1.98 out of 5). However, they report a higher score regarding improving their digital competence since the pandemic (score of 2.98 out of 5).

VET learners in Belgium, even if they like to work with others in a digital environment (score of 3.07 out of 5), are more critical about the impact of digital tools on their learning success (score of 2.76 out of 5), creativity (score of 2.61 out of 5), concentration (score of 2.98 out of 5) and motivation (score of 2.76 out of 5).

### c) Administration

#### VET Centres

*In Belgium 5 VET centres have responded to the survey.*

Responding VET centres in Belgium report lower scores than other countries regarding administrative matters, especially regarding to what extent the organisation is digital (score of 3.2 out of 5) and to what extent their digital offerings have changed (score of 2.8 out of 5). However, they report a higher score regarding being equipped with IT equipment for online learning (score of 3.4 out of 5).

In Belgium all respondents report that theory classes could be organized remotely during the pandemic (100%), whereas info sessions (60%) and practical classes (20%) are only mentioned by some respondents.

#### Trainer

*In Belgium 9 VET teachers/trainers have responded to the survey.*

Responding teachers/trainers in Belgium report a similar score than VET centres regarding the training centre being equipped with IT equipment for online learning (score of 3.44 out of 5).

However, in contrast to the responses from the training centres and learners, very few teachers/trainers report that activities could be organised remotely during the



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pandemic: theory classes (11.1% of respondents), info sessions (4.7%), practical classes (4.5%) and tests/exams (4.5%).

### Students

*In Belgium 46 VET learners have responded to the survey.*

Responding VET learners in Belgium report lower score than VET centres and VET trainers centres regarding the training centre being equipped with IT equipment for online learning (score of 2.30 out of 5). This score is also much lower than for VET learners in other countries.

As VET centres, almost all responding learners (95.7%) report that theory classes could be organised remotely during the pandemic. Other activities are mentioned by only some respondents: info sessions (26.1%), practical classes (23.9%) and tests/exams (17.4%).

*Which technology has been the most useful*

In the surveys, the 3 target groups (VET centres, trainers/teachers and students) were asked about which category of digital tools helped them the most in the way they work. In Belgium, all 3 target groups report the highest score for **communication tools** (100% of VET centres,77.8% of trainers/teachers and 67.4% of students).

### VET Centres

*In Belgium 5 VET centres have responded to the survey.*

The responses from training centres in Belgium are very clear-cut: communication tools are unanimously mentioned as most helpful (100% of responses, 5 respondents) and only one response (20% of responses, 1 respondent) mentions something else (learning management system tools).

Regarding specific tools that they did use, 100% of respondents mentioned Microsoft Teams, Zoom and email. Some of the respondents mentioned Doodle (60%), Whatsapp (40%), YouTube (40%) and Microsoft Office online (20%).



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### Trainer

*In Belgium 9 VET teachers/trainers have responded to the survey.*

Trainers and teachers rated communication tools (77.8%) and collaboration tools (44.4%) as most helpful. A third of respondents (33.3%) also mentions LMS tools and "other", whereas categories of ideation, learning apps and data storage were lowly rated.

Regarding specific tools that they did use, trainers mentioned Zoom in majority (88.9%) followed by YouTube (55.6%), Microsoft Teams, email and Whatsapp (all 3 at 44.4%).

### Students

*In Belgium 46 VET learners have responded to the survey.*

VET learners rated communication tools (67.4%) as most helpful, whereas other categories received rather low scores: collaboration tools come second with 28.3% and data storage tools third with 21.7%.

Regarding specific tools that they did use, VET learners reported the same top 3 as the training centres: Zoom (87%), Microsoft Teams (69.6%) and email (41.3%)

*Need for further development and improvements*

### a) VET Centres

*In Belgium 5 VET centres have responded to the survey.*

**Technology**

Vocational training centres need to be supported in the transition to digital and the adoption of standardised digital processes.

**Skills**

There is a need for specific trainings in digital tools for staff in VET centres.

**Administration**



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VET centres need advice and support to use their existing IT infrastructure in an efficient and resilient way, in order to be able to cope with any other unexpected events.

### b) Trainer

*In Belgium 9 VET teachers/trainers have responded to the survey.*

**Technology**

There is a strong demand from trainers for a guide to help them use digital tools in the classroom.

**Skills**

Trainers need to be trained in the use of digital tools to motivate, inspire creativity, maintain attention and promote success of their learners. Special attention should be given to trainers who do not consider themselves digital natives and are less comfortable with digital tools.

**Administration**

Trainers should be informed about the possibilities offered by their educational institutions regarding the possibility to organize activities online.

### c) Students

*In Belgium 46 VET learners have responded to the survey.*

**Technology**

VET learners are, like VET trainers, in demand for a guideline to use digital tools in the classroom.

**Skills**

Take advantage of existing digital skills and the digital native status of learners to train them in the use of transversal and/or job-specific digital tools.



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**Administration**

Explore the possibility to inform and give access to VET learners to the IT infrastructure and digital tools of the VET centre.

# Lithuania

*How teachers, students and training centres have faced the challenges of the necessary digitalization of learning content*

## a) Technology

### VETCentres

Surveys of VET centres administration in Lithuania show that digital tools have become part of work. However, VET centers administration respondents neither agree nor disagree that digitalization has improved their work-life experience.

The respondents neither agree nor disagree that adapting to the new learning situation was quick and that the transition from analogue to digital working techniques has succeeded and that guideline is useful to help people use digital tools during class.

VET center administration respondents agree that most subjects can be taught remotely.

### Trainer

Trainers in Lithuania state that digital tools have become the part of the way they work and agree that digitalization has improved their work-life experience. They agree that guideline is useful to help people using digital tools during class. Trainers in Lithuania think that digitalization process was standardized in their school and their subject can be taught remotely. They find the digital tools that have been provided by their educational institution as suitable for their teaching needs. They were able to quickly adapt to the new learning situation and the transition from analogue to digital working techniques has been successful. Trainers in Lithuania neither agree nor disagree that students have more education options online in comparison to class in presence.

### Students



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Students in Lithuania report that digital tools have become the part of the way they learn and digitalization has improved their work-life experience. They find that the digitalization process was standardized in their school and the digital tools provided by their educational institution were suitable for their learning needs. Students in Lithuania neither agree nor disagree that guideline is useful to help people using digital tools during class.

It was quick to adapt to the new learning situation for the students in Lithuania.

Students in Lithuania neither agree nor disagree that the transition from analogue to digital working techniques has been successful and that they have more education options online in comparison to class in presence.

### b) Skills

#### VETCentres

VET centres administration in Lithuania report that they didn't have previous experience in using digital tools, but they received training to use digital tools and the received training helped them to use digital tools and online training offered greater flexibility to them, even though they had to change their instructional methods and work with other people in a digital learning environment was not suitable for everyone.

No positive changes regarding the learning success of their students influenced by digitalization have been noticed. VET centres administration in Lithuania agree that creativity (ideation, problem) is influenced by digitalization, but not everyone thinks that the use of digital tools has changed the motivation of all players. VET centres administration in Lithuania neither agree nor disagree that they will continue learning about new tools.

#### Trainer

The survey showed that some trainers in Lithuania had more previous experience in using digital tools than the others. Whereas, as they report, they received training to use digital tools and their digital competence has developed since the beginning of the pandemic and

they see themselves as digital natives and that they will continue to learn about new tools.



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Trainers liked working with other people in a digital learning environment although they had to change their instructional methods. Trainers in Lithuania agree that online training offered them a greater flexibility but they missed social interaction.

Trainers in Lithuania neither agree nor disagree that they have noticed positive changes regarding the learning success of their students influenced by the digitalization and they neither agree nor disagree that creativity (ideation, problem) is influenced by the digitalization. Trainers in Lithuania agree that they can concentrate better in comparison to class in presence.

### Students

The survey shows that students in Lithuania see themselves as digital natives and note that their digital competence has developed since the beginning of the pandemic. The question about their previous experience in using digital tools reveals that not everyone was very skilled. Students' satisfaction with the received training to use digital tools and the influence of this training on the use of digital tools is average. Students were satisfied enough with the work with other people in a digital learning environment. Students in Lithuania neither agree nor disagree that they have noticed any positive changes regarding their learning success influenced by the digitalization, as their motivation to learn hasn't changed. However, they think that their creativity (ideation, problem) is influenced by the digitalization. They moderately appreciate the ability to concentrate more on working in a digital environment. And only part of the students in Lithuania point that they will continue to learn about new tools.

## c) Administration

### VETCentres

VET centres in Lithuania identify their organizations as digital. They think that the IT equipment for online learning is appropriate and agree that digital offerings have changed.

Every VET centres in Lithuania that participated in this survey stated that all info sessions, theory and practical classes could be organized remotely during the pandemic.

However they state that tests and exams or other activities could not be organized remotely during the pandemic.

### Trainer



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Trainers in Lithuania evaluate the possibility of organizing teaching/learning remotely in the following way: 13.6% of trainers state that theory classes could be organized remotely during the pandemic; 11.8% state that info sessions could be organized remotely during the pandemic; only 9% of trainers in Lithuania state that practical classes could be organized remotely during the pandemic; 6.7% state that tests and exams could be organized remotely during the pandemic; 1.1% state that other activities could be organized remotely during the pandemic.

**Students**

The students who were surveyed experience learning remotely reports that 58.8% of students in Lithuania were able to attend theory classes and info sessions organized remotely during the pandemic. 52.9% of students in Lithuania state that tests and exams could be organized remotely during the pandemic. 29.4% of students in Lithuania confirm practical classes to be organized remotely during the pandemic. 14.7% of students in Lithuania participated in other activities organized remotely during the pandemic.

*Which technology has been the most useful*

**VETCentres**

Every VET centre in Lithuania that participated in this survey used Microsoft Teams, Zoom, Mural, Google tools, e-mail, Doodle and YouTube. 50% of VET centre respondents used Miro and Mentimeter.

Every VET centre respondent agrees that communication, collaboration, and data storage digital tools have helped them the most in the way they work.

**Trainer**

The most used tool was Zoom, reported by 62.5% of trainers in Lithuania. 56.3% of trainers in Lithuania used Microsoft Teams, Google Tools, and e-mail. 50% of trainers in Lithuania used YouTube. Moodle and WhatsApp were popular among 25% of trainers in Lithuania. 18.8% of trainers in Lithuania used Microsoft Office online. Other tools like BigBlueButton, Scratch, Mentimeter, Doodle and other were used by 6.3% of trainers in Lithuania.

62.5% of trainers in Lithuania state that communication tools helped them the most in the way they work. Data storage tools were the most helpful in the way they work for



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9.4% of trainers and 8.2% of trainers in Lithuania find collaboration tools the most helpful in the way they work. Learning apps helped the most 7.9% of trainers in Lithuania in the way they work. Only 2.2% of trainers in Lithuania state that learning management systems (LMS) helped them the most in the way they work.

**Students**

The most used tool among surveyed students was e-mail. 73.5% of students in Lithuania used e-mail. Really popular was YouTube, used by 70.6% of students in Lithuania. 61.8% of students in Lithuania used Zoom and 47.1% of students in Lithuania used Microsoft Teams. Both Microsoft Office online and Google Tools were used by 35.3% of students in Lithuania. 23.5% of students in Lithuania used WhatsApp. 14.7% of students in Lithuania used Moodle, as well as some other tools. 5.9% of students in Lithuania used Scratch and Doodle and only 2.9% of students in Lithuania used Jitsi.

64.7% of students in Lithuania state that collaboration tools helped them the most in the way they work. Communication tools were helpful for 58.8% of students in Lithuania

32.4% of students in Lithuania find data storage tools helpful and 29.4% of students in Lithuania find that learning apps helped them the most in the way they work.

23.5% of students in Lithuania state that learning management systems (LMS) helped them the most in the way they work and 14.7% of students in Lithuania state that ideation (mindmap) tools helped them the most in the way they work.

*Need for further development and improvements*

**a) VET Centres**

**Technology**

Good coordination of adapting the digital teaching/ learning environment with informative and useful guidelines to help teachers and students use digital tools during class. Using the same digital tools for communication, collaboration, and data storage among all staff.

**Skills**

Possibility for continuous development of digital skills in order to motivate students, develop their creativity and curiosity.



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**Administration**

Adaptation of the digital tools and resources for assessing students' knowledge and taking exams.

### b) Trainers

**Technology**

Mastering digital resources to organize and give interactive lessons including practice. The use of standardized resources, integration of LMS and collaboration among teachers.

**Skills**

Possibility for continuous development of digital skills in order to motivate students, develop their creativity and curiosity.

**Administration**

Mentoring of digital teaching process, possibility to afford digital resources and more training developing digital skills.

### c) Students

**Technology**

Demonstrate the benefits of online learning and promote self-study integrating mind mapping and creativity development tools.

**Skills**

Possibilities to develop creativity and other skills with the help of digital resources.

**Administration**

Integration of LMS to manage the whole study process and monitor the achievement of results.



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# Italy

*How teachers, students and training centres have faced the challenges of the necessary digitalization of learning content*

## a) Technology

### VETCentres

Evaluating the VETcenters surveyed in Italy on the question "How they have met the challenges of the necessary digitization of learning content", it became apparent that, according to their assessment, they were able to adapt quickly and successfully to digital working techniques and new learning situations. Moreover, this adaptation was made sustainably, since according to the respondents themselves, digital tools have become part of the daily work now. It also stood out that a majority of Italian VETcenters questioned stated that digitization improved their work-life experience.

Italian VETcenters are among the three European countries that indicated that they have standardized the digitization process to a higher extent and can teach most of their subjects remotely. Further, they could extend the education options online compared to class in presence.

However, Italian VETcenters rated the need for useful guidelines to help people using digital tools during class as high.

The main tools used online and offline in Italian VETcenters are Zoom and Microsoft Teams, followed by emails. Microsoft Office, Google tools, Whatsapp and Doodle all ranked fourth. It is evident that the Italian VETcenters interviewed are more likely to use communication tools than collaborative tools such as Miro, Trello and Moodle.

This is also reflected in the results when asking for the tools which helped the most in the way of work, where communication and data storage tools were ranked with the highest values, followed by collaboration, ideation and LMS tools.

### Trainer

Looking at the survey results of the teachers interviewed in Italy, it is noticeable that these are similar to the answers given by the VETcenters. The weighting of the individual questions was assessed very similarly. The success and the speed of the transition from analog to digital working techniques were rated as good.



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Unlike the VETcnters surveyed, the trainers indicated that the most used tool is email. Followed by Google tools and the webinar tools Zoom and Microsoft Teams are in place 3 and 4 of the ranking. YouTube was ranked in place 5.

In terms of tool categories, we notice a shift here from communicative to collaborative tools. Ideation and LMS software are less relevant for teachers, at least according to the survey results.

**Students**

Italian students indicated that, the implementation of digital tools and digitalization in general improved their work-life-experienced and that these are now part of their life. More than teachers or VETcenter rated. Also, the transition speed and success were rated to a slightly higher extent than teachers have rated it. The suitability of the digital tools is satisfactory for most of the interviewed students.

Students have the same opinion as teachers and VETcenters when it comes to the need for guides which familiarize themselves with digital tools and their handling.

The most used tool offline and online was email. Closely followed by Whatsapp and Zoom. For working offline the students preferred the use of Microsoft Office as well as YouTube. Looking at the category of tools, it is noticeable that communication tools are the ones with higher importance followed by collaboration tools. Learning apps and data storage take place 3 and 4 in this student-voted ranking. Unlike the rating of the teachers ideation tools and LMS solutions have a higher relevance for students even if it is much lower in relation to the previously mentioned tools.

### b) Skills

**VETCentres**

The implementation of digital tools in any kind of company or educational center brought flexibility to their employees. This is also the response of the VETcenters interviewed in Italy. The fact that digitization required a rethink in the didactic preparation of learning methods is also nothing new. However, many respondents indicated that the learning offerings on how to use digital tools, as well as the utility of these learning offerings, were/are unsatisfactory. Furthermore, it is very surprising that the extent to which the work with other people in a digital learning environment is enjoyed, was rated quite low compared to VETcenters in other European countries like Spain.



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Although there was a noticeable change in the motivation and creativity of all players affected by digitalization, the extent to which there was a positive change in student learning outcomes following the implementation of digital learning tools was rated as low in Italian VEcenters.

Previous experience in the use of digital tools was low, as in other European VETcenters, so it is not surprising that respondents now are continuing to learn about new tools and increasing their skills.

### Trainer

The ratings also coincided with those of VETcenters when it came to questions about skills. Previous experience in the use of digital tools was low and only a few would describe themselves as digital native. This reflects a higher rating when asking about the evolution of digital competences from the beginning of the pandemic, although the offers for getting familiar with the new digital tools were rated as low. Also, the popularity of working in a digital environment with others was rated at a moderate to a low level.

Teachers interviewed were also able to find, like the VETcenter, no striking differences in the motivation and learning success of students.

### Students

Different from the teachers, the self-assessment of the level of digital knowledge is higher here. Nevertheless, many students indicated that digital knowledge improved during the pandemic. Also the popularity of working in a digital environment with others is higher than among teachers.

Looking at the motivation and learning success of the students, as well as the influence of digitalization on their creativity was rated as moderate.

## c) Administration

### VETCentres

Concerning administrative topics, the interviewed VETcenters in Italy stated that they are well-equipped with IT equipment and that they consider themselves a digital company. However, digitalization and digital offerings have increased due to the pandemic and its challenges.



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When asking for the programs and learning offers that could have been organized remotely during the pandemic, info sessions had the highest rating, followed by theory classes and exams. The organization of practical classes was rated as poor.

### Trainer

Compared to other European countries, the IT equipment in educational institutions was rated slightly lower but similar to the status in Belgium. One could say it is in the European average.

The offerings which could have been organized and conducted well during the pandemic were according to interviewed teachers theory classes followed by info sessions. The organization of exams and practical lessons were evaluated as low. Compared to the rating of teachers in other European countries the overall rating of the realizability of training offers is poor.

### Students

Regarding the IT equipment the students gave a rating that is compared to the student rating of other European countries slightly higher.

Students indicated that organizing hands-on lessons was most likely to occur. Odd, since the organization and implementation of these were rated unsatisfactory by teachers and VETcenter. Followed by theory classes and info sessions. The realizability of tests and exams was rated as the lowest.

*Which technology has been the most useful*

### VETCentres

Most useful digital and technology solutions were communication tools like Microsoft Teams and Zoom, followed by emails. Working tools like Microsoft Office, Google tools as well as the survey tool Doodle were ranked fourth.

### Trainer

Most used by teachers and evaluated as most useful was communication via email. Closely followed by webinar and Google tools.



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**Students**

Students preferred tool is email and WhatsApp, which are both communication tools. Communication is therefore also very important to the Italian students surveyed, and is at the forefront of their choice of digital tools.

As for remote working the interviewed students prefer Microsoft Office.

*Need for further development and improvements*

**a) VET Centres**

**Technology**

VETcenters said that a large proportion of learners do not have the appropriate environment and equipment and wish for facilitated financing for digital devices in order to improve the IT equipment in their institutions.

**Skills**

Obviously there is a clear need for guidance. The implementation of useful and helpful guidance on how to use the digital tools as well as recommendations for adapting the learning offers to the digital tools is desired by most of the interviewed VETcenters in Italy.

**Administration**

Adequate procedures to be laid down in action guidelines and concepts and analysis in advance.

**b) Trainer**

**Technology**

Teachers interviewed pointed out the need for improving the IT equipment in schools as well as the availability of digital devices for teachers in schools. Also implementation of learning management systems like Moodle is desired.

**Skills**



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As in VETcenters there is a clear need for guidance. The implementation of useful and helpful guidance on how to use digital tools as well as recommendations for adapting the learning offers to the digital tools is desired by most of the interviewed teachers in Italy. Furthermore, they would like to make the participation and performance of digital training more mandatory.

**Administration**

Concerning the administration, the teachers highlighted that the methodology has to be improved and therefore they would like to require more investment into digital teaching and learning options.

### c) Students

**Technology**

Students mentioned that the technical equipment in schools, for teachers and students needs to be improved. Also a fast internet connection is desired.

**Skills**

Students would like to see that the teachers are familiar with the digital tools implemented in the referring school or classroom. It is often noted that teachers are not comfortable using digital tools. Further, they would like to have conformity among the tools used in one educational institute so that they do not have to adapt depending on the teacher who is leading the class.

**Administration**

There should be more opportunities to interact during online teaching lessons. The organization of online teaching has to be improved since many students point out that they feel less focused.

# 2. Joint recommendations for the digitization of learning content, skills and administrative organization based on the country specific experiences



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### a) VET Centers:

- It would be useful to define/set up a digital strategy for schools, including legal aspects, financial conditions, etc. It would let schools be prepared for different critical situations, and will help find solutions on regulations, data protection, etc. It is very important to convince the most adversed.
- The mindset of general managers/leaders have to change since they often become an obstacle to innovation. If the trainers are not convinced, they cannot carry the message to their students.
- Just having the strategy is not enough. Individual support is required. It has to be customized to different training and schools based on their profile. It is necessary to invest money and staff time to make this strategy work.
- Pedagogical help and advice could come from external experts.
- Introducing augmented reality could become a solution in order to make it possible to realize practical training remotely.
- Training centers should talk more to companies to understand their needs. They can become incubators for problem solving.
- Digitalisation can help fill in the staff gap in VET schools

### b) Trainers:

- Structured and lasting framework for learning is needed by trainers.
- It might be helpful to find out if and how digital tools for ideation (mindmapping) are useful for trainers.
- It is necessary to raise trainers' awareness on learning apps, Learning Management Systems, data storage, etc.
- Trainers need to be motivated to learn about digital tools and use them.
- Working on changing the attitude and mindset of trainers as well as to facilitate the learning of new tools would be beneficial.
- Digital tools should support the trainers in motivating their students.
- We should consider collecting the best practice from different sectors and industries and see how it could be applied for delivering practical training online (“Thinking out of the box”).



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- Motivation of students:
- Change of methods
- Let them try it out
- Maintain social interaction
- Creative tasks and lots of communication
- Adapt materials to needs
- Joint visualization of practical exercises
- Conduct joint activities and projects
- Integrate students' ideas
- Use of games, videos, links, invite guests from outside
- Space for questions and opinions

**c) VET Students:**

- Students need to be supported by providing them with a common strategy on methods and tools used by trainers.
- Students should learn more about the new tools because they still use the same as before the pandemic. The communication needs to be improved to inform and introduce students to the new tools.
- Equipment in VET centers needs to be improved.
- More opportunities for interaction should be created.
- Practical part of the training needs to be improved in order to create more possibilities for online and remote learning.
- Teachers need to be trained on how to deliver information to students.
- Internal training and offers for digital systems
- Personal contact persons for trainers
- Weekly "digital hour" for trainers only
- Bilateral exchange between trainers
- Provision of hardware and software
- Participation in the entire implementation process and involvement in



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the methodological and didactic change in teaching

- In-house and external training
- Accompanying the pedagogical consultants in the use of the online tools
- Payment of remuneration for distance learning

# 3. Joint needs for further development and improvement based on the country specific experiences

**Technology**

The following bullet points stand for the categories where deficits have been detected and improvement is wished for

**a) VET Center**

- Adaptation to new learning situation (3,58/5)
- Transition from analogue to digital working techniques (2,94/5)
- Implementing guideline to help people using digital tools during class (rated as useful with 4,10/5)
- Standardization of digitization process in school (3,03/5)
- Subjects that are teachable remotely (2,84/5)
- Increase usefulness of collaboration, ideation (mindmap) learning management systems (LMS), learning apps and data storage tools



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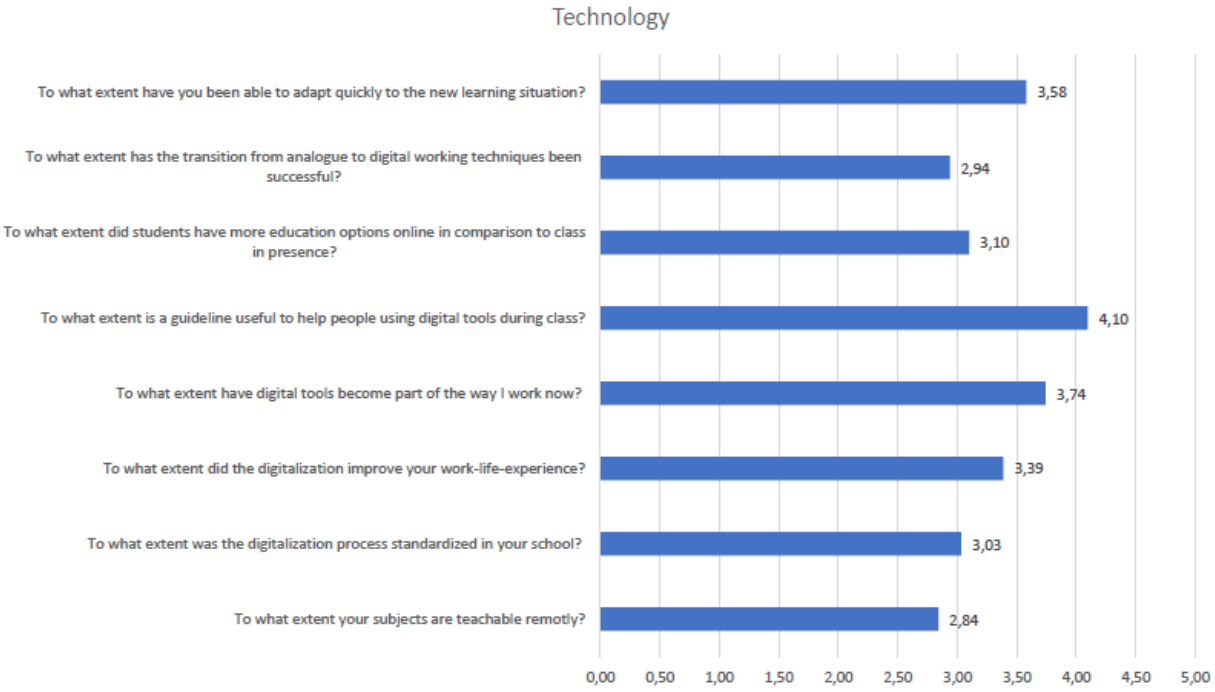


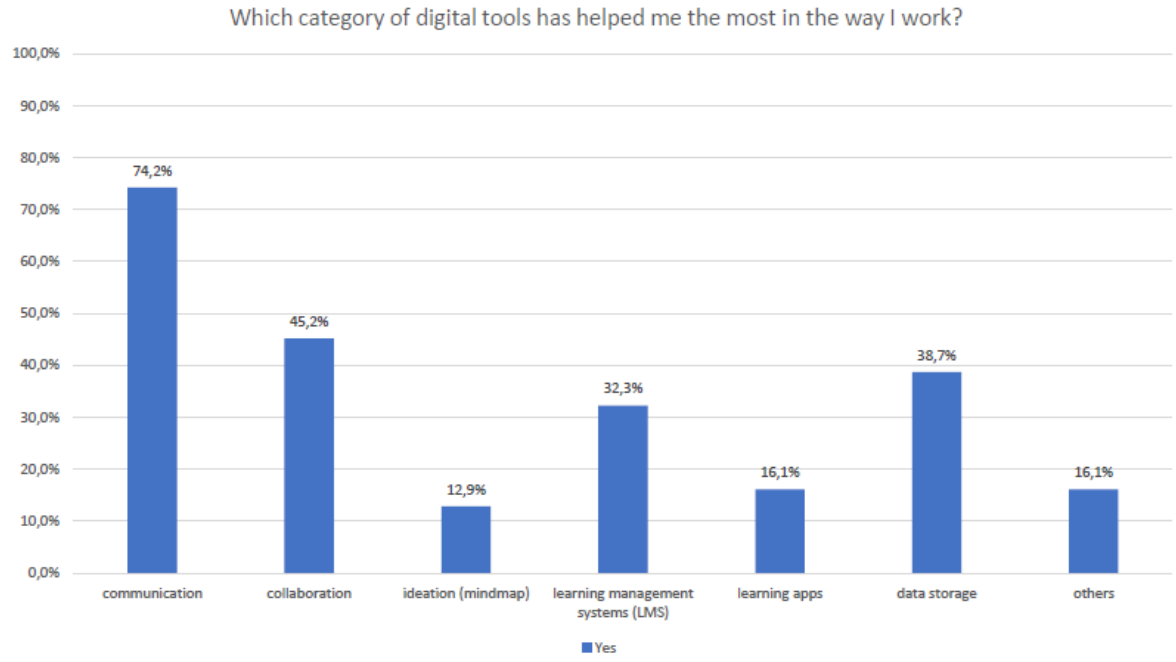


## b) Trainers

- Digital tools provided by educational institution suitable for teaching Needs (3,36/5)
- Transition from analogue to digital working techniques (3,29/5)



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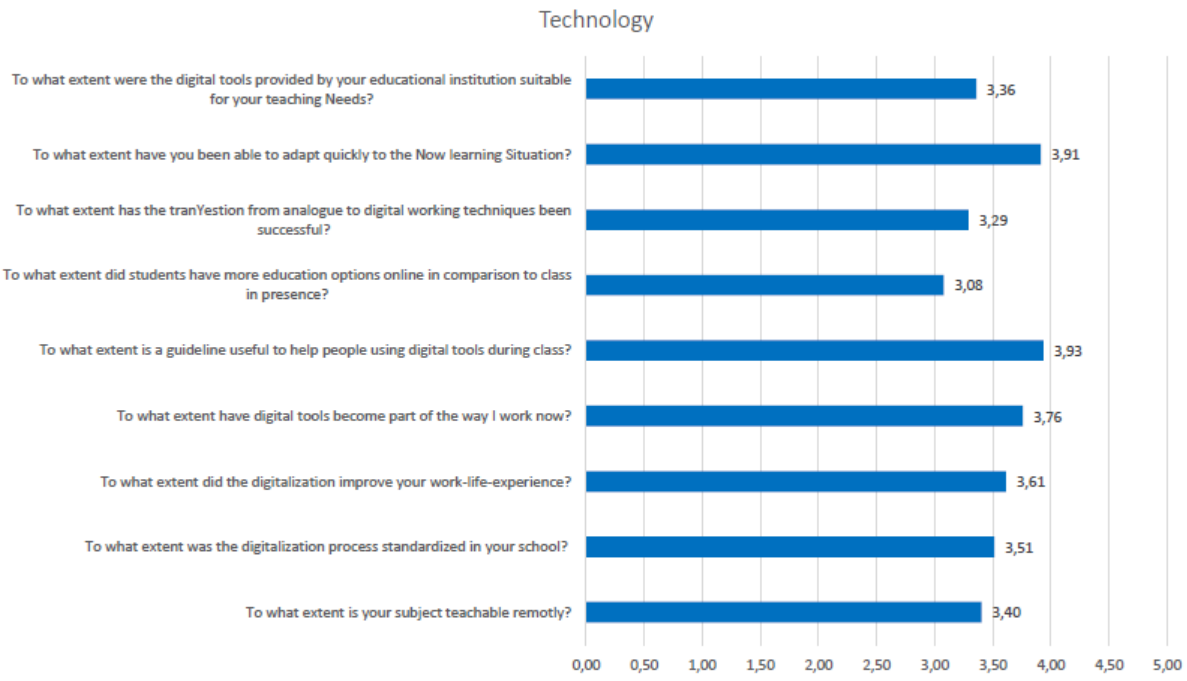
- More education options online (3,08/5)
- Implementing guideline to help people using digital tools during class (rated as useful with 3,93/5)
- Standardization of digitization process in school (3,51/5)
- Subjects are teachable remotely (3,40/5)
- Increase usefulness of collaboration (44,7%), ideation (9,0) (mindmap) learning management systems (LMS) (16,9%), learning apps (28,1%) and data storage tools (43,5%)



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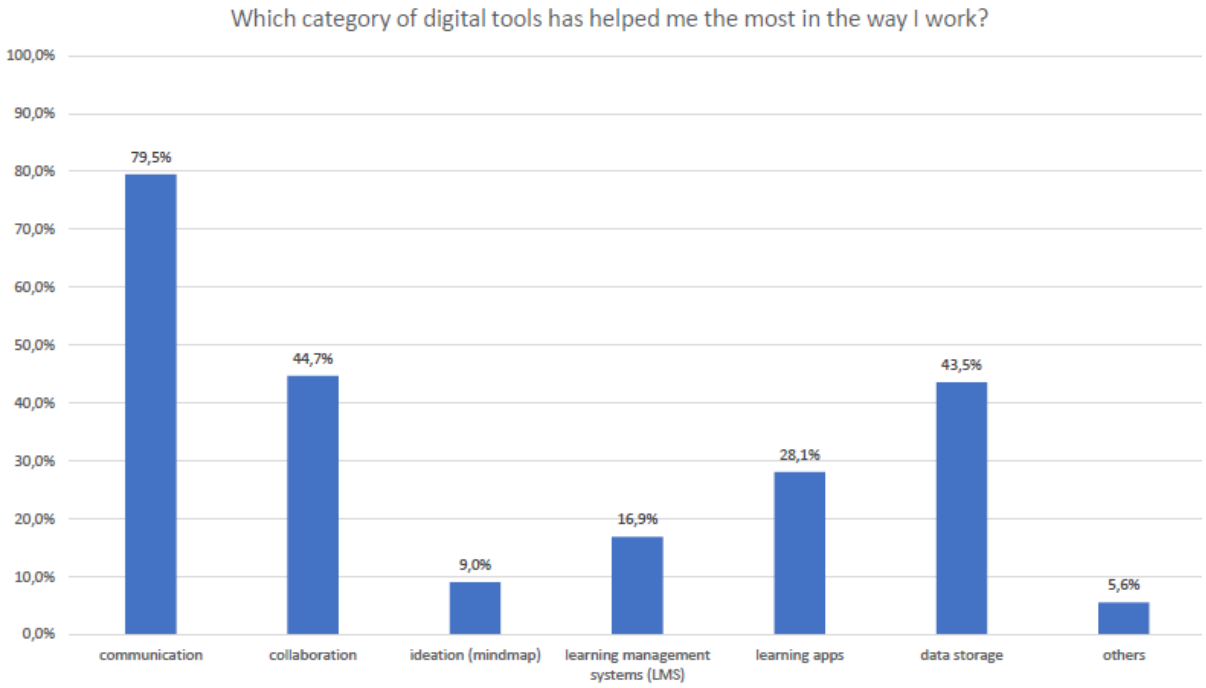


### c) Students

- Digital tools provided by educational institution suitable for teaching Needs (3,11/5)
- Adaptation to new learning situation (3,60/5)
- Transition from analogue to digital working techniques (3,09/5)
- More education options online (2,95/5)
- Implementing guideline to help people using digital tools during class (rated as useful with 3,57/5)
- Standardization of digitization process in school (3,14/5)
- Integration of using tools in daily work (3,59/5)
- Increase usefulness of collaboration (42,9%), ideation (15,5) (mindmap) learning management systems (LMS) (11,9%), learning apps (23%) and data storage tools (22,1%)



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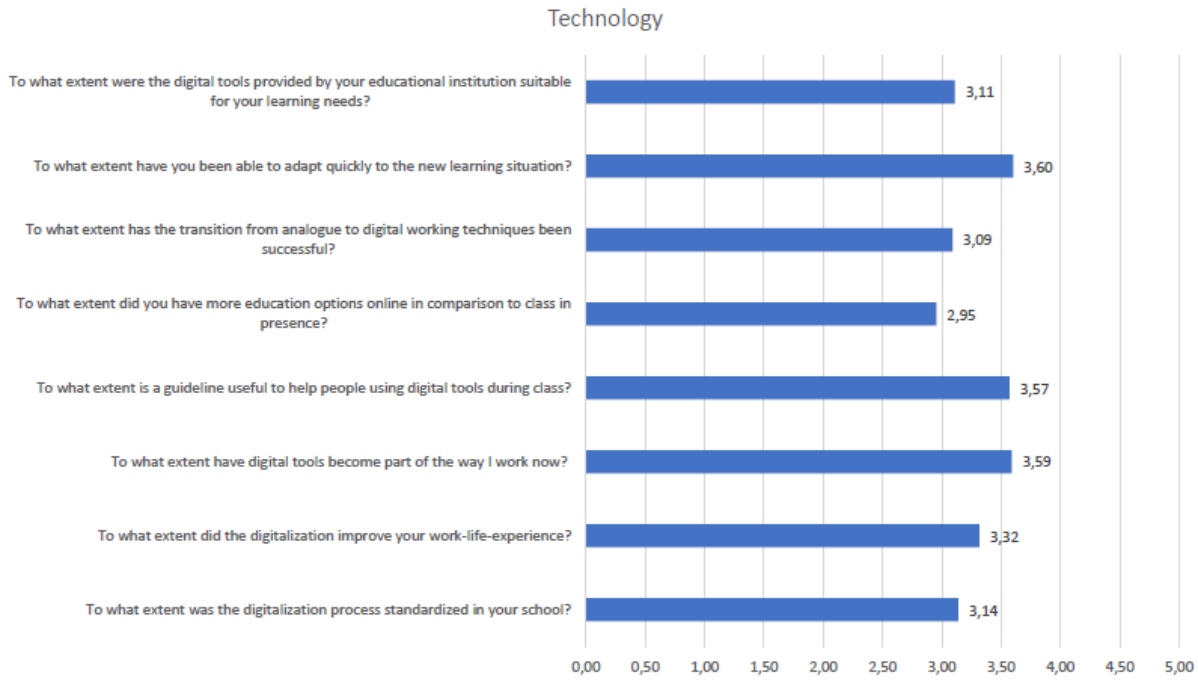


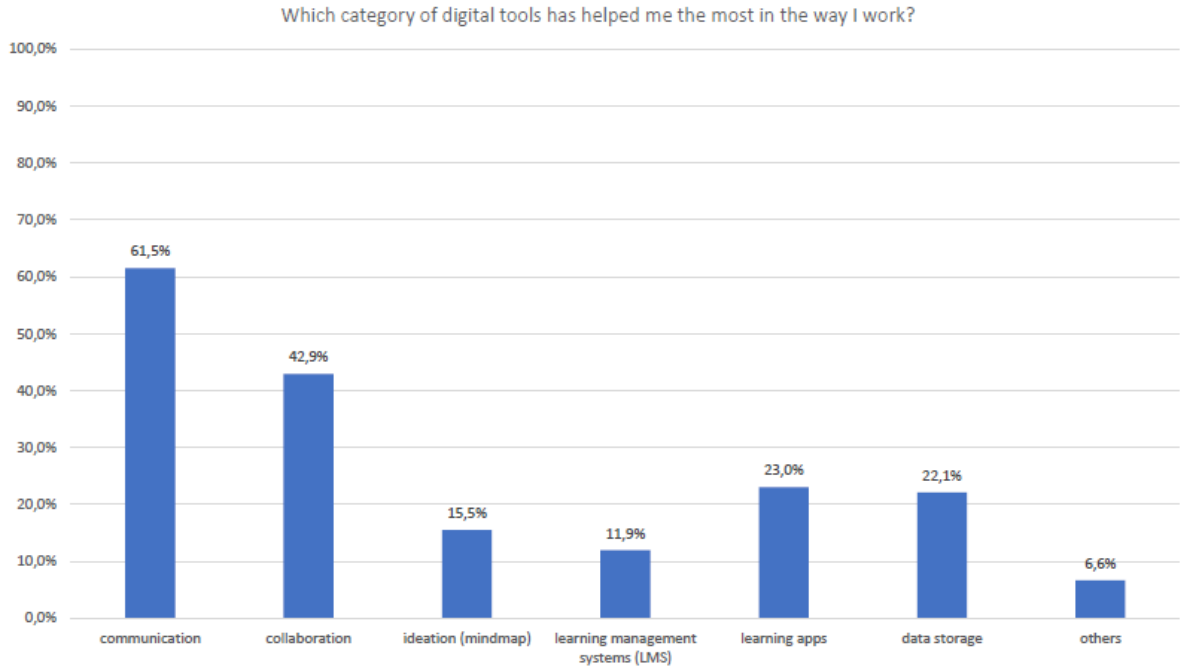


## Skills

The following bullet points stand for the categories where deficits have been detected and improvement is wished for

### a) VET Center

- Work with other people in a digital learning environment (2,71/5)



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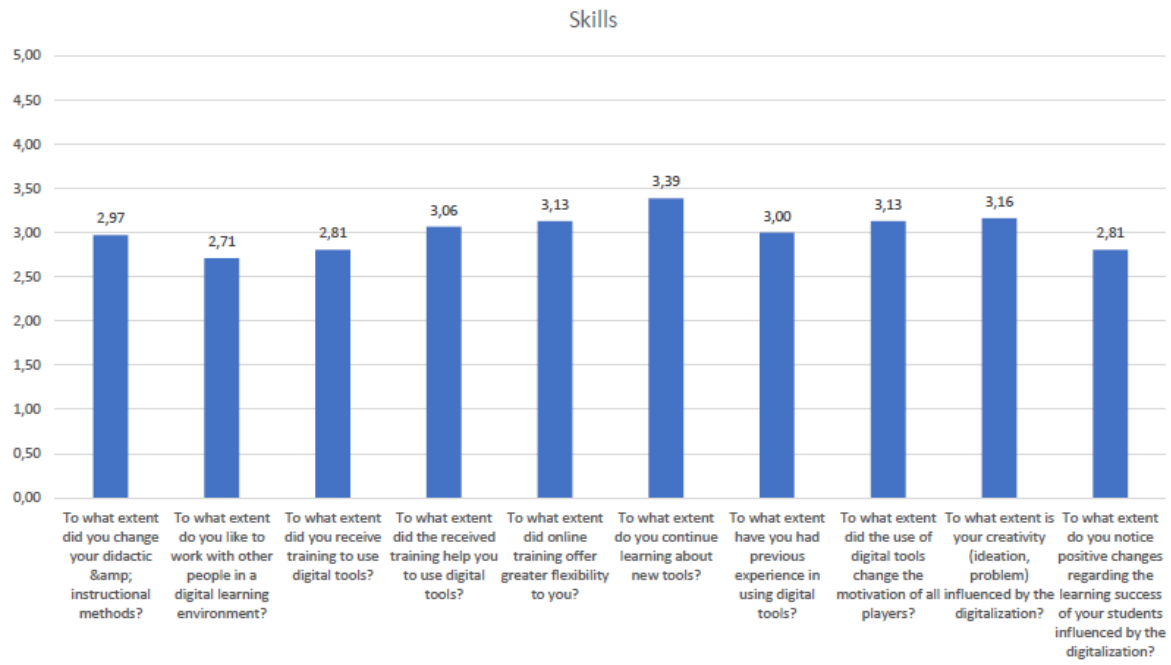
- Receivement of training to use digital tools (2,81/5)
- To the extent to which the received training helps to use digital tools (3,06/5)
- To the extent to which you continue learning about new tools (3,39/5)
- To the extent to which you notice positive changes regarding the learning success of your students influenced by the digitalization




**b) Trainers**

- To the extent to which you notice positive changes regarding the learning success of your students influenced by the digitalization (2,90/5)
- To the extent to which your creativity (ideation, problem) is influenced by the digitalization (3,11/5)
- To the extent to which you are able to concentrate in comparison to class in presence (3,10/5)
- To the extent to which you continue learning about new tools (3,41/5)
- To the extent to which the received training helps to use digital tools (3,19/5)
- Receivement of training to use digital tools (3,13/5)



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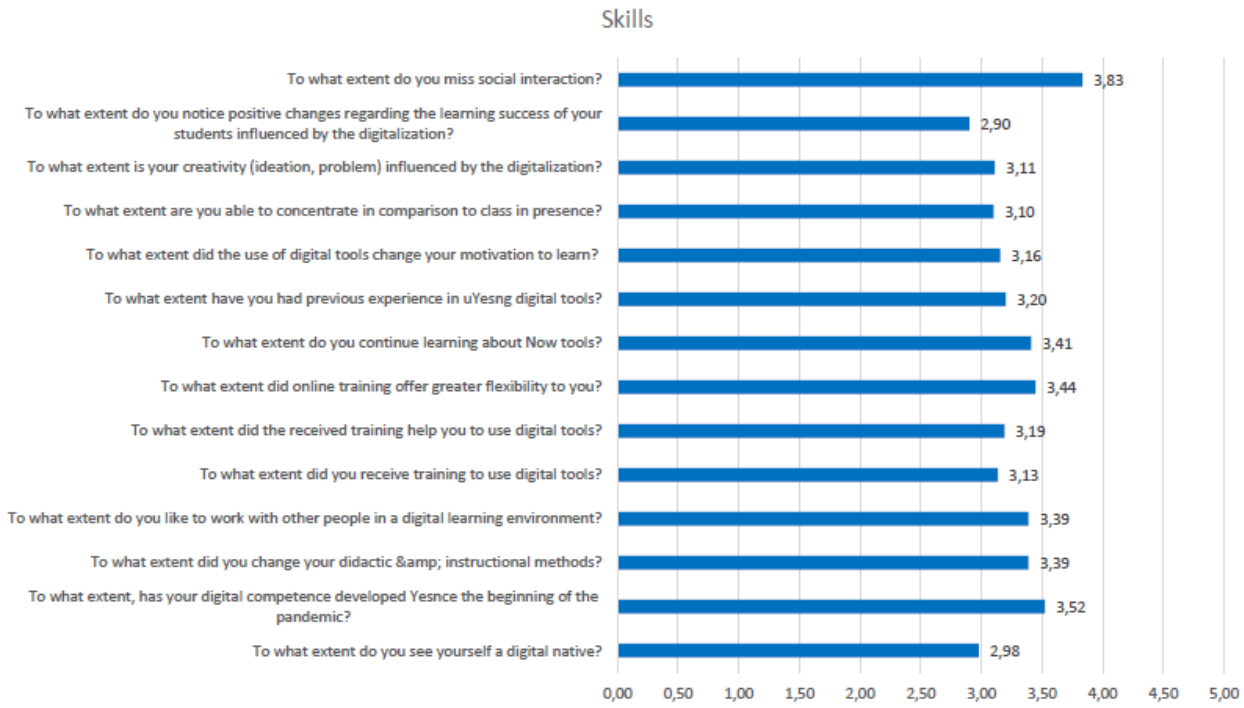
- To the extent to which you like to work with other people in a digital learning environment (3,39/5)
- To the extent to which you see yourself as a digital native (2,98/5)




### c) Students

- To the extent to which you like to work with other people in a digital learning environment (3,30/5)
- Receivement of training to use digital tools (2,77/5)
- To the extent to which the received training helps to use digital tools (2,82/5)
- To the extent to which you continue learning about new tools (3,28/5)
- To the extent to which you are able to concentrate in comparison to class in presence (3,00/5)
- To the extent to which your creativity (ideation, problem) is influenced by the digitalization (3,03/5)
- To the extent to which you notice positive changes regarding the learning success of your students influenced by the digitalization (3,06/5)
- To the extent to which you miss social interaction (3,50/5)



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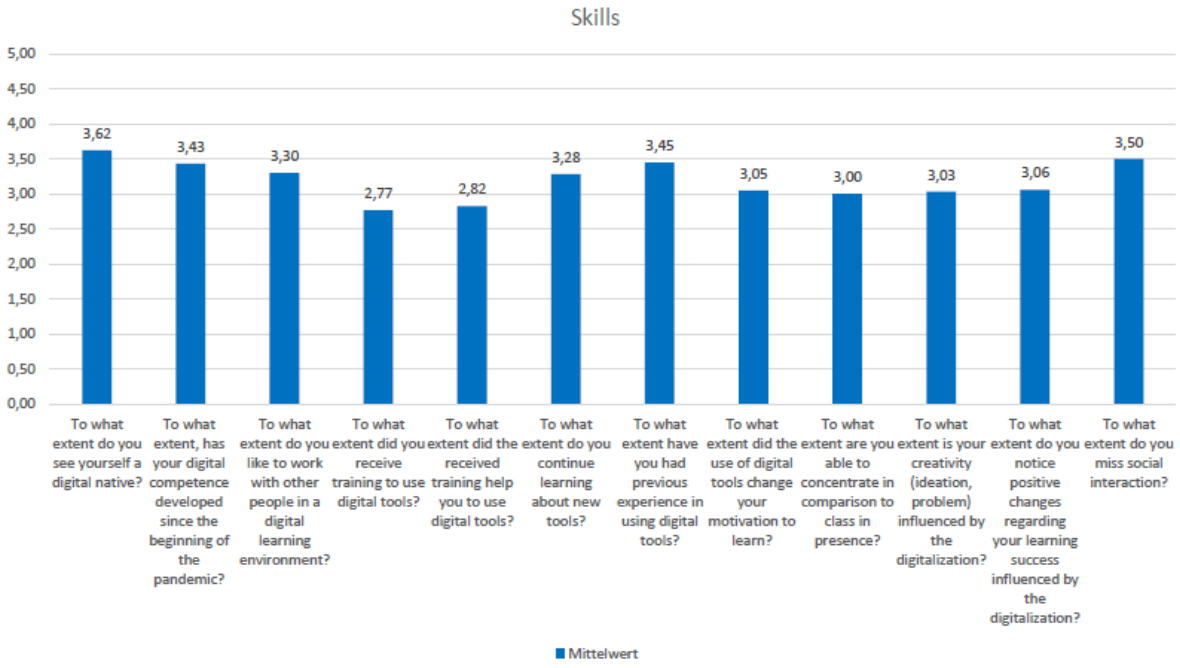


## Administration

The following bullet points stand for the categories where deficits have been detected and improvement is wished for

### a) VET Center

- General administrative organization could be more digital
- Offering digital learning equipment
- Remotely organization of practical classes (22,6%), tests and exams (25,8) and info sessions (64,5%)
- Financing of digital end devices is difficult
- A large proportion of learners do not have the appropriate environment and equipment
- Funding agencies must accept digital signatures or digital copies
- Concept and analysis in advance
- Adequate procedures to be laid down in action guidelines
- Interfaces between providers need to be harmonized to facilitate
- Transfer of data



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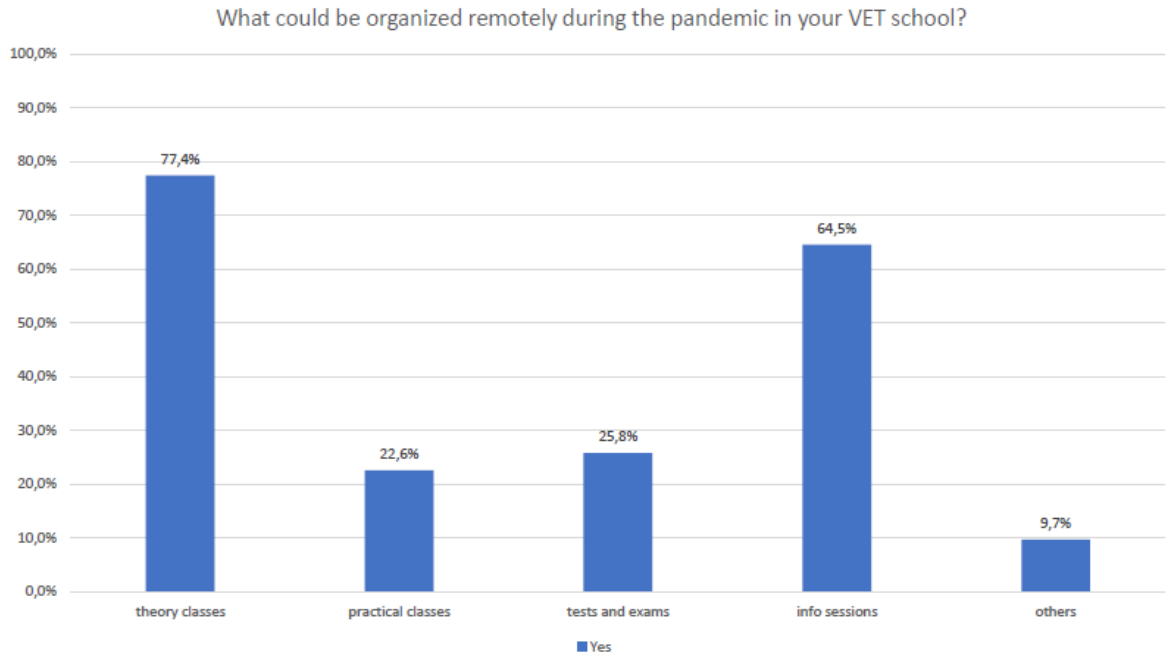


**b) Trainers**

- Offering digital learning equipment
- Remotely organization of practical classes (36%), tests and exams (42,7%) and info sessions (54,1%)
- Mandatory, regular training on online tools
- Technical equipment in schools needs to be improved
- Digital devices for teachers
- Improve methodology
- More investment in digital teaching
- No help from the centers
- Using digital tools adds variety to the classroom and is a great opportunity to participate in a face-to-face lesson, but distance learning does not mean no more interaction.
- Applications such as Moodle



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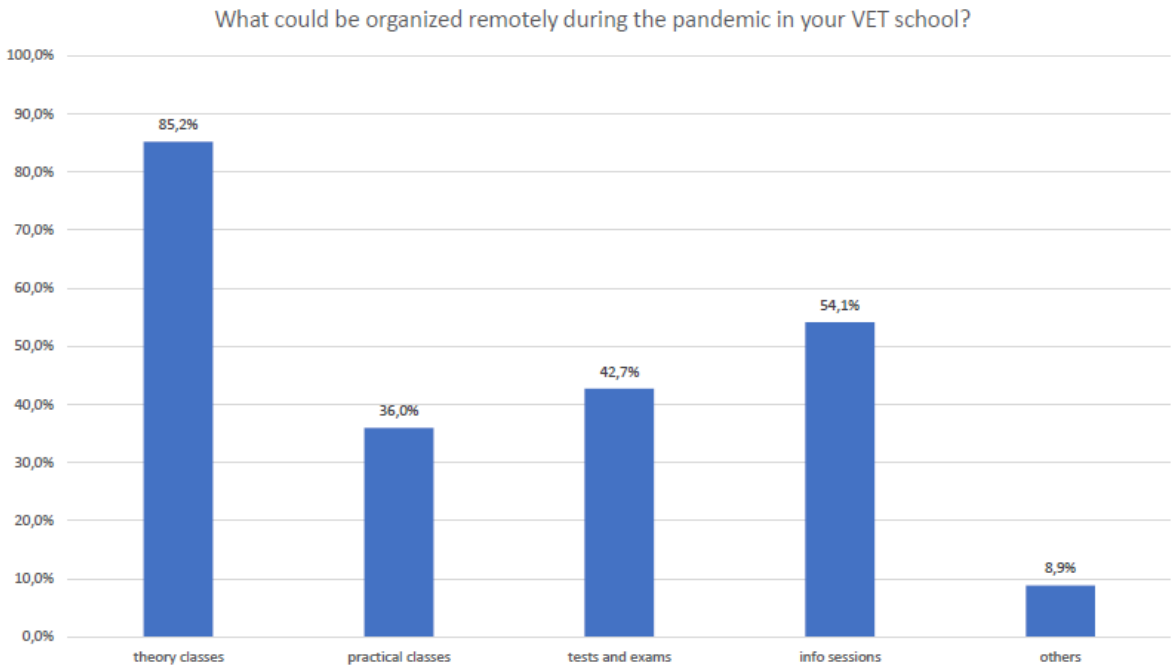


### c) Students

- Offering digital learning equipment
- Remotely organization of practical classes (31,6%), tests and exams (28,4) and info sessions (37,1%)
- Provide and improve technical equipment in schools, for teachers and students [not all can afford them]
- Create more opportunities to interact during online teaching
- Teachers too disorganized and overwhelmed, online teaching did not take place regularly - Train teachers on digital tools
- Online teaching makes students more distracted/less focused
- Fast Internet in schools
- All teachers should use the same tools
- Create permanent Zooms access for teachers, not only 40 min
- Develop new Curricula for distance learning



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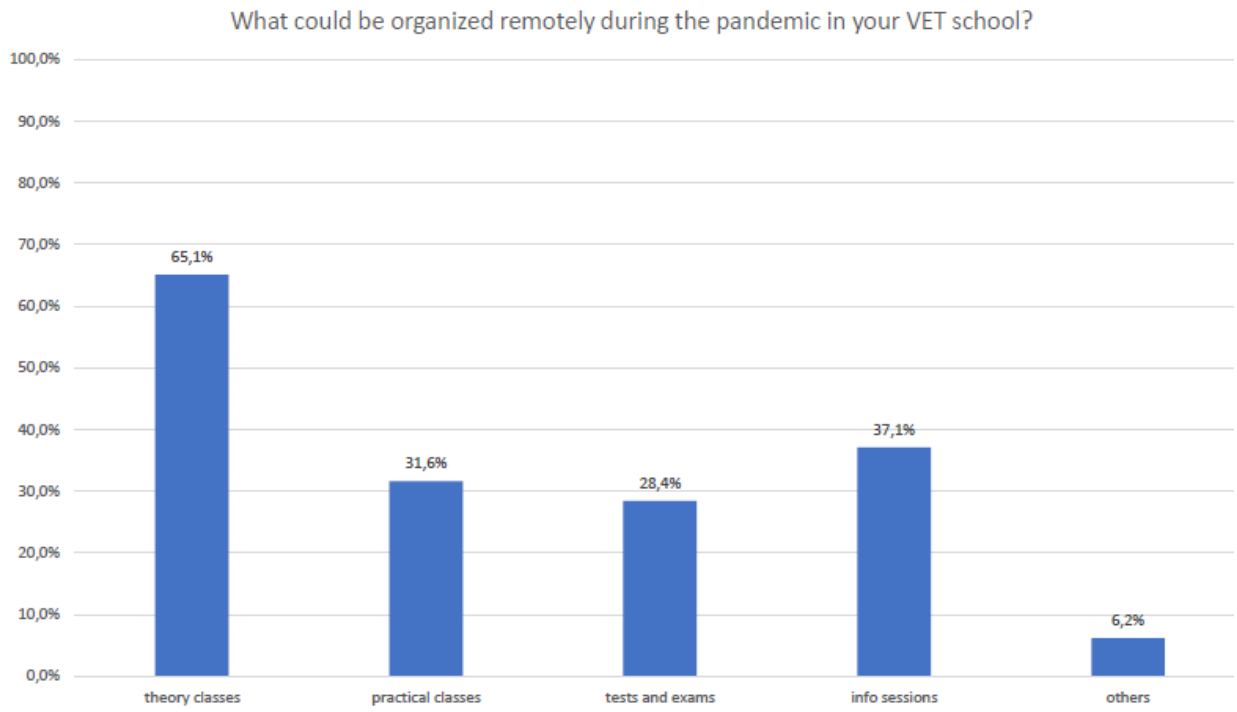




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