



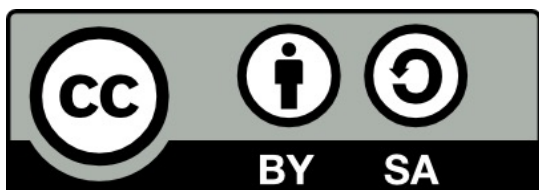
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# DigiCases

*A collection of case studies in the  
application of digital tools for learning*





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# EXECUTIVE SUMMARY

DigiSchool is a project aimed to improve and support the development of digital skills among VET teachers and the implementation of digital tools and on-line learning in vocational education, based on real experiences and lessons learnt in colleges across Europe.

Among the training materials produced during the project, we have collected a set of DIGI Cases, case studies from vocational colleges which show different ways of using digital tools for learning, covering a variety of learning objectives and training needs. The DIGI Cases included here have been carefully chosen by the project partners based on given criteria: innovation, transferability, relevance, impact and sustainability/adaptability and we have described them in detail in order to be used for training or self-training.

Our aim with the DIGI Cases is to inspire vocational teachers and vocational schools to walk the path towards digitalisation, building up on their peers' experiences and the results achieved in different countries and VET systems.

# METHODOLOGY

The selection of the DIGI Cases was made according to certain parameters defined through a workshop carried out on-line by project partners. These parameters were:

- They were applied in the context of vocational education. They could have been applied also in other sectors of education, but vocational was mandatory.
- They were innovative, either because of the digital tools used, either because of the application of the digital tools, either because of the development of digitalisation in the school thanks to the case.
- The application of the DIGI Case made a difference, either in training provision or follow up / assessment, either in teacher's digital skills.

On the other hand, in order to describe the DIGI Cases following a common approach, we developed a research instrument to collect information:



# Title of the DIGI Case

Short introduction of the case study	
Country of implementation	
Period of implementation	
Target group addressed: <ul style="list-style-type: none"><li>- VET learners</li><li>- Workers</li><li>- Unemployed</li><li>- Companies</li><li>- VET teachers</li><li>- Secondary students</li></ul>	
Who has implemented the case study, and what was their motivation?	
Benefits of the study case	
Challenges found and how they were faced	

# Title of the DIGI Case

Procedure for the implementation of the good practice (possible transferability to other VET college)	
Prior knowledge necessary to implement the case study (for both teachers and students)	
VET programme/subjects addressed and EQF level	
Learning outcomes addressed	
Digital tools used	
Was the case study implemented online or hybrid?	
What was the support received from your colleagues/your management?	
What support you would have liked to have?	
What were the critical points to make the shift towards digital learning and how did you manage it?	
What were the positive aspects of digital learning versus traditional learning?	

# Title of the DIGI Case

Were there any negative aspects of digital learning versus traditional learning?

Is digitalization embedded in the school strategy?

Were companies involved at any stage? For example, if the study case refers to WBL, if companies were involved in the assessment of students... If yes, how?



In total, 28 DIGI Cases were collected by project partners (4-5 cases/partner) and all of them were cross-checked and evaluated by each project partner, based on pre-defined assessment criteria, described here:

- Innovation. The definition of innovation used by the DigiSchool project is inspired on UNICEF’s definition of innovation in education: “solving a real problem in a fresh, simple way, to promote equity and improve learning” ([www.unicef.org](http://www.unicef.org)). We complement this definition with the explanation of the OECD about how innovation is applied in the educational sector: “Educational organisations can introduce new products and services, such as new syllabi, textbooks or educational resources, new processes for delivering their services, such as e-learning and new ways of organising their activities, for example communicating with students and parents through digital technologies. Such new practices aim at improving the provision of education in one way or another and should therefore be regarded as intended “improvements”. Therefore, we will rate the innovativeness of the DIGI Cases taking into account:
  - Improvement of learning
  - Equity promotion
  - Use of new educational resources (tools, contents)
  - Use of new processes and methods
  - Use of new ways of communication
  
- Relevance. Within DigiSchool, we will understand relevance as how effective learning is using a certain method or tool, in terms of content, engagement of students and approach to the learning objectives set.
  
- Impact. To assess the impact of the DigiCases collected, we will pay attention to:
  - Number of teachers and students involved.
  - Integration of students with fewer opportunities.
  - Ability of the tool/method to develop personal and professional competences.



- Transferability. We assessed if the DIGI Case was transferable depending on:
  - The usability of the tool/method with low need of previous knowledge/training
  - The cost or investment necessary to implement the tool/method
  - The application of the tool to different VET programmes or subjects
  
- Scalability/adaptability We valued how easy it is to scale up or down or adapt the DIGI Case to different contexts. For example, if the impact doesn't change too much even if we skip some parts of the DIGI Case, if we only adapt part of it or even if we modify it but still inspires us to do something new (innovative) which improves learning in our context.

The assessment of the DIGI Cases based on these criteria was made to provide some tips to potential users according to different aspects they may be more interested on, in order to facilitate the search and the selection.

We invite the reader to read our collection of DIGI Cases. May *the inspiration be with you!*

# COLLECTION OF DIGI CASES

This is the list of DIGI Cases that you are going to find in this document. The number of stars represents the score attributed to each criterio used during the assessment process, so the higher number of stars, up to five, the higher the score given by the partners. Following this table, you will find each of the DIGI Cases described in depth, using the template presented in the previous chapter “methodology”.

Page		Innovation	Relevance	Impact	Transferability	Scalability/ Adaptability	Total
11	DIGI Case 1: App language to suplement teaching	★★	★★	★★★	★★★★★	★★★★★	★★★★
14	DIGI Case 2: Transition to agile teaching in classroom	★★	★★	★★★	★★★★★	★★★★★	★★★★
17	DIGI Case 3: Digital tools for literature	★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
20	DIGI Case 4: Serious Games	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
23	DIGI Case 5: Digital learning using MS Teams	★★	★★★	★★★	★★★★★	★★★★★	★★★★★
27	DIGI Case 6: Shared whiteboard and pinboard	★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
29	DIGI Case 7: Teaching paperless	★★★	★★★	★★★★★	★★★★★	★★★★★	★★★★★
32	DIGI Case 8: Open source Learning Management System (ILIAS)	★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
35	DIGI Case 9: Google Classroom	★★	★★★	★★★	★★★★★	★★★★★	★★★★★
38	DIGI Case 10: Using OneDrive in IT Class	★	★★★	★★	★★★★★	★★★★★	★★★
41	DIGI Case11: Work-Based approach in education on communication	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
44	DIGI Case12: Google classroom for remote teaching	★★	★★★	★★★	★★★★★	★★★★★	★★★★
47	DIGI Case 13: Augmented reality	★★★★★	★★★★★	★★★★★	★★★	★★★★★	★★★★★
49	DIGI Case 14: Simulation software for robotics and automation	★★★★★	★★★★★	★★★★★	★★★	★★★	★★★★★
51	DIGI Case15: Web forms for task tracking	★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
53	DIGI Case 16: Content learning platform for spanish-speaking community	★★★	★★★	★★★★★	★★★	★★★★★	★★★★★
56	DIGI Case 17: Digital Library and YouTube Videos	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
59	DIGI Case18: Google Classroom and Tes teach	★★★★★	★★★	★★★★★	★★★★★	★★★★★	★★★★★
62	DIGI Case 19: Digital tools for english language teaching	★★	★★	★★★	★★★★★	★★★★★	★★★
65	DIGI Case 20: Game Based Learning platform – Kahoot	★★	★★★	★★★	★★★★★	★★★★★	★★★★★
68	DIGI Case 21: International virtual learning environment – eTwinning	★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
72	DIGI Case 22: e-Tutor	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
75	DIGI Case 23: Zoom	★	★★	★★	★★★★★	★★★★★	★★★
77	DIGI Case 24: Using Techambition during online and offline classes	★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
79	DIGI Case 25: Online during COVID	★★	★★★	★★★	★★★★★	★★★★★	★★★★★
82	DIGI Case 26: Learning block in online lessons.	★★★	★★★	★★★	★★★★★	★★★★★	★★★★★
85	DIGI Case 27: App to practice mathematics after class	★★★	★★★	★★★	★★★★★	★★★★★	★★★★★
87	DIGI Case 28: Flashcards for languages	★★★	★★★	★★★★★	★★★★★	★★★★★	★★★★★

# DIGI Case 1. Language app used to supplement teaching

Short introduction of the case study	Digital language app as a supplementary tool for 'flipped classroom' teaching and learning
Country of implementation	Netherlands
Period of implementation	2 months
Target group addressed: - VET learners - Workers - Unemployed - Companies - VET teachers - Secondary students	VET teachers and learners; Language training specialists
Who has implemented the case study, and what was their motivation?	Cristina Pérez Muñoz, Fontys University  To improve the learning experience and change traditional methods by adapting the 'flipped classroom' method of teaching where theoretical topics are taught outside of the classroom while in-classroom time is used to put learnings into practice. Also, to maximize classroom time by taking less time going over homework and to practice real skills more.
Benefits of the study case	VET teachers and students
Challenges found and how they were faced	Challenges included: 1.Moving away from homework-based, learning structures and allowing students to learn the theory at home. 2.Trusting students to complete the digital learning app lessons at home. 3.Creating lesson plans to focus more on practical, supportive, and engaging exercises and spending less time on theory in the classroom. 4.Studying the app and implementing the app into the curriculum

## DIGI Case 1. Language app used to supplement teaching

Procedure for the implementation of the good practice (possible transferability to other VET college)	Consider a multiple of apps used within the field of study; first-hand use was essential. After testing and choosing the app, the teacher was familiar with the material and lessons included in order to adapt her lesson plans, curriculum, assignments, and topics of activities.
Prior knowledge necessary to implement the case study (for both teachers and students)	No prior knowledge necessary as this was new to the teacher and use for an introductory language course.
VET programme/subjects addressed and EQF level	Beginner-level Spanish course
Learning outcomes addressed	To empower teachers to make better use of classroom time and focus on the processing part of learning by doing exercises and problem-solving.
Digital tools used	BABBEL language app
Was the case study implemented online or hybrid?	Hybrid
What was the support received from your colleagues/your management?	Support was mixed as many traditional teachers saw using software as a threat that might substitute classroom teaching. Others supported and embraced technology for what it can do.
What support you would have liked to have?	It's unknown if there was any parental support. It would have been a benefit to hear from parents on how this digital learning played out at home.
What were the critical points to make the shift towards digital learning and how did you manage it?	The critical point here was how to make the shift to this 'flipped classroom' method from the traditional method of theory in the classroom and practice at home. This was managed individually by the teacher with consent of the University and the Babbel partnership to implement the digital learning aspects.
What were the positive aspects of digital learning versus traditional learning?	Learning speed increased Class time was more efficient due to more time being freed for more engaging and practicing topics other than theory.

# DIGI Case 1. Language app used to supplement teaching

Were there any negative aspects of digital learning versus traditional learning?	No
Is digitalization embedded in the school strategy?	Yes, there is a wide range of digital learning material for both students and staff such as e-books, e-newspapers, e-journals, and databases, as well as tutorial videos and online courses for using certain software used for teaching and collaboration.
Were companies involved at any stage? For example, if the study case refers to WBL, if companies were involved in the assessment of students... If yes, how?	Babbel was brought in to create a partnership with Fontys University. Babbel was not involved in assessing the students or the findings.

## DIGI Case 2 . Transition to agile teaching and learning in a classroom during the pandemic

Short introduction of the case study	A secondary high school in Finland was faced with suddenly moving from a traditional classroom setting to distance learning in a short amount of time.
Country of implementation	Finland
Period of implementation	2 months
Target group addressed: - VET learners - Workers - Unemployed - Companies - VET teachers - Secondary students	VET teachers and VET learners
Who has implemented the case study, and what was their motivation?	Hannele Marjatta Niemi and Päivi Kousa from the University of Helsinki, Finland. Their motivation was to find out the perspectives from both teachers and students regarding distance teaching and learning.
Benefits of the study case	Teachers and students
Challenges found and how they were faced	The timing of the transition to distance learning was 3 days, as the government wanted to keep education going, and this was faced with a weekend long transition phase. There was a lack of IT knowledge which was successfully faced with peer tutoring and sufficient resources.
Procedure for the implementation of the good practice (possible transferability to other VET college)	The arrangements of practical training, individual tutoring for teachers, and accessible licenses for a variety of software tools and programs were all vital good practice takeaways.
Prior knowledge necessary to implement the case study (for both teachers and students)	While many teachers had no prior knowledge of digital teaching tools, other teachers had prior experience with online communication and educational applications which made the transition to distance education much easier. Teachers' creativity was also an important

## DIGI Case 2 . Transition to agile teaching and learning in a classroom during the pandemic

VET programme/subjects addressed and EQF level	The entire high school curriculum was addressed and decided that normal schooling would move forward as usual except with it all being taken place digitally.
Learning outcomes addressed	The outcomes addressed were (1) the role of teachers, (2) students' motivation and self-management in learning, (3) the role of school as a community, and (4) common equity issues.
Digital tools used	Computer, tablet, or mobile phone. Schools were able to lend devices if the students needed them. Microsoft Teams, Zoom, Google platforms, or the school's own online communication channels.
Was the case study implemented online or hybrid?	Hybrid
What was the support received from your colleagues/your management?	Teachers and students received great support from the school community and parents, which later helped with technical difficulties for example.
What support you would have liked to have?	Support from a centralized body such as the government would have been interesting to see. Since the education system in Finland is decentralized, school districts can act independently while following a recommended curriculum. However, if there was a centralized body to help with further detailed studies, plans, recommended tools, and/or more funding, there could have been a deeper and more efficient answer to the situation.
What were the critical points to make the shift towards digital learning and how did you manage it?	To have a "we can do this" attitude and to have the support and help of fellow teachers as well as the neighbouring school which had more experience using digital platforms in teaching. All teachers and the school director agreed on teaching principles which helped keep everyone on the same page while letting them still teach in their own style.
What were the positive aspects of digital learning versus traditional learning?	Students had a relatively easy transition to using software such as Teams because of their previous experience with different social media platforms and other digital and video platforms. Therefore, the discussions aspect of distance learning was their favorite part and they felt that the talks were more focused and felt it was easier to take part in. Overall, students felt that distance learning provided them good possibilities for independent studying, sometimes being more relaxed, and more sleep flexibility.

## DIGI Case 2 . Transition to agile teaching and learning in a classroom during the pandemic

Were there any negative aspects of digital learning versus traditional learning?

Teachers reported lack of student interaction and quality of that interaction as a negative aspect; they especially saw the lack of spontaneity as a disadvantage. They also mentioned evaluating and assessing methods of learning outcomes were a negative aspect as they were worried about following the students' progress. Finally, IT issues and many teachers having never used the programs before came as an issue.

Students also reported many times that they experienced technical issues with the teachers and/or internet connection. They also reported that self-discipline, self-motivation, and workload were negative aspects. A lack of social relationships, interaction, and group work was pointed out as major negative aspects. Though students had an overall positive perception of distance learning, many felt their own studies didn't go so well but also that the teachers assigned them too much work which led them to feel overloaded and exhausted, especially during exam deadlines.

Is digitalization embedded in the school strategy?

Not mentioned but the teachers in the study realized that there should be a readiness for online teaching and distance learning within the school's strategy.

Were companies involved at any stage? For example, if the study case refers to WBL, if companies were involved in the assessment of students... If yes, how?

No



## DIGI Case 3 . Digital tools for daily literature

### classes

Short introduction of the case study	The teacher uses widespread and commonly used technologies to make the lessons more attractive and interactive, exploiting the principles of active learning and stimulating the development of fundamental transversal skills. Among the tools used are google forms, random word generators, the learningApps platform that allows you to create games of pairs or crossword puzzles.
Country of implementation	Italy
Period of implementation	Academic year
Target group addressed: <ul style="list-style-type: none"><li>- VET learners</li><li>- Workers</li><li>- Unemployed</li><li>- Companies</li><li>- VET teachers</li><li>- Secondary students</li></ul>	VET teachers and VET learners
Who has implemented the case study, and what was their motivation?	Valentina Guida, literature teacher in an Italian secondary school. Many students suffer a lack of interest in attending passive lessons at school, with a consequent negative effect on their learning results. Valentina decided to use technology as an allie to make learning more engaging and more fun for her students, who started also reaching better learning results. The students are the main character of their learning path.
Benefits of the study case	Secondary students
Challenges found and how they were faced	Reconcile time for preparing materials and lessons with other job duties that result in reduced time available for teaching planning. Also, researching appropriate tools for instructional purposes and creating new teaching materials with various tools.

# DIGI Case 3 . Digital tools for daily literature

## classes

Procedure for the implementation of the good practice (possible transferability to other VET college)	<ul style="list-style-type: none"><li>• Using same apps for the creation of educational games</li><li>• Analysis of most common tools in a educational perspective</li><li>• Apply gamification and game-based learning for teaching purposes</li><li>• Use of entrepreneurial methodologies to be implemented for educational purposes</li></ul>
Prior knowledge necessary to implement the case study (for both teachers and students)	For teachers: <ul style="list-style-type: none"><li>• basic ICT technologies</li><li>• basic principles of gamification or game-based learning</li></ul> For students: <ul style="list-style-type: none"><li>• basic ICT technologies</li></ul>
VET programme/subjects addressed and EQF level	Useful for all subjects, from beginner to expert level
Learning outcomes addressed	<ul style="list-style-type: none"><li>• Select useful technologies to be implemented while teaching</li><li>• Plan teaching path based on matching hard skills and soft skills development</li><li>• Make teaching more engaging and effective</li></ul>
Digital tools used	<ul style="list-style-type: none"><li>• Google forms</li><li>• Learning Apps</li><li>• Zoom</li><li>• Random generator of elements</li></ul>
Was the case study implemented online or hybrid?	Hybrid. The teacher implemented this methodologies both in presential classes and online
What was the support received from your colleagues/your management?	When she worked in a private school it was much easier because the students had a personal iPad to work, instaed in public schools that don't have this kind of equipment, she has to ask them to brig their own devices for implementing the digital activities. About colleagues, many of them are not available for cooperation, while other are hostile to digitalization because they think it makes learning less serious
What support you would have liked to have?	For sure having a better access to technological equipment and also have a constant debate on new methodologies and how to implement them
What were the critical points to make the shift towards digital learning and how did you manage it?	it depends on the grade of familiarity that the teacher has with technology. In this case, she didn't have any problem because she attended course about digital didactic online

## DIGI Case 3 . Digital tools for daily literature

### classes

What were the positive aspects of digital learning versus traditional learning?	Flexibility and the possibility to experiment new learning experience that can motivate students to be more engaged into learning
Were there any negative aspects of digital learning versus traditional learning?	None
Is digitalization embedded in the school strategy?	Some schools ask for more technological devices from the government and push the teachers in attending courses.
Were companies involved at any stage? For example, if the study case refers to WBL, if companies were involved in the assessment of students... If yes, how?	No

## DIGI Case 4 . Sirius Game

Short introduction of the case study	Digital game developed by graduates in classical literature for secondary school students. The goal of the game is to teach Greek and Latin culture and grammar through an adventure game in which the student can make use of videos, podcasts, handouts and the use of augmented reality.
Country of implementation	Italy
Period of implementation	Academic year
Target group addressed: <ul style="list-style-type: none"><li>- VET learners</li><li>- Workers</li><li>- Unemployed</li><li>- Companies</li><li>- VET teachers</li><li>- Secondary students</li></ul>	Teachers and secondary students
Who has implemented the case study, and what was their motivation?	<p>Laura Cesaro, Elisa Ferrarini e Giovanni Andrisani</p> <p>The game was born to make the learning of ancient languages more engaging and effective for students, who generally have difficulties in learning such a difficult subjects. The study of ancient languages is considered an elitist activity to which only a few can have access, while the use of games makes these complex subjects accessible. The game allows the user autonomous, streamlined, fast and effective learning.</p>
Benefits of the study case	Secondary students

## DIGI Case 4 . Sirius Game

<p>Challenges found and how they were faced</p>	<p>Disrupt the prejudices and the stereotypes related to certain school subjects: make school subjects more engaging and fun, seems to underestimate their value.</p> <p>They bet on the principles of making fun while learning possible and, moreover, make them accessible.</p> <p>To have an entrepreneurial approach and take the risk of creating a start-up.</p> <p>The competitors on the same market: a good analysis of them and a feedback collection from users gave the boost to create a more user friendly platform.</p>
<p>Procedure for the implementation of the good practice (possible transferability to other VET college)</p>	<ul style="list-style-type: none"> <li>• find similar projects on other school subjects</li> <li>• develop in a VET environment such a similar platform</li> </ul>
<p>Prior knowledge necessary to implement the case study (for both teachers and students)</p>	<p>For teachers:</p> <ul style="list-style-type: none"> <li>• ICT technologies skills</li> <li>• principles of gamification or game-based learning</li> </ul> <p>For students:</p> <ul style="list-style-type: none"> <li>• basic ICT technologies</li> </ul>
<p>VET programme/subjects addressed and EQF level</p>	<p>Useful for all subjects, from beginner to expert level</p>
<p>Learning outcomes addressed</p>	<ul style="list-style-type: none"> <li>• Learn effectively school subjects making them accessible to all students</li> <li>• Learn how to manage the learning process and develop also soft skills and ICT skills</li> </ul>
<p>Digital tools used</p>	<ul style="list-style-type: none"> <li>• web platform</li> <li>• youtube</li> <li>• podcast software</li> <li>• AR software</li> </ul>
<p>Was the case study implemented online or hybrid?</p>	<p>Online</p>

## DIGI Case 4 . Sirius Game

What was the support received from your colleagues/your management?	The project was supported by the hub of Harvard university that sustain the creation of start-up.
What support you would have liked to have?	Did not miss anything in particular.
What were the critical points to make the shift towards digital learning and how did you manage it?	The ancient language have always been taught with a traditional approach and by the use of books without the auxilium of technologies. The pandemic has provided the right boost to make the switch in a more rapid and easy way.
What were the positive aspects of digital learning versus traditional learning?	Use the technology to satisfy the teachers' objective through tools that are more familiar for students.
Were there any negative aspects of digital learning versus traditional learning?	None
Is digitalization embedded in the school strategy?	Some schools are introducing the platform to integrate this digital approach to make the teaching more effective
Were companies involved at any stage? For example, if the study case refers to WBL, if companies were involved in the assessment of students... If yes, how?	No

# DIGI Case 5 . First-hand perspective switching to digital learning using Microsoft Teams

Short introduction of the case study	A high school Physics teacher quickly adopts digital learning in the middle of the pandemic.
Country of implementation	Spain
Period of implementation	March to June 2020
Target group addressed: <ul style="list-style-type: none"><li>- VET learners</li><li>- Workers</li><li>- Unemployed</li><li>- Companies</li><li>- VET teachers</li><li>- Secondary students</li></ul>	VET teachers
Who has implemented the case study, and what was their motivation?	Kevin Rodriguez, Researcher  To find out in a first-hand, via an interview, what it was like to suddenly move to digital learning amidst the pandemic and what tool was chosen.
Benefits of the study case	Teachers

## DIGI Case 5 . First-hand perspective switching to digital learning using Microsoft Teams

Challenges found and how they were faced	Major challenges faced were organizing meetings, creating lessons, and making registers for students. These preliminary challenges were faced by the department through regular meetings every couple days which later switched to weekly gatherings. During these meetings, best practices were shared in a communal effort to help one another.
Procedure for the implementation of the good practice (possible transferability to other VET college)	Teachers were faced with an extremely limited timeframe and essentially had 2 days to figure it out the transition to digital teaching. They found that creating teams in classes and trial-and-error was the best approach. Prior to implementing, mini lessons and ideas were tested and improved upon during department meetings. During testing, features were looked at for usability. As a department they worked together creating assignments and standard grading practices.
Prior knowledge necessary to implement the case study (for both teachers and students)	No
VET programme/subjects addressed and EQF level	Science subjects and department. But for the school as a whole, all school subjects were addressed - from literature to drama, even primary school.
Learning outcomes addressed	Teachers wanted to familiarize themselves with the technology while also seeing how it affected teaching pedagogy and the students' learning. The outcome was positive in terms of increased technological savviness. They learned how to record and upload sessions and lessons, used PowerPoint to use in lessons, and to broadcast to other screens and other remote students.
Digital tools used	Microsoft Teams
Was the case study implemented online or hybrid?	Online



## DIGI Case 5 . First-hand perspective switching to digital learning using Microsoft Teams

<p>What was the support received from your colleagues/your management?</p>	<p>Support within the department was fantastic as everyone worked together to collaborate and help one another. The department was also pioneering the transition to digitalization in that specific school structure and was really a model of how to get things done.</p>
<p>What support you would have liked to have?</p>	<p>Senior leadership from the school was not as present as would have liked and it would have been helpful to receive improved guidance before, during, and throughout the digitalization process. More support from the IT department would have made things easier but because they were overloaded and understaffed from the start, this made their crucial support very limited.</p>
<p>What were the critical points to make the shift towards digital learning and how did you manage it?</p>	<p>A critical point in this shift was making sure students received equal attention but also to make sure the information was being grasped. In some cases, students would take advantage of the distance learning scenario which lead to them being more easily distracted or not present. To manage this, teachers needed to make sure students were present and attentive and made it mandatory to put on video. This also help facilitate conversation and a more grounded classroom setting in the end.</p>
<p>What were the positive aspects of digital learning versus traditional learning?</p>	<p>Markings, once streamlined, worked great in terms of extracting information in different ways, whether in excel or in some place else. This made teachers more efficient in the end. Using Microsoft Teams' features to create private log channels created more private communication in a 1 to 1 setting. Students were able to go at their own pace. Teachers were able to differentiate and individualize lessons. Whereas in a traditional setting, a teacher would have to pace with the fastest students in the class, leaving slower students more vulnerable to lesser attention. Teachers are able to use multiple different formats of information, whether online, through an app, or a shared program. Organization was a very positive aspect in terms of putting everything in one place, and it was much easier for students to see it like this as well. Teachers found it nice to have a digital version of the work as access to a digital record was crucial for both teachers and students. This led to a whole new level of accountability to see who did the work (or</p>

## DIGI Case 5 . First-hand perspective switching to digital learning using Microsoft Teams

Were there any negative aspects of digital learning versus traditional learning?

Microsoft Teams was found to be quite generic and more corporate. Students had the same access as teacher initially which lead to failed class sessions at first.

Marking work was seen as difficult in many aspects as teachers would need to download work, analyse and mark, then reupload. This led to more labor intensive processes than traditional methods.

The teacher found that students were taking advantage of the distant learning and not do as much work as they're used to or give the effort it takes to do so.

An aspect that was unseen and massively impacted was the maturity level and social interaction. The teacher felt the students lost a few years in terms of emotional confidence and weren't prepared for exams. He felt there was a delay in that maturity.

Some students, in turn, found digital learning overwhelming and lacked the organizational responsibility as well.

Is digitalization embedded in the school strategy?

No. However, if a student is ill, the teacher can organize with the student and stream the classroom live. Other teachers resort to the old way of doing it (through assigned readings and homework). The school tries to include everyone but execution doesn't go far enough. MS Teams is still being used for homework and assignments and to upload teaching sessions.

Were companies involved at any stage? For example, if the study case refers to WBL, if companies were involved in the assessment of students... If yes, how?

They were involved by setting a standard for the school system. They would later come and do reviews of the sessions, interviewed teachers and students, and assessed the school setting.

## DIGI Case 6 . Shared whiteboard and pinboard

Short introduction of the case study	<p>In smaller groups of students, we shared our "screens". We were sharing one white board. We used apps such as Jamboard or Collboard.</p> <p>We also used shared pinboards, where I left notes and homework for my students and they were answering directly on the pin board, leaving their notes.</p>
Country of implementation	Czech Republic
Period of implementation	During the whole Covid-19 pandemic
Target group addressed: <ul style="list-style-type: none"><li>- VET learners</li><li>- Workers</li><li>- Unemployed</li><li>- Companies</li><li>- VET teachers</li><li>- Secondary students</li></ul>	Secondary school students
Who has implemented the case study, and what was their motivation?	Secondary school teacher. She wanted to activate her students, to raise their interaction during classes.
Benefits of the study case	The main benefit was that students were more active. They were actively contributing to the lecture. These digi tools are also very attractive for the students.
Challenges found and how they were faced	Students don't understand how the app works, then teacher need to explain its functions, and, in the end, they lose time due to explaining the app.
Procedure for the implementation of the good practice (possible transferability to other VET college)	It is important that teachers themselves understand the app and its functions. Only then the lecture will be smooth.

## DIGI Case 6 . Shared whiteboard and pinboard

Prior knowledge necessary to implement the case study (for both teachers and students)	Students and teachers need to have previous experience with the digi apps.
VET programme/subjects addressed and EQF level	Not applicable
Learning outcomes addressed	Active satisfied students who are actively contributing to the lecture. Also by using these apps, the lecture will be more interesting for teachers as well.
Digital tools used	Shared white boards – Jamboard, Collboard Shared pinboard
Was the case study implemented online or hybrid?	Both
What was the support received from your colleagues/your management?	The school management was supporting the usage of these apps. Also, the school inspection was happy with the fact that we were using such digi tolls.
What support you would have liked to have?	It would be great to have more time for one lecture (not only 45 minutes).
What were the critical points to make the shift towards digital learning and how did you manage it?	Bad technical equipment of students and of teachers as well.
What were the positive aspects of digital learning versus traditional learning?	In comparison to the traditional learning, the lectures were more interesting. Also, students like this way of teaching more because digi tools are used.
Were there any negative aspects of digital learning versus traditional learning?	Students didn't concentrate much, they were doing lot of things at the same time (having lecture and checking their phones), students didn't prepare for the lectures sufficiently (didn't make a revision of the past topics etc.), teachers didn't have chance to monitor the progress of students properly
Is digitalization embedded in the school strategy?	Yes, they are trying to have better equipment in classrooms.
Were companies involved at any stage? For example, if the study case refers to WBL, if companies were involved in the assessment of students... If yes, how?	No

# DIGI Case 7. Classroom teaching goes paperless with a digital platform

Short introduction of the case study	A teacher adopts a digital platform to create lessons, collect and organize ideas and material, integrate with other digital platforms, note-take, and introduce a new way of collaboration in class.
Country of implementation	United Kingdom
Period of implementation	6-9 months
Target group addressed: <ul style="list-style-type: none"> <li>- VET learners</li> <li>- Workers</li> <li>- Unemployed</li> <li>- Companies</li> <li>- VET teachers</li> <li>- Secondary students</li> </ul>	VET teachers
Who has implemented the case study, and what was their motivation?	A VET teacher. The motivation was to see how their platform benefits teachers in a paperless classroom setting
Benefits of the study case	Teachers
Challenges found and how they were faced	<p>Learning and getting used to the Miro platform and its functionalities proved to be a challenge. The teacher discovered the platform a year before using it so he had ample time to learn it and integrate it into his lessons.</p> <p>Students getting used to the platform proved to be a small hurdle but they only needed a couple of lessons to get used to it. However, lessons did get out of control with regards to students getting lost on the digital board. This was faced by having clear rules to how material could be used and to what dedicated places this material could be posted.</p>
Procedure for the implementation of the good practice (possible transferability to other VET college)	<p>The teacher found that you'll need a lesson or so to get the pupils really proficient with the use of the board. He also emphasized setting up clear rules and structure so things don't get out of control. Getting used to using the Chrome extension and making sure the students do it was a fantastic tool for research-based projects and speeds up collecting text and images from the internet. Finally, suggested to just jump right in as he sees this kind of application clearing being where things move to in the</p>

# DIGI Case 7. Classroom teaching goes paperless with a digital platform

Prior knowledge necessary to implement the case study (for both teachers and students)	Basic to mid-level computer skills and web browsing know-how.
VET programme/subjects addressed and EQF level	Geography and Religious Studies, but could be adapted to a multitude of subjects.
Learning outcomes addressed	<p>There were three primary outcomes addressed with using Miro within the paperless classroom framework:</p> <ol style="list-style-type: none"> <li>1.It was great for collecting ideas from a class and, for example, getting them to write around a spider diagram.</li> <li>2.Integration with Google Docs was excellent. Pupils could move seamlessly from the digital board to a shared Google doc, work on it, and know that a record of their work would be stored for all to see on the board.</li> <li>3.It's great for note-taking. Rather than getting students to copy things down off the board, students can be chosen to write their own notes for the rest of the class to see. This is a great way of checking on learning and consolidating.</li> </ol>
Digital tools used	Miro
Was the case study implemented online or hybrid?	Online
What was the support received from your colleagues/your management?	Unknown
What support you would have liked to have?	Support from a community of teachers who also use the platform would have been a benefit. This could have furthered the knowledge and use case for the platform, and also present more creative and useful ways of using the program.
What were the critical points to make the shift towards digital learning and how did you manage it?	Structure and organization were crucial points in order to keep lessons and digital whiteboards coherent and preventing information from getting out to control or lost. Managing this with lesson planning and pre-class preparation were important in making sure classes ran smoothly and in high-quality.

## DIGI Case 7. Classroom teaching goes paperless with a digital platform

What were the positive aspects of digital learning versus traditional learning?

There was a big advantage when it came to researching, storing, and organizing material. Using some of the platform features, a teacher could quickly and easily cut, copy, and paste useful images and texts into a format that can be used in a lesson. This eliminates any need to spend time cutting paper, using glue, scanning, or printing as done with traditional methods of teaching preparations. Using this digital tool also eliminated the use of paper handouts and printed or handwritten articles. Collaboration and group work were also a positive aspect. Having everything on screen and a lesson template tailored for the collaboration exercise meant that the teacher didn't need to hover around or stand behind students' shoulders like in a traditional classroom setting. The teacher would still be able to see what the students are doing in real time and guide them as necessary.

Were there any negative aspects of digital learning versus traditional learning?

As a Geography teacher, keeping up to date with new material and information proved to be a challenge. One needs to keep all the resources orderly and made easily to retrieve. So, this requires a high level of consistent data organization versus traditional learning where most (or all) information comes from textbooks and is easily stored on a shelf and retrieved at any time. Since digital information can sometimes be in flux or widely vary depending on publication, having too much information could seem daunting. The traditional method keeps fact-based information in a single book with accompanying information to back it up.

Is digitalization embedded in the school strategy?

Unknown

Were companies involved at any stage? For example, if the study case refers to WBL, if companies were involved in the assessment of students... If yes, how?

No

# DIGI Case 8. Open source Learning Management System (ILIAS)

Short introduction of the case study	Using and further adaptation of the open source LMS to individual needs for blended learning (hybrid learning arrangements)
Country of implementation	Germany
Period of implementation	Since 2010 - Stagnation of use and further customization since 2013 and resumption of increased use since the beginning of the pandemic (early 2020)
Target group addressed: - VET learners - Workers - Unemployed - Companies - VET teachers - Secondary students	VET teachers and VET learners
Who has implemented the case study, and what was their motivation?	Large educational institution for vocational rehabilitation, vocational reintegration, retraining/vocational training: In 2010, two trainers introduced the LMS and wanted to adapt and implement it according to their own ideas and logic for the entire area of vocational training of the training provider
Benefits of the study case	VET students (rehabilitants and unemployed due to health restrictions); VET teachers, coaches
Challenges found and how they were faced	The two teachers who wanted to implement the LMS throughout the training tried to transfer their own ideas to the other colleagues. The other trainers/teachers were not actively involved in the implementation process. This caused conflicts and there was no acceptance and readiness to use the tool among the other colleagues. User-friendliness (intuitively usable user interface) had to be established. Role-rights model for the teachers - possibility to act freely without predefined rights/user restrictions. Training in technical handling - some employees are afraid to ask for help or are too unsure of themselves
Procedure for the implementation of the good practice (possible transferability to other VET college)	The LMS is scalable and adaptable to individual needs of vocational training, similar to "Moodle". Also, H5P for the creation of interactive learning content, hotspot graphics or eLearning content can be embedded. It is useful and advisable to deploy an Administrator.



## DIGI Case 8. Open source Learning Management System (ILIAS)

Prior knowledge necessary to implement the case study (for both teachers and students)	Open-mindedness and only basic knowledge in dealing with digital media are necessary if the user interface and the structure of the LMS are user-friendly and can be used as intuitively as possible.
VET programme/subjects addressed and EQF level	Each state-approved vocational training/retraining / EQF level 2 – 3
Learning outcomes addressed	Promotes establishment of new learning culture; promotes and improves independent learning for the students - students become more independent; students learn more actively - higher learning success; increases the teachers' toolbox of methods
Digital tools used	Mainly as a desktop-application – ILIAS needs to be developed further to be more responsive for the use of mobile devices
Was the case study implemented online or hybrid?	hybrid
What was the support received from your colleagues/your management?	The educational institution is still in the change process. Teachers, but above all managers, must continue to be sensitized. Managers must support and exemplify the progress of digitization in the company (example function). Among the colleagues, there is a) a smaller part that is very open to using the LMS, then the larger part b) that is unsure and needs support and guidance, but is not completely against it, and again a small part c) that wants nothing to do with it and completely rejects its use. So, you must focus especially on part b) staff – with the support of the a) part, because with the c) staff it doesn't make sense until then. That's the current strategy.
What support you would have liked to have?	More active support from the management; a more agile IT-department
What were the critical points to make the shift towards digital learning and how did you manage it?	Barriers of acceptance by the teachers - Training of the teachers so they see the benefits for their own work; they lose fear and get the feeling of being able to do more. - Take actual needs of the teachers seriously, inquire about them and create a digital process. In the best case, the advantages over analogue processes are recognized.

## DIGI Case 8. Open source Learning Management System (ILIAS)

What were the positive aspects of digital learning versus traditional learning?	<p>More possibilities for the use of teaching methods.</p> <p>Lesson design more flexible and livelier.</p> <p>Students learn to be more independent and self-reliant.</p> <p>Students learn more independently and responsibly - develop their own learning strategies and at their own pace.</p> <p>Outdated, entrenched structures of teaching are broken down.</p>
Were there any negative aspects of digital learning versus traditional learning?	<p>The teacher cannot always immediately see/recognize the learning progress, the reactions, the mood of the students, the atmosphere in general. Facial expressions and gestures are very important for active and collaborative teaching and learning.</p> <p>Limited contact and exchange among students.</p> <p>Hybrid/blended learning is aspired.</p>
Is digitalization embedded in the school strategy?	<p>Yes and no. It is still in process. So far, work is underway to digitize the IST state. There is still a lot of work to do with raising awareness - and with the basic understanding of digitalization.</p>
Were companies involved at any stage? For example, if the study case refers to WBL, if companies were involved in the assessment of students... If yes, how?	<p>A support company is used for updating the LMS, not otherwise.</p>

<p>Short introduction of the case study</p>	<p>Teacher has been using Google Apps at his employer, a private high school in Prague, and she has found it to be a pretty good mix, but a generally positive experience in the classroom.</p> <p>She is happy with Gmail and Google Apps. The only issue she's had is when her HS had trouble with ISP and could not access the internet, she could not get to the Apps suite.</p>
<p>Country of implementation</p>	<p>Czech Republic</p>
<p>Period of implementation</p>	<p>Academic year</p>
<p>Target group addressed:</p> <ul style="list-style-type: none"> <li>- VET learners</li> <li>- Workers</li> <li>- Unemployed</li> <li>- Companies</li> <li>- VET teachers</li> <li>- Secondary students</li> </ul>	<p>Teachers and VET teachers</p>
<p>Who has implemented the case study, and what was their motivation?</p>	<p>Marta Kulhavá, math teacher in a Czech secondary school.</p>
<p>Benefits of the study case</p>	<p>With Google Classroom, you can record a short lesson for one group of students, and have each student watch that lesson individually, while you can teach another group of students.</p> <p>A teacher can also divide a class into different groups and put various online lessons for each group. It takes a quite a bit of more planning the first time. After using it for several months it becomes easier, because you can use most of the material over and over, and it's easy to find online.</p> <p>Google Classroom is a fantastic tool for material distribution. If the students need just a single page or two from their textbook, a teacher just take a picture of it and put it online for the students, so they don't have to look at their books home.</p>
<p>Challenges found and how they were faced</p>	<p>The teacher finds Google Classroom pretty easy to use, but it has its limits. The teacher did not like a grade book very much, so she stopped using it and instead of that she decided to create a Google grade book sheet by herself for each class while using Excel spreadsheet.</p>

<p>Procedure for the implementation of the good practice (possible transferability to other VET college)</p>	<ul style="list-style-type: none"> <li>•Using same Google Apps for the creation of educational competitive learning</li> <li>•Data efficiency analysis: (cluster, cohort, regression, neutral, factor) of most common Google Classroom tools</li> <li>•Apply different approaches of distant learning</li> </ul>
<p>Prior knowledge necessary to implement the case study (for both teachers and students)</p>	<p>For teachers:</p> <ul style="list-style-type: none"> <li>•basic Google Classroom features</li> <li>•basic Google tools: Gmail, Meet, Drive, Calendar, Sheets, Slides</li> </ul> <p>For students:</p> <ul style="list-style-type: none"> <li>•basic Google Classroom technologies</li> </ul>
<p>VET programme/subjects addressed and EQF level</p>	<p>Useful for everyone, from beginner to expert level</p>
<p>Learning outcomes addressed</p>	<ul style="list-style-type: none"> <li>•Selection of useful Google Classroom features to be implemented while long distance teaching</li> <li>•Scheduling the lessons on line</li> <li>•Effective and spectacular presentations of various subjects, enhancement of students learning, overall deeper understanding and comprehension</li> </ul>
<p>Digital tools used</p>	<p>Google Classroom</p> <p>Various Learning Apps</p> <ul style="list-style-type: none"> <li>•associated with Google</li> </ul>
<p>Was the case study implemented online or hybrid?</p>	<p>Hybrid. The teacher implemented this methodology both in present classes and online</p>
<p>What was the support received from your colleagues/your management?</p>	<p>Some teachers were sceptical and did not believe these new teaching technologies. However majority of them accepted these new applications and teaching tools very well.</p>
<p>What support you would have liked to have?</p>	<p>None in particular</p>
<p>What were the critical points to make the shift towards digital learning and how did you manage it?</p>	<p>None in particular</p>

<p>What were the positive aspects of digital learning versus traditional learning?</p>	<p>See question about benefits</p>
<p>Were there any negative aspects of digital learning versus traditional learning?</p>	<p>None</p>
<p>Is digitalization embedded in the school strategy?</p>	<p>Not available</p>
<p>Were companies involved at any stage? For example, if the study case refers to WBL, if companies were involved in the assessment of students... If yes, how?</p>	<p>No</p>

# IT class

Short introduction of the case study	Pupils learnt how to use shared disc and then used it during classes, mainly to be able to finish their class projects at home as well as to know what their homework was
Country of implementation	Czech Republic
Period of implementation	From September 2020
Target group addressed: - VET learners - Workers - Unemployed - Companies - VET teachers - Secondary students	VET learners
Who has implemented the case study, and what was their motivation?	This case study was implemented by IT teacher. Her motivation was to simplify classes and make them more comprehensible for students as well as for her.
Benefits of the study case	Simplicity, clarity of teaching and assignments
Challenges found and how they were faced	<p>Before they started to use the shared disc in the classes, pupils didn't know about such tool. Therefore, it was necessary to teach them how to use it. However, some pupils still have problems with using it.</p> <p>Other challenge was that some pupils had poor knowledge of how to use the computer.</p> <p>The teacher first made a "how to" video to teach pupils to use the platform. Because some pupils still had problems with using the platform, she later replaced the video with a step-by-step picture presentation.</p>
Procedure for the implementation of the good practice (possible transferability to other VET college)	A teacher needs to know how to use the shared disc him/herself, then they can teach pupils how to use it and later they can actively use it in classes.

# IT class

Prior knowledge necessary to implement the case study (for both teachers and students)	A teacher needs to have experience with the shared disc. Pupils must know how to use a computer.
VET programme/subjects addressed and EQF level	Not available
Learning outcomes addressed	Pupils can do their homework from home (before it was not possible due to a local disc).
Digital tools used	OneDrive, GoogleDrive
Was the case study implemented online or hybrid?	Online or at school
What was the support received from your colleagues/your management?	The school management bought Microsoft licenses to have all classes online. And possibility to use OneDrive is a part of these licences.
What support you would have liked to have?	"It would be great if pupils had a same good level of PC knowledge from their previous schools."
What were the critical points to make the shift towards digital learning and how did you manage it?	During online learning some pupils didn't have their own computers and also didn't have a possibility to buy one. Therefore they borrowed computers from school, some of them were using computers of their family members or friends.
What were the positive aspects of digital learning versus traditional learning?	Pupils could do their homework when they wanted or had time (this was not possible before). Also IT teachers could work due to the shared drive work from home. Students were "forced" to work with computers, thus they were learning how to use them as well as digital tools.

# IT class

Were there any negative aspects of digital learning versus traditional learning?

There was a lack of personal contact. Pupils as well as teachers lost their motivation to work. The freedom to do things when they (teachers and pupils) wanted, became slightly problematic for some of them.

Is digitalization embedded in the school strategy?

Rather yes. Pupils are writing their final thesis on computer, but in general it is difficult to teach the subjects at this school online. All communication between pupils and teachers is now online.

Were companies involved at any stage? For example, if the study case refers to WBL, if companies were involved in the assessment of students... If yes, how?

No



# DIGI Case 11. Vet education on communication through a work-based approach

Short introduction of the case study	The VET educator is an expert of using technologies and innovative teaching method with his students. In particular he bet on an active learning methodology where the students are the main character of their learning experience
Country of implementation	Italy
Period of implementation	2020-2021
Target group addressed: - VET learners - Workers - Unemployed - Companies - VET teachers - Secondary students	Unemployed, secondary students and university students
Who has implemented the case study, and what was their motivation?	Vito Verrastro who has involved several youngsters from 16 to 28 yo in a radio project to provide them a professional education about communication, digital media and digital communication. The project was sustained by the Italian NA, but then it became a fully learning experience for the participants. The main aim of Vito was to give the opportunity to learn new skills and a new job opportunity field
Benefits of the study case	<p>The main benefit reached in the project was the possibility to make a learning experience breaking out the paradigm of the traditional leaning path. The project was born with a divulgative purposes than it became a learn-by-doing exercise for the participants which had a work-based learning experience.</p> <p>The participants were immediately involved into the working environment. After a first introductory lesson, the participants were immediately asked to create their own contents, while they were receiving Vito's support. The project were totally developed online because the participants were located in different areas of the region. The participants learned how to use specific software about sound-editing, podcasting, graphic desing and learned how to build divulgative contents, doing the cross checking of the resources and then writing their own contents.</p>
Challenges found and how they were faced	The main challenge was about creating a solid cooperative group because of the distance, but they were managed organizing frequent zoomcall and by a using messages apps in

# DIGI Case 11. Vet education on communication through a work-based approach

Procedure for the implementation of the good practice (possible transferability to other VET college)	The project can be easily transferred in a school or in other educational context because it doesn't require a specific set of devices, but just having a smartphone and a pc. This kind of activity helps students acquiring soft and hard skills that can give them the opportunity to discover a new professional path.
Prior knowledge necessary to implement the case study (for both teachers and students)	None, because the participants learned how to use the software by using them.
VET programme/subjects addressed and EQF level	Not available
Learning outcomes addressed	<ul style="list-style-type: none"> <li>•Improved communication, writing and speaking skills</li> <li>•Learn how to use specific tools for communication field</li> <li>•Identify the importance of creating news and powerfulness of digital communication</li> </ul>
Digital tools used	<ul style="list-style-type: none"> <li>•Spreaker</li> <li>•Canva</li> <li>•Headliner</li> <li>•Streamyard</li> </ul>
Was the case study implemented online or hybrid?	Online
What was the support received from your colleagues/your management?	The project was run by Vito and the coordinator of the Eurodesk center which had the contacts with the NA
What support you would have liked to have?	Probably it would have been better if the participants were equipped with more suitable technologies. Moreover it would have been great if the NA supported the project in term of sustainability giving them the chance to continue it and let the participants have the possibility to obtain a certification
What were the critical points to make the shift towards digital learning and how did you manage it?	The project was borned online so we didn't have any passage from the traditional to digital

# DIGI Case 11. Vet education on communication through a work-based approach

What were the positive aspects of digital learning versus traditional learning?

Working online gave us a huge flexibility on organizing the meetings and the working session. The participants experimented the possibility of learning online in an effective way breaking the prejudice that we cannot have relevant experience online.

Were there any negative aspects of digital learning versus traditional learning?

Probably it affected a bit the grade of integration of the participants because they didn't manage to fully interact with the whole working group. Some participants built constructive relationship, others instead remained aside

Is digitalization embedded in the school strategy?

Were companies involved at any stage? For example, if the study case refers to WBL, if companies were involved in the assessment of students... If yes, how?

Eurodesk center and Italian National Agency

# DIGI Case 12. Google Classroom as a digital tool for remote teaching

Short introduction of the case study	Google classroom to facilitate remote teaching
Country of implementation	Sweden
Period of implementation	March 2020- May 2021
Target group addressed: - VET learners - Workers - Unemployed - Companies - VET teachers - Secondary students	Secondary students and teachers
Who has implemented the case study, and what was their motivation?	Kristina Tengelin (language teacher at a Swedish secondary school)
Benefits of the study case	<ol style="list-style-type: none"> <li>1. Google Classroom (GC) enabled us to give live classes, which helped the students keep their everyday routines and schedule.</li> <li>2. GC made it easy for us to communicate with the students through speaking and writing.</li> <li>3. GC helped us stay in touch with the students so that we could raise concern if anyone was missing.</li> <li>4. GC made it easy for the teachers to post assignments, follow the students' progress, and easy for the students to hand in their work.</li> <li>5. GC made it easy for the teachers to distribute material for the students to work with.</li> </ol>
Challenges found and how they were faced	<p>In the early days anyone could allow outside people into the meeting, which causes disruption of the class.</p> <p>It was not possible to divide the class into breakout rooms in the beginning.</p> <p>Some students were reluctant to show their faces on the meet and were difficult to get in touch with.</p> <p>Many students couldn't focus at home since they were surrounded by family members, and so on.</p>

# DIGI Case 12. Google Classroom as a digital tool for remote teaching

<p>Procedure for the implementation of the good practice (possible transferability to other VET college)</p>	<p>The school sets up google accounts for all staff and teachers, which makes it easily accessible to everyone. The teachers explore the google platform and its possibilities together and then show the students how it works.</p>
<p>Prior knowledge necessary to implement the case study (for both teachers and students)</p>	<p>In order to use GC, teachers need to set up a google account and have/attain basic and general knowledge of how google works. In my experience, GC is rather intuitive and user-friendly. Students also need a google account. It is easy to use the platform, and most students get it the first time they log in.</p>
<p>VET programme/subjects addressed and EQF level</p>	<p>Suitable for all levels of teaching.</p>
<p>Learning outcomes addressed</p>	<p>We discovered that remote teaching can never replace face-to-face teaching, but it is a good substitute when students cannot come to school. For any student who works with discipline and focus, GC works well because teachers use it as a resource and it is easy to navigate. For students who struggle with concentration, GC faces the same challenges as regular classroom teaching.</p>
<p>Digital tools used</p>	<p>Google classroom, including google meet</p>
<p>Was the case study implemented online or hybrid?</p>	<p>Hybrid. GC was used mostly for remote teaching, but in parts also for regular classroom teaching.</p>
<p>What was the support received from your colleagues/your management?</p>	<p>Mostly positive comments. We all realized that an online platform is essential for remote teaching.</p>
<p>What support you would have liked to have?</p>	<p>Most of our problems revolved around technical issues; the majority of which was solved along the way.</p>
<p>What were the critical points to make the shift towards digital learning and how did you manage it?</p>	<p>We had already started using GC before, but added using the google meet app as well as started using GC for distributing ALL classroom materials. Before the pandemic, we had a hybrid of books and digital materials.</p>

# DIGI Case 12. Google Classroom as a digital tool for remote teaching

What were the positive aspects of digital learning versus traditional learning?

Digital learning:

- \*students didn't disrupt class and bothered each other while working.
- \*students who are shy managed to express themselves with more ease in the digital format
- \*easy to use video clips without having to worry about technical issues in the classroom
- \*students like the work online

Traditional learning:

- \*easier to keep an overview of the students and their work in progress
- \*easier to get them started
- \*more enjoyable for the teacher to communicate in person with the students

Were there any negative aspects of digital learning versus traditional learning?

Digital learning:

- \*more difficult to communicate with students (black screens, slow wifi, and so on)
- \*classes felt repetitious after a while

Traditional teaching:

- \*students distract each other easily
- \*requires more classroom management

Is digitalization embedded in the school strategy?

Yes. We have been working with digital workbooks and platforms to facilitate learning for several years.

Were companies involved at any stage? For example, if the study case refers to WBL, if companies were involved in the assessment of students... If yes, how?

No.

# DIGI Case 13. Augmented Reality

Short introduction of the case study	Augmented reality used for maintenance management. Giving the possibility of introducing valorous information about pieces (bom), diagrams (electric, pneumatic...), spare parts, and process sheets.
Country of implementation	Spain (Basque Country)
Period of implementation	Academic year
Target group addressed:	VET students
- VET learners - Workers - Unemployed - Companies - VET teachers - Secondary students	
Who has implemented the case study, and what was their motivation?	Gaizka Larrinaga, Maintenance and Quality process, and management teacher. Motivation: to see the opportunities offered by this application.
Benefits of the study case	Giving useful information in an easy way. Actualized information. Valorous information about pieces (bom), diagrams (electric, pneumatic...), spare parts, process sheets.
Challenges found and how they were faced	None.
Procedure for the implementation of the good practice (possible transferability to other VET college)	The school sets up google accounts for all staff and teachers, which makes it easily accessible to everyone. The teachers explore the google platform and its possibilities together and then show the students how it works.

# DIGI Case 13. Augmented Reality

Prior knowledge necessary to implement the case study (for both teachers and students)	Not needed.
VET programme/subjects addressed and EQF level	Subject: Maintenance works and Quality management. 4-5 level EQF.
Learning outcomes addressed	Learning Outcomes 2, 3, and 4 of the official program.
Digital tools used	ROAR Augmented Reality.
Was the case study implemented online or hybrid?	Hybrid.
What was the support received from your colleagues/your management?	No support.
What support you would have liked to have?	A ROR version for educators.
What were the critical points to make the shift towards digital learning and how did you manage it?	None.
What were the positive aspects of digital learning versus traditional learning?	The interest of students to apply the learned contents with their own smartphones.
Were there any negative aspects of digital learning versus traditional learning?	No.
Is digitalization embedded in the school strategy?	There is a special program defined to implement these kinds of strategies. Mgep Lhab 4.0.
Were companies involved at any stage? For example, if the study case refers to WBL, if companies were involved in the assessment of students... If yes, how?	No.



# DIGI Case 14. Simulation software for robotics and automation

<p>Short introduction of the case study</p>	<p>The use of simulation software in some specialties such as PLC and CNC programming is already implemented in a high degree. In those specialties learners can perform programming and testing activities without the need of real hardware, which in most of cases is quite expensive. However in other specialties like robotics the simulation software isn't so well known and economically accessible and it is being used only in a test period. These kind of software has the potential of being used remotely, so that learners could program and test robots in their own home.</p>
<p>Country of implementation</p>	<p>Spain (Basque Country)</p>
<p>Period of implementation</p>	<p>Academic year</p>
<p>Target group addressed:</p> <ul style="list-style-type: none"> <li>- VET learners</li> <li>- Workers</li> <li>- Unemployed</li> <li>- Companies</li> <li>- VET teachers</li> <li>- Secondary students</li> </ul>	<p>VET students</p>
<p>Who has implemented the case study, and what was their motivation?</p>	<p>Automation and robotics teachers in UGLE VET school have implemented this case study. Their motivation was that in UGLE there are only two robots, and it is quite difficult to teach robotics to a group of 20 learners.</p>
<p>Benefits of the study case</p>	<ul style="list-style-type: none"> <li>•Learners can perform programming and testing activities without the use of real hardware.</li> <li>•Despite it hasn't be implemented yet, it has the potential of being used remotely, so that learners can work with it in their own home.</li> <li>•Working with simulation software should be extensible to more subjects in the future.</li> </ul>
<p>Challenges found and how they were faced</p>	<p>The main challenge is that this kind of software is licensed and quite expensive. It needs also a quite high level training of the teachers.</p>
<p>Procedure for the implementation of the good practice (possible)</p>	<p>The first step was the training of teachers in this kind of software. After receiving the training and getting the software, teachers have to prepare suitable didactic material in order to include</p>

# DIGI Case 14. Simulation software for robotics and automation

Prior knowledge necessary to implement the case study (for both teachers and students)	<ul style="list-style-type: none"> <li>•Teachers should have a quite high level of knowledge in robotics.</li> <li>•Learners must study the basis of robotics before being introduced in the use of simulation software.</li> </ul>
VET programme/subjects addressed and EQF level	•Automation and robotics high level cycle. Robotics subject.
Learning outcomes addressed	•Learners have much more possibilities of programming and testing activities.
Digital tools used	•Robotics simulation software
Was the case study implemented online or hybrid?	Hybrid
What was the support received from your colleagues/your management?	The case was implemented in the initiative of the automation and robotics teachers but it was supported by the management, who purchased the licenses for the simulation software.
What support you would have liked to have?	In the future it would be good to purchase more licenses and also to invest money in the training of more teachers.
What were the critical points to make the shift towards digital learning and how did you manage it?	The critical point was the training of teachers. It was managed offering some free time to the involved teachers to proceed with their training.
What were the positive aspects of digital learning versus traditional learning?	Traditional learning in robotics requires real hardware which is very expensive.
Were there any negative aspects of digital learning versus traditional learning?	Simulation tools are very good for training, but they aren't enough. Learners must have contact also with the real hardware, so digital learning with simulation software must be seen only as a complementary learning to the traditional one.
Is digitalization embedded in the school strategy?	Yes, digitalization, specially in Industry 4.0 related aspects, is embedded in the school strategy.
Were companies involved at any stage? For example, if the study case refers to	No, in this case there was no company involved.

## DIGI Case 15. Use of Web forms for task tracking

Short introduction of the case study	Web forms were used for tracking of several tasks, such as programme/subject tracking, tracking of job practices in companies or tracking of multidisciplinary projects
Country of implementation	Spain (Basque Country)
Period of implementation	Academic year
Target group addressed: - VET learners - Workers - Unemployed - Companies - VET teachers - Secondary students	VET teachers and companies
Who has implemented the case study, and what was their motivation?	Teachers of UGLE implemented this case study. The motivation was that a lot of documentation work was made by several participants, what supposed a great deal of time wasted in the combination and organization of this documentation.
Benefits of the study case	The main benefit is time saving and good organization of documents and information
Challenges found and how they were faced	The challenge was that initially some teachers were not used to work this way and they were reluctant. But after some training everybody saw the benefits.
Procedure for the implementation of the good practice (possible transferability to other VET college)	<ul style="list-style-type: none"> <li>•Select a single activity in which the tracking documents must be filled by several people.</li> <li>•One person must be responsible of the document.</li> <li>•Organize a document so that it can be filled easily from the answers given in a web form.</li> <li>•Create as many web forms as necessary for the different people participating in the tracking.</li> <li>•Send the web forms to the people that must fill them and give indications if they must fill it periodically for example.</li> <li>•The responsible person has to collect the answers given in the web form (which are automatically organized in an excel file) and transfer them to the document.</li> <li>•After having a first experience this procedure can be used for as many tracking documents as liked.</li> </ul>

## DIGI Case 15. Use of Web forms for task tracking

Prior knowledge necessary to implement the case study (for both teachers and students)	The only prior knowledge necessary is how to create a web form.
VET programme/subjects addressed and EQF level	Any programme/any subject
Learning outcomes addressed	The good organization of information and documentation and the time saving of teachers have indirect benefits in learners.
Digital tools used	Web forms
Was the case study implemented online or hybrid?	Hybrid
What was the support received from your colleagues/your management?	At first some colleagues were reluctant, after some training everybody is happy.
What support you would have liked to have?	The support was good enough.
What were the critical points to make the shift towards digital learning and how did you manage it?	The critical point was the reorganization of the documents and information so that they were suitable of being used with this method.
What were the positive aspects of digital learning versus traditional learning?	Time saving. Good organization of documents and information.
Were there any negative aspects of digital learning versus traditional learning?	One person must be responsible in each document. It isn't always easy to select the right person.
Is digitalization embedded in the school strategy?	Yes, it is.
Were companies involved at any stage? For example, if the study case refers to WBL, if companies were involved in the assessment of students... If yes, how?	Companies were involved because they have to fill the web forms for tracking of job practices of students.

## DIGI Case 16. A content-learning platform helps the Spanish-speaking community.

Short introduction of the case study	The content-learning platform SmartUp was used to facilitate and combine digital learning with in-person meetups.
Country of implementation	Several in Latin America
Period of implementation	Not specified
Target group addressed: - VET learners - Workers - Unemployed - Companies - VET teachers - Secondary students	VET teachers
Who has implemented the case study, and what was their motivation?	SmartUp They wanted to know first-hand how their platform was being used for language learning.
Benefits of the study case	Teachers and students
Challenges found and how they were faced	<i>Enjoy Talking</i> (a Spanish-based community that teaches English to youths and adults) was looking for a way to reach Spanish-speaking youths around the world to help them with their English and allow them to connect with each other despite any distances. They turned to a content-learning platform called, SmartUp.
Procedure for the implementation of the good practice (possible transferability to other VET college)	It was a benefit to start with the basic, off-the-shelf content the platform came with. After getting to know the app and its capabilities, developing a course similar to how a teacher would any other curriculum, ie. with quizzes, infographics, videos, etc. Having a starting point with number of different content and information was important in order to move it over to the platform and then fine-tuned it for the platform and learning using their content studio.

## DIGI Case 16. A content-learning platform helps the Spanish-speaking community.

Prior knowledge necessary to implement the case study (for both teachers and students)	Language knowledge and skills and the desire to connect with fellow learners. Basic computer and digital device knowledge were also necessary but not mandatory.
VET programme/subjects addressed and EQF level	English as a second language (ESL).
Learning outcomes addressed	The SmartUp platform has allowed <i>Enjoy Talking</i> to empower their users to access micro-learning content easily and world-wide while building an ever-evolving library of learning content.
Digital tools used	SmartUp
Was the case study implemented online or hybrid?	Online
What was the support received from your colleagues/your management?	Unknown
What support you would have liked to have?	Support from local schools or after-school programs would have been a nice addition. Language clubs would have seen this as an added benefit as well.
What were the critical points to make the shift towards digital learning and how did you manage it?	Organizing weekly meet-ups were critical to enhance the students' learning further. This was important because it allowed students to review what they learned but also added a social element of meeting in-person to practice.
What were the positive aspects of digital learning versus traditional learning?	<i>Enjoy Talking</i> has found out that their youths' motivation to learn and study has been "impressively high". Being able to meet in-person outside of the digital platform allowed them to have fun with their colleagues and partners while still practicing what they learned.
Were there any negative aspects of digital learning versus traditional learning?	This type of digital learning should be considered a supplemental activity, a not viewed as a replacement to the traditional classroom system. This can be seen as a way to incorporate learnings with an added social benefit that connects learners so they can practice. This is more of a hybrid way of learning but since these sessions could be unmonitored, the teacher cannot know if these sessions are actually working.

## DIGI Case 16. A content-learning platform helps the Spanish-speaking community.

Is digitalization embedded in the school strategy?	Unknown
Were companies involved at any stage? For example, if the study case refers to WBL, if companies were involved in the assessment of students... If yes, how?	No

## DIGI Case 17. Digital Library and YouTube videos

<p>Short introduction of the case study</p>	<p>This case study presents two digital resources: the digital library and the uploading of video lessons to the YouTube channel. The school is developing a digital library, thanks to the willingness of some teachers, through which to create a 'historical memory' of teaching subjects to provide continuity in teaching when one teacher has to take over from another. The case study also presents the opportunities and advantages for teachers and students in using the video lessons uploaded to the YouTube channel.</p>
<p>Country of implementation</p>	<p>Italy</p>
<p>Period of implementation</p>	<p>From 2021</p>
<p>Target group addressed:</p> <ul style="list-style-type: none"> <li>- VET learners</li> <li>- Workers</li> <li>- Unemployed</li> <li>- Companies</li> <li>- VET teachers</li> <li>- Secondary students</li> </ul>	<p>VET learners Secondary students Teachers</p>
<p>Who has implemented the case study, and what was their motivation?</p>	<p>Artistic high school of Porta Romana in Florence. The motivation is linked both to the need to deal with distance teaching during the Covid-19 period and the opportunity to make the organisation of teaching within the Institute more efficient.</p>
<p>Benefits of the study case</p>	<p><b>Digital library:</b></p> <ul style="list-style-type: none"> <li>• Continuity in teaching</li> <li>• Raising the competence of teachers</li> <li>• Speeding up working time</li> </ul> <p><b>YouTube videos:</b></p> <ul style="list-style-type: none"> <li>• Possibility for students to listen to lectures again and deepen fewer clear aspects</li> </ul> <p>Advantages for the teacher in the re-use of video lessons</p>



## DIGI Case 17. Digital Library and YouTube videos

Challenges found and how they were faced	With regard to video lectures, less digitised lecturers experienced difficulties and some did not make use of this tool. With regard to the construction of a digital library, on the other hand, it was initially planned to build it via Google Drive, but the teachers involved realised that the only possible tool to build it is through the construction of a website. This poses the problem of dedicating a dedicated resource to monitor and update the uploaded material and the functionality of the digital library in general. At the moment, the school is considering how to find a solution to realise this ambitious project. Human resources need to be more digitally prepared.
Procedure for the implementation of the good practice (possible transferability to other VET college)	<p><b>Video lessons:</b></p> <ul style="list-style-type: none"> <li>•Open an account on the YouTube channel</li> <li>•Record video lessons and upload them to the channel</li> </ul> <p><b>Digital library</b></p> <ul style="list-style-type: none"> <li>•Create an archive with all materials and work done.</li> <li>•Create a tree structure, including, for example: Subject, teacher or/and topic</li> </ul>
Prior knowledge necessary to implement the case study (for both teachers and students)	<ul style="list-style-type: none"> <li>•Digital competences</li> </ul> <p>Organisational skills (archiving, technical, etc.)</p>
VET programme/subjects addressed and EQF level	Any programme/any subject
Learning outcomes addressed	<ul style="list-style-type: none"> <li>•Better organisation of work for teachers</li> </ul> <p>Better collaboration between teachers</p>
Digital tools used	<ul style="list-style-type: none"> <li>- Video lessons</li> <li>- Smartphones</li> <li>- Computers</li> </ul>
Was the case study implemented online or hybrid?	Both
What was the support received from your colleagues/your management?	The school is struggling with this in terms of the availability of both human and material resources (few teachers do not use their own PCs for teaching). There should be full cooperation from many teachers. The technicians at the moment are not able to do this job because they do not have

## DIGI Case 17. Digital Library and YouTube videos

<p>What support you would have liked to have?</p>	<p>I personally have the appropriate digital skills to be able to deal with distance learning, so no one in particular.</p>
<p>What were the critical points to make the shift towards digital learning and how did you manage it?</p>	<ul style="list-style-type: none"> <li>- Software used is very expensive. The Institute has the licence while the students do not and this has been a problem for distance learning. Similar programmes have been used at a lower cost or free of charge but not comparable to those normally used</li> <li>- Difficulty for students to study in online handouts, technical exercises were favoured.</li> </ul>
<p>What were the positive aspects of digital learning versus traditional learning?</p>	<ul style="list-style-type: none"> <li>•-Possibility for students to access materials made available by the lecturer more easily</li> <li>•Possibility for students to review the lectures, especially to follow more closely the passages of the technical exercises with the possibility of stopping the video, going back when something is not clear</li> </ul> <p>Possibilities for lecturers to optimise organisational workloads by collecting digital material for use in teaching</p>
<p>Were there any negative aspects of digital learning versus traditional learning?</p>	<p>Students have problems studying in online handouts. Some need to study on paper. Especially a lot of BES students, who have been used to studying in hard copy from an early age. Technical vocational subjects such as teaching software cannot be done on the touch screen because they do not have the snaps or cursor attractors.</p> <p>Digital tools are great when teaching in presence. Because from the desk you can follow who is working well or badly, who is lagging behind. Distance learning is really complicated online. When you are at a distance you don't have direct control.</p>
<p>Is digitalization embedded in the school strategy?</p>	<p>Yes, it has very good IT equipment and encourages the use of digital tools.</p>
<p>Were companies involved at any stage? For example, if the study case refers to WBL, if companies</p>	<p>No</p>

## DIGI Case 18. Google Classroom and Tes teach

<p>Short introduction of the case study</p>	<p>The case study presents the use of digital tools and the adoption of innovative methodologies for distance learning in order to raise the quality of distance learning.</p> <p><b>Google Classroom</b> is a free blended learning platform to streamline the process of sharing files between teachers and students</p> <p>Tes Teach is a <b>free online resource</b> – created by TES – those teachers and student can use to design custom digital lessons in as little as five minutes. It allows kids to create interactive lessons using their own content as well as just about any content that's available on the web. There is also the option to incorporate free activities, games, presentations, and <b>lesson plans</b> using the TES Resources Search tab and the possibility for teachers to create multiple choice quizzes for students after the lesson. Once students complete these quizzes, teachers can access detailed analytics that break down how each student performed. It also allows users to share their results via <b>Google Classroom</b> or their Google account.</p>
<p>Country of implementation</p>	<p>Italy</p>
<p>Period of implementation</p>	<p>From March 2019</p>
<p>Target group addressed:</p> <ul style="list-style-type: none"> <li>- VET learners</li> <li>- Workers</li> <li>- Unemployed</li> <li>- Companies</li> <li>- VET teachers</li> <li>- Secondary students</li> </ul>	<p>VET teachers</p>
<p>Who has implemented the case study, and what was their motivation?</p>	<p>Miriam Pierozzi teaches Italian and history and is the Marconi Institute's digital animator. Miriam is the digital animator at the Marconi Institute in Prato and has been promoting the use of digital tools in the institute for years.</p>
<p>Benefits of the study case</p>	<ul style="list-style-type: none"> <li>• creating highly engaging learning environments Interactive Learning</li> <li>• Lessons recording</li> <li>• Elaboration of multimedia contents</li> <li>• Monitor student understanding with quizzes and discussions</li> <li>• Find free lessons by subject and grade level</li> </ul>

## DIGI Case 18. Google Classroom and Tes teach

Challenges found and how they were faced	<p>Keeping students' attention through interactive lessons which is the main obstacle to distance learning.</p> <p>Motivating other teachers to use digital tools</p> <p>The difficulty for students to have digital devices to participate in lessons even though the institution has taken steps to do so</p>
Procedure for the implementation of the good practice (possible transferability to other VET college)	<p>The tool is very easy to use and there are a lot of video tutorial for helping to use it.</p> <p><b>Google Classroom</b> Licence from the educational institution. Watch the free tutorials to learn how to use it and discover the potential of the tool</p> <p><b>Tes Teach</b> The tool is free and very easy to use and there are a lot of video tutorial for helping to use it.</p>
Prior knowledge necessary to implement the case study (for both teachers and students)	<ul style="list-style-type: none"> <li>- Basic knowledge of digital tools</li> <li>- Access to Google classroom</li> </ul>
VET programme/subjects addressed and EQF level	Both tools are suitable for all subjects
Learning outcomes addressed	<p>Many teachers, who were previously reluctant to use digital tools because of the forced distance learning linked to Covid 19, have discovered the advantages and potential of these tools to the extent that they are now integrated into traditional teaching.</p> <p>Interactive lessons lead to greater student involvement, even if face-to-face lessons are still essential to prevent students at risk of dropping out of school</p> <p>Tools such as Google classroom encourage collaboration between teachers through the sharing of materials and video lessons that can be useful and motivational to improve their skills in terms of digital tools and innovative methodologies</p>
Digital tools used	<ul style="list-style-type: none"> <li>- Tes teach</li> <li>- Google Classroom</li> </ul>
Was the case study implemented online or hybrid?	During the onset of the pandemic online, previously and currently in hybrid form
What was the support received from your colleagues/your management?	The institute provided training on the use of Google Classroom and there is close collaboration

## DIGI Case 18. Google Classroom and Tes teach

What support you would have liked to have?	Nonspecific. Already since 2015, the Italian government has introduced the figure of the digital animator that I currently hold and has invested significant funds for digital development within schools.
What were the critical points to make the shift towards digital learning and how did you manage it?	In addition to support from the Institute, it is essential to have initiative and a willingness to learn independently. One of the advantages of today's digital world is the ability to access so many training and support materials for digital learning. In addition to support from the Institute, it is essential to have initiative and a willingness to learn independently. One of the advantages of today's digital world is the ability to access so many training and support materials for digital learning.
What were the positive aspects of digital learning versus traditional learning?	The benefits of digital learning are several, with video lessons, for example, students have the ability to review the lesson. If they don't understand a concept or passage, they have the option of reviewing it. Or, interactive whiteboards allow students to "capture" what is being reported in spite of traditional whiteboards. However, traditional teaching allows for that direct contact with students that digital cannot replace and is critical to motivating students in their studies.
Were there any negative aspects of digital learning versus traditional learning?	The negative aspects of digital learning are the lack of direct control over students' attention, which is the case in traditional learning.
Is digitalization embedded in the school strategy?	Yes, for many years the Institute has focused on digitization by also participating in national competitions on digital innovation.
Were companies involved at any stage? For example, if the study case refers to WBL, if companies were involved in the assessment of students... If yes, how?	No

# teaching

<p>Short introduction of the case study</p>	<p>The case study addresses the types of digital tools that can ease teachers' workload and make learning more stimulating both at a distance and in the classroom. The digital tools range from those offered by the GSUITE package to <i>open source</i> tools available in different platforms dedicated to English language teaching.</p>
<p>Country of implementation</p>	<p>Italy</p>
<p>Period of implementation</p>	<p>From March 2019</p>
<p>Target group addressed:</p> <ul style="list-style-type: none"> <li>- VET learners</li> <li>- Workers</li> <li>- Unemployed</li> <li>- Companies</li> <li>- VET teachers</li> <li>- Secondary students</li> </ul>	<p>VET teachers, VET learners and secondary students</p>
<p>Who has implemented the case study, and what was their motivation?</p>	<p>Centro Formativo Provinciale "G. Zanardelli", Clusane city, Hotel Institute. Tiziana Pintossi, education coordinator and English language teacher.</p> <p>The Covid-19 pandemic and the measures taken by the Italian government, including distance learning, prompted Tiziana to identify innovative learning methods using digital tools to keep her students' attention.</p>
<p>Benefits of the study case</p>	<p><b>Electronic class register</b></p> <ul style="list-style-type: none"> <li>- Loading lessons</li> <li>- Assigning tasks</li> <li>- Digital diary</li> <li>- Uploading materials</li> </ul> <p><b>Google Classroom</b></p> <ul style="list-style-type: none"> <li>- Interactive exercises during the lesson</li> <li>- Interactive whiteboard</li> <li>- Uploading lessons online</li> <li>- Online tests</li> <li>- Uploading materials</li> <li>- Attendance monitoring</li> <li>- Controlling the interaction of students</li> </ul> <p><b>English Platforms as BBC or British Council Learning English and digital book Identity Oxford University Press</b></p> <ul style="list-style-type: none"> <li>- audio listening</li> <li>- interactive exercises</li> </ul>

# teaching

<p>Challenges found and how they were faced</p>	<p><b>Lack of digital skills of some teaching staff</b> that the Institute has addressed through training in the use of digital tools and in particular Gsuite and through collaboration between the teachers themselves who have provided support. Other more difficult <b>structural challenges</b> to be solved concerned:</p> <ul style="list-style-type: none"> <li>•Lack of network coverage in some areas</li> <li>•Lack of digital devices by students</li> <li>•Main use of smartphones by students which has</li> </ul> <p><b>Fatigue on the part of students to follow online classes for a prolonged period</b>, which the teachers tried to overcome through interactive learning moments.</p>
<p>Procedure for the implementation of the good practice (possible transferability to other VET college)</p>	<ul style="list-style-type: none"> <li>•The school creates google accounts for all staff and teachers, making it easily accessible to all.</li> <li>•</li> </ul> <p>Teachers explore the Google platform and its possibilities together, or the school provides training on how to use the platform.</p>
<p>Prior knowledge necessary to implement the case study (for both teachers and students)</p>	<p><b>Teachers:</b></p> <ul style="list-style-type: none"> <li>•basic knowledge of digital technologies</li> <li>•willingness to explore the issues in greater depth, also independently</li> </ul> <p><b>Students:</b></p> <ul style="list-style-type: none"> <li>•basic knowledge of digital technologies</li> <li>•Digital tool as a computer, laptop, tablet, or smartphone</li> </ul>
<p>VET programme/subjects addressed and EQF level</p>	<p><b>Google Classroom:</b> All subjects  <b>English platforms:</b> English teaching like</p>
<p>Learning outcomes addressed</p>	<p>We discovered that digital tools can both lighten the teachers' workload, such as correcting assignments or tests, and be useful for students through recording lessons that give them the possibility to review the lesson.</p>
<p>Digital tools used</p>	<ul style="list-style-type: none"> <li>•Google Classroom</li> <li>•English learning platforms ex: BBC</li> <li>•Digital Book</li> </ul>
<p>Was the case study implemented online or hybrid?</p>	<p>During the exclusively online pandemic it is now, with the return of face-to-face students, used in a hybrid form</p>
<p>What was the support received from your colleagues/your management?</p>	<p>There was collaboration between teachers who were more willing to use digital tools and those who were more reluctant.</p>

# teaching

What support you would have liked to have?	A training course for all teachers would have been appropriate.
What were the critical points to make the shift towards digital learning and how did you manage it?	You have to be prepared to learn independently through online tutorials.
What were the positive aspects of digital learning versus traditional learning?	<ul style="list-style-type: none"><li>•Sharing of teaching materials</li><li>•Sharing of lessons that can be reviewed by students</li><li>•Correcting assignments without having to take out notebooks</li><li>•Correcting tests is more immediate, which is an advantage both for the teacher and for the students, who can immediately see their mistakes and understand them, and already have a grade. In addition, Gsuite provides the teacher with all the summaries of the tests, which are convenient for the teacher because they allow him to see the progress of both the class and the individual student.</li></ul>
Were there any negative aspects of digital learning versus traditional learning?	<p>We need to think of a hybrid solution taking the advantages of digital and traditional.</p> <p><b>Digital Learning</b> More difficult to communicate with students (black screens, slow wifi, and so on) Reading only online, for example, is not optimal for students: having paper, the possibility of annotation and direct interaction with the teacher are positive aspects of traditional teaching</p> <p><b>Traditional teaching</b> •Students do not always carry out the tasks assigned to them while online there is direct interaction on this point. •More workload for teachers in terms of collecting tests •more classroom management</p>
Is digitalization embedded in the school strategy?	Yes
Were companies involved at any stage? For example, if the study case refers to WBL, if companies were involved in the assessment of	No



# Kahoot

Short introduction of the case study	This case presents the use of the Kahoot platform to stimulate students through gamification methodologies.
Country of implementation	Italy
Period of implementation	2020 - 2021
Target group addressed:	VET teachers, VET learners and secondary students
- VET learners - Workers - Unemployed - Companies - VET teachers - Secondary students	
Who has implemented the case study, and what was their motivation?	Docente CFP Zanardelli di Brescia
Benefits of the study case	- Increased student participation in learning activities - Stimulation for students to engage and learn
Challenges found and how they were faced	<p>Lack of computers of students who are forced to follow lessons via smartphones, which is not suitable especially for teaching technical subjects. The solution was to adopt teaching methods that stimulate students to interact and pay attention.</p> <p>Lack of wi-fi coverage forcing the video to be blacked out and therefore not monitoring student activity by the teacher. This, being a structural problem, could not be solved.</p> <p>Getting students used to virtual lessons. The challenge for the lecturers was to find methodologies that would allow interaction with the students, for example, the digital tool Kahoot</p> <p>Access to paid programmes for students. In this case, it was not possible in FAD to use the normally used programmes</p>

# Kahoot

Procedure for the implementation of the good practice (possible transferability to other VET college)	Kahoot! is a free game-based learning platform. Once registered, it is possible to create quizzes for students. In the case considered, not the classic version was used but the self-paced Kahoot mode that allows challenges between students without a set time. Each student, specifically, self-manages the time. The student who solves a test or answers a question in the shortest time wins. This gamification methodology involves students challenging each other to win in a 'healthy' and motivating competition.
Prior knowledge necessary to implement the case study (for both teachers and students)	- Basic digital knowledge
VET programme/subjects addressed and EQF level	<b>Technical machine operator qualification</b> <b>Technical qualification for industrial automation</b> Mechanical technology CAD drawing workplace safety safety environment, quality
Learning outcomes addressed	<ul style="list-style-type: none"> <li>•Increased student involvement</li> <li>•Identification of innovative solutions to make distance learning more attractive</li> </ul>
Digital tools used	<ul style="list-style-type: none"> <li>•Kahoot Programme</li> <li>•Computers</li> <li>•Smartphone</li> </ul>
Was the case study implemented online or hybrid?	Both
What was the support received from your colleagues/your management?	There has been collaboration among teachers especially among the more digitised ones to support and help those more reluctant to use digital tools.
What support you would have liked to have?	More structural support, lack of adequate digital devices and lack of wifii coverage have created problems for distance learning
What were the critical points to make the shift towards digital learning and how did you manage it?	<p>Lack of adequate digital equipment by students Lack of wi-fi coverage forcing video blackout and therefore no monitoring of student activity by the lecturer</p> <p>Getting students used to virtual classes Access to paid programmes for students</p>

What were the positive aspects of digital learning versus traditional learning?	At a distance none while in hybrid form can be particularly useful, for example, for the use of simulation programmes on the operation of certain machine tools. It is necessary to know how to mix this with the frontal lecture, which remains the best methodology as it allows more 'contact' with the students.
Were there any negative aspects of digital learning versus traditional learning?	Digital learning does not allow the teacher to check the students' level of attention and to nurture the teacher-student relationship that is fundamental for the student's education and to counter the risk of school dropout, which is very high in this type of vocational course.
Is digitalization embedded in the school strategy?	Yes
Were companies involved at any stage? For example, if the study case refers to WBL, if companies were involved in the assessment of students... If yes, how?	During the pandemic, work-based learning experiences were suspended and gradually resumed with the relaxation of national measures. Online meetings were organised with companies to explain the use and operation of certain machine tools

# DIGI Case 21. Building an international virtual learning environment with eTwinning

<p>Short introduction of the case study</p>	<p>The aim of this best practice is to start virtual collaboration, online learning, between students and teachers with European VETs. The first wave includes general subject learning. Plan-Do-Check-Act cycle was used in this process. European eTwinning service was used to reach the goal. More about eTwinning (<a href="https://www.etwinning.net/en/pub/index.htm">https://www.etwinning.net/en/pub/index.htm</a>)</p> <p>eTwinning offers a platform for staff (teachers, trainers, librarians, etc.), working in a school in one of the European countries involved, to communicate, collaborate, develop projects, share and to be part of the most exciting learning community in Europe.</p> <p>eTwinning promotes school collaboration in Europe through the use of Information and Communication Technologies (ICT) by providing support, tools and services for schools. eTwinning also offers opportunities for free and continuing online Professional Development for educators.</p>
<p>Country of implementation</p>	<p>Finland</p>
<p>Period of implementation</p>	<p>From 2020, each academic year</p>
<p>Target group addressed:</p> <ul style="list-style-type: none"> <li>- VET learners</li> <li>- Workers</li> <li>- Unemployed</li> <li>- Companies</li> <li>- VET teachers</li> <li>- Secondary students</li> </ul>	<p>VET learners and VET teachers in general subjects</p>
<p>Who has implemented the case study, and what was their motivation?</p>	<p>General subject teachers.</p> <p>Some motivated teachers got together and create a eTwinning piloting group which is proceeding together and learn from each other. Their motivation was to keep international activities despite of the pandemic but they go on with it to complement physical international activities and to promote internationalisation at home activities in the school.</p>

# DIGI Case 21. Building an international virtual learning environment with eTwinning

Benefits of the study case	As only small % of students participate in International mobilities, International virtual learning is offering the majority of the students to develop international skills as well as skills for virtual teamwork.
Challenges found and how they were faced	<p>As this form of learning is new, the challenge was to find teachers who see the need to create this kind of learning environment and willingness to start something new – the “early adapters”</p> <p>It would be important to collect a group of teachers who cooperate and learn from each other.</p> <p>One challenge is that the eTwinning platform use needs to be learned</p> <p>Support is important and the process was run by international coordinator and professional support is coming from eTwinning ambassadors, National Board of Education and peer teachers from partner schools.</p>
Procedure for the implementation of the good practice (possible transferability to other VET college)	<p>The first step was to get familiar with eTwinning platform and learn from previous projects (to learn possibilities and raise interest)</p> <p>Second step was to collect min. 10 interested teachers and invite eTwinning local ambassador to give training to the teachers</p> <p>Third step is that after training the participating teachers would make a rough plan for virtual learning project.</p> <p>Fourth step was to find European partners to start planning together the virtual learning project (partners can be found via school’s International partnerships, from eTwinning Live community or participate in eTwinning workshop)</p> <p>Fifht step was to pilot run projects, collect feedback, analyse and improve for the next time</p> <p>Plan-Do-Check-Act cycle was used in this process</p>
Prior knowledge necessary to implement the case study (for both teachers and students)	For teachers it was necessary to be trained in the use of e-Twinning. The students were guided by the teachers through the process so no prior knowledge was necessary.
VET programme/subjects addressed and EQF level	The good practice was implemented with general subjects, so it would be easier to match learning objectives of schools in different countries. The international cooperation and the methodology were more important that the subjects themselves, therefore, it is applicable to any vocational programme and to any EQF level.

## DIGI Case 21. Building an international virtual learning environment with eTwinning

Benefits of the study case	As only small % of students participate in International mobilities, International virtual learning is offering the majority of the students to develop international skills as well as skills for virtual teamwork.
Learning outcomes addressed	Ability to work in digitalised international working teams. Foreign language communication. Intercultural skills. Digital skills. On-line communication. International orientation and mindset.
Digital tools used	- e-Twinning
Was the case study implemented online or hybrid?	On-line
What was the support received from your colleagues/your management?	The teachers involved received the support from the international department to find partners for the virtual international exchange. The management supported the teachers by providing them with time to get training from e-Twinning ambassadors and the National Board of Education.
What support you would have liked to have?	More time is always a plus, but we got quite a lot of support!
What were the critical points to make the shift towards digital learning and how did you manage it?	The critical point was the training of teachers, luckily we got it!
What were the positive aspects of digital learning versus traditional learning?	The positive aspect is that we are able to involve more teachers and students in international activities, as only a low percentage of students actually participate in personal/physical mobility. This way we can provide international competences and mindset to a higher number of students. Besides, both teachers and students develop competences related to digital cooperation, not only technical but also social and communication skills necessary when you work in a digital format.
Were there any negative aspects of digital learning versus traditional learning?	No negative aspects. Only be aware that when working internationally, sometimes digital is not enough and cannot replace human contact in person. Discussion and participation is sometimes more difficult and communication has to be more effective, which is not always easy.

## DIGI Case 21. Building an international virtual learning environment with eTwinning

Is digitalization embedded in the school strategy?

Yes, completely.

Were companies involved at any stage? For example, if the study case refers to WBL, if companies were involved in the assessment of students... If yes, how?

No, in this case there was no company involved.

## DIGI Case 22. e-Tutor

Short introduction of the case study	eTutors are teachers who are the digital ambassadors or 'super-users' of digital tools for learning and teaching
Country of implementation	Finland
Period of implementation	It runs all year long, starting from 2018
Target group addressed:	VET teachers
- VET learners - Workers - Unemployed - Companies - VET teachers - Secondary students	
Who has implemented the case study, and what was their motivation?	Approximately 50 teachers (out of 680) across all colleges, units and departments in Gradia, Jyväskylä Consortium of Education. They are selected annually by open application. The number of hours dedicated for tutoring depends on the number of staff and activities required in the department
Benefits of the study case	<p>Benefits for the teachers:</p> <ul style="list-style-type: none"> <li>• support in using digital tools and help with digital pedagogy from a peer, someone who does the same work as you do instead of an external expert/specialist;</li> <li>• easy access to technical and pedagogical support in daily work, during breaks etc.;</li> <li>• low threshold to ask for help; no need to know the correct terms or contact 'faceless' support services via official routes</li> </ul> <p>Benefits for the curriculum department:</p> <ul style="list-style-type: none"> <li>• co-creating and developing sector-specific digital pedagogy;</li> <li>• eTutors are a bridge between the curriculum dept. and the digital services dept.;</li> <li>• increased digital pedagogical skills and wider dissemination (of good practises) across the department</li> </ul> <p>Benefits for the college:</p> <ul style="list-style-type: none"> <li>• eTutors facilitate sharing good practice within the whole organisation;</li> <li>• faster overall development of a digital pedagogy;</li> <li>• more efficient communication of the college's recommended practices within units and departments</li> </ul>



## DIGI Case 22. e-Tutor

<p>Challenges found and how they were faced</p>	<ul style="list-style-type: none"> <li>•at present, usually only one eTutor per dept. =&gt; plans to increase the number of eTutors to meet the need (more efficient dialogue/co-development)</li> <li>•the challenge of allocating adequate working time for eTutors to support colleagues in a timely manner. The exceptional situation (COVID-19) has both offered more resources for eTutoring as well as created even more demand for it thus making it more visible and relevant for the whole organisation</li> </ul>
<p>Procedure for the implementation of the good practice (possible transferability to other VET college)</p>	<ul style="list-style-type: none"> <li>•identifying the needs for skills development and support in the department/college (Relevant EU tool <a href="https://ec.europa.eu/education/schools-go-digital_en">https://ec.europa.eu/education/schools-go-digital_en</a>)</li> <li>•identifying the competences eTutors need (Relevant EU tool <a href="https://ec.europa.eu/jrc/en/digcompedu">https://ec.europa.eu/jrc/en/digcompedu</a>)</li> <li>•selecting teachers to be trained as eTutors based on their individual skills and interest as well as the needs of the dept. <ul style="list-style-type: none"> <li>• teachers who are trained to act as peer-tutors for teachers in their of unit and/or sector.</li> </ul> </li> <li>•allocate time and resources (curriculum manager) for the eTutor in their annual plan</li> <li>•provide training for the eTutor according to their individual needs (peer-learning events, formal training) ded</li> <li>•regular (monthly) meetings of eTutors with the digital services dept. (training and exchange of experiences)</li> </ul> <p>regular assessment of effectiveness of eTutor activities and planning further development</p>
<p>Prior knowledge necessary to implement the case study (for both teachers and students)</p>	<p>The e-Tutors are teachers from different subjects who have advanced digital skills (due to training, self-learning or learning by doing). The teachers they help no need prior knowledge, as the e-tutors act as facilitators and ambassadors for them.</p>
<p>VET programme/subjects addressed and EQF level</p>	<p>EQF level is 4. Several VET programmes and subjects have been involved and more are being targeted.</p>
<p>Learning outcomes addressed</p>	<p>Ability to shift from physical to on-line learning. Digital tools for different functions, activities or purposes. Digital mentality. Co-creation and co-design of digital content Digitalization of the curriculum</p>

## DIGI Case 22. e-Tutor

Digital tools used	Different ones, depending on the purpose (Teams, Padlet, Mentimeter, Coggle...)
Was the case study implemented online or hybrid?	The assistance from e-Tutors is given both on-line and in person.
What was the support received from your colleagues/your management?	The management allocated time for e-tutors, even more after the pandemic.
What support you would have liked to have?	More time and more e-Tutors, as normally there is one per department and the workload is high.
What were the critical points to make the shift towards digital learning and how did you manage it?	Skills from teachers and students, mentality of both of them too.
What were the positive aspects of digital learning versus traditional learning?	This was not about digital learning so not sure what to answer here.
Were there any negative aspects of digital learning versus traditional learning?	Same as above.
Is digitalization embedded in the school strategy?	Yes, definitely
Were companies involved at any stage? For example, if the study case refers to WBL, if companies were involved in the assessment of students... If yes, how?	No, in this case there was no company involved.

## DIGI Case 23. Zoom (basic version)

Short introduction of the case study	Zoom was used for online lessons, to share screens and sounds as well as sending files
Country of implementation	China
Period of implementation	First half of 2020
Target group addressed:	Learners in any field of education
- VET learners - Workers - Unemployed - Companies - VET teachers - Secondary students	
Who has implemented the case study, and what was their motivation?	An English teacher was using this app to have conversation with her students in English
Benefits of the study case	This tool is available in China, it is easy to use, it allows to share screens etc.
Challenges found and how they were faced	Problematic was that maximum of 100 students can join the session and that smaller groups within one session could not be created. It was due to the fact that the teacher did use the Zoom basic version.
Procedure for the implementation of the good practice (possible transferability to other VET college)	Not available
Prior knowledge necessary to implement the case study (for both teachers and students)	Basic computer knowledge is required, such as how to share sounds and screens, how to use chat etc. The usage of this app is otherwise quite simple.
VET programme/subjects addressed and EQF level	Not available

## DIGI Case 23. Zoom (basic version)

Was the case study implemented online or hybrid?	Online
What was the support received from your colleagues/your management?	There was no school management and colleagues' support. They did not know how to use this app themselves. The teacher needed to learn how to use this app herself.
What support you would have liked to have?	The upgraded version of the Zoom app which allows the breakout rooms. The teacher would appreciate if she had stable internet connection, less students in her group as well as access to an office and a work computer.
What were the critical points to make the shift towards digital learning and how did you manage it?	There were no critical moments, however it was sometimes difficult because students did not have a good technical equipment and a stable internet connection.
What were the positive aspects of digital learning versus traditional learning?	The teacher used VPN so she could use Youtube and Google
Were there any negative aspects of digital learning versus traditional learning?	No
Is digitalization embedded in the school strategy?	Not available
Were companies involved at any stage? For example, if the study case refers to WBL, if companies were involved in the assessment of students... If yes, how?	No

## DIGI Case 24. Using Techambition programme during classes and online classe

Short introduction of the case study	Techambition is a digital environment designed for mathematical calculations, reasoning and visualisation of mathematical problems.
Country of implementation	Czech Republic
Period of implementation	Spring 2020 – Spring 2021
Target group addressed: - VET learners - Workers - Unemployed - Companies - VET teachers - Secondary students	Secondary school pupils, apprentices, also extended and distant learning.
Who has implemented the case study, and what was their motivation?	Mgr. Ladislav Ondrášek The motivation was to implement the online classes and to make mathematics teaching more attractive and effective at VET schools.
Benefits of the study case	Problem Visualisation, Interactive Function Graphs, User Friendly Environment
Challenges found and how they were faced	No serious challenges were found.
Procedure for the implementation of the good practice (possible transferability to other VET college)	No obstacles in the implementation procedure were found.
Prior knowledge necessary to implement the case study (for both teachers and students)	Mathematics and IT knowledge
VET programme/subjects addressed and EQF level	Mathematics, VET school
Learning outcomes addressed	Pupils did not loose their knowledge during Covid pandemic and online learning Now it makes the classes more attractive for the pupils
Digital tools used	Techambition

## DIGI Case 24. Using Techambition programme during classes and online classe

Was the case study implemented online or hybrid?	Both
What was the support received from your colleagues/your management?	The management was very supportive, colleagues as well
What support you would have liked to have?	The support was and still is very sufficient
What were the critical points to make the shift towards digital learning and how did you manage it?	During the Covid pandemic, some students had problems with the technical equipment as well as with the internet connection.
What were the positive aspects of digital learning versus traditional learning?	Attractivity of the class thanks to using this programme
Were there any negative aspects of digital learning versus traditional learning?	No
Is digitalization embedded in the school strategy?	Yes
Were companies involved at any stage? For example, if the study case refers to WBL, if companies were involved in the assessment of students... If yes, how?	No

## DIGI Case 25. Online lessons during the Covid pandemic and online tools

Short introduction of the case study	The introduction of the expression “online teaching” into the education law system, schools had to start teaching online. For most of the schools, this was a new experience
Country of implementation	Czech Republic
Period of implementation	Spring 2020 – Spring 2021
Target group addressed: - VET learners - Workers - Unemployed - Companies - VET teachers - Secondary students	Pupils and teachers of VET school (daily and distance learning)
Who has implemented the case study, and what was their motivation?	An English language teacher was using online tools to raise pupils’ competences
Benefits of the study case	<p>Students were more independent and took responsibility.</p> <p>This system of teaching was good for pupils who previously had problems with speaking in front of the class. It was easier to track their improvement.</p> <p>Also, pupils with special needs (social phobia, anxiety etc.) were happy to communicate with their teachers online rather than personally. This way of communication was also used as a prevention of an early dropping out of school.</p> <p>This was a way to have an individual access to each pupil, to speed up the feedback towards pupils.</p> <p>This all led to having better relations, between pupils and teachers as well as among pupils.</p>
Challenges found and how they were faced	<p>The switch to the online environment was rather slow due to low computer skills of some teachers, who were given no previous workshop on how to use the digital tools.</p> <p>Teachers were learning in the try and fail way.</p> <p>The time amount that teachers needed to spend on the preparation was really big.</p> <p>Pupils were not able to have vocational subjects, because there was only a limited space how to transfer the knowledge in the online environment.</p>

## DIGI Case 25. Online lessons during the Covid pandemic and online tools

Procedure for the implementation of the good practice (possible transferability to other VET college)	Workshops for teachers, teachers sharing their experience with others
Prior knowledge necessary to implement the case study (for both teachers and students)	It is necessary to have basic computer knowledge.
VET programme/subjects addressed and EQF level	English language
Learning outcomes addressed	All intended topics were covered
Digital tools used	The online teaching was done via "Bakaláři" (Bachelors) app. Teachers were also communicating with pupils via this platform as well as with parents. Moodle platform was used as well. It was used to create lessons and presentations, it was used for announcing homework and for the tests too. The supportive communication platform was Skype. At this this school this app was used to stay in touch with pupils.
Was the case study implemented online or hybrid?	Online, and hybrid with the groups of pupils that were intended to finish their school soon.
What was the support received from your colleagues/your management?	Big
What support you would have liked to have?	To have sufficient amount of money to buy technical equipment when it is needed (for teachers and pupils).
What were the critical points to make the shift towards digital learning and how did you manage it?	Bad internet connection, some of the pupils even did not have a suitable technical equipment. It was managed by being tolerant and patient teachers.
What were the positive aspects of digital learning versus traditional learning?	Pupils had chance to learn how to manage their time as well as teachers. Teachers also had a free range to choose whatever apps and technologies they wanted. Pupils, who were interested in the subjects, saw a positive side of the online learning, however those, who were not interested, were seeking ways how not to work properly.



## DIGI Case 25. Online lessons during the Covid pandemic and online tools

<p>Were there any negative aspects of digital learning versus traditional learning?</p>	<p>The loss of social touch Sometimes it was difficult to connect with some pupils, because their financial situation did not allow them to buy proper technical equipment. Pupils of higher years had limited options to prepare themselves for the final exams. The lessons of specialised classes were really slow due to inability to work properly online Worse results in pupils' education It was necessary to cut off some of the class content Pupils as well as teachers were not ready for such a quick shift to the online environment</p>
<p>Is digitalization embedded in the school strategy?</p>	<p>Yes</p>
<p>Were companies involved at any stage? For example, if the study case refers to WBL, if companies were involved in the assessment of students... If yes, how?</p>	<p>Festo company, they offered software for autotronics pupils</p>

## DIGI Case 26. Learning block during on-line lessons

<p>Short introduction of the case study</p>	<p>The core of this methodology was to divide lessons into short blocks, two or more working blocks, so students would be able to keep their attention even during the online lessons. In particular, the lessons were divided into a teaching part (introduction of the topic, teacher's explanation, etc.) and a working part, independent or group/project work.</p>
<p>Country of implementation</p>	<p>Czech Republic</p>
<p>Period of implementation</p>	<p>Spring 2020 – Spring 2021</p>
<p>Target group addressed:</p> <ul style="list-style-type: none"> <li>- VET learners</li> <li>- Workers</li> <li>- Unemployed</li> <li>- Companies</li> <li>- VET teachers</li> <li>- Secondary students</li> </ul>	<p>VET learners Secondary students</p>
<p>Who has implemented the case study, and what was their motivation?</p>	<p>Lucie Bavorová, a teacher with focus on teaching primary subjects and foreign languages. Due to the shift of the teaching to the online environment for several months, it was necessary to ensure that the pupils would be able to gain the necessary knowledge, attention, as well as time for independent work during the online lessons.</p>
<p>Benefits of the study case</p>	<p>Pupils were able to focus during the whole learning block Pupils were introduced to the topic, and later they had time for an independent work Thanks to this methodology there was time for pupils' questions during the class, not after it is finished The personal contact with teacher was retained</p>
<p>Challenges found and how they were faced</p>	<p>There were technical problems or problems with the internet connection, however the school lend some notebooks or helped to obtain a good internet connection Some of the pupils were not attending online classes, either due to the technical issues or family reasons</p>

## DIGI Case 26. Learning block during on-line lessons

Procedure for the implementation of the good practice (possible transferability to other VET college)	Not available
Prior knowledge necessary to implement the case study (for both teachers and students)	It is necessary to plan ahead the division of the class activities to achieve the desired results. Special attention needs to be paid to the group projects or individual work...)
VET programme/subjects addressed and EQF level	Not available
Learning outcomes addressed	<ul style="list-style-type: none"> <li>•Pupils were actively engaging during the lecture</li> <li>•Educational programs were followed</li> <li>•Due to this practice, the differences between pupils were not high anymore (knowledge difference between active and less active pupils was minimized)</li> <li>•It was easier for pupils to get back to the offline education</li> <li>•Social contact with teacher was retained</li> </ul>
Digital tools used	The basic platforms for videoconferencing were used (Zoom, Teams...), platforms with the possibility to be divided into separate "rooms" were used for a group work
Was the case study implemented online or hybrid?	online
What was the support received from your colleagues/your management?	<p>Almost all teachers from this school were following this methodology at the end. The school management was distributing educational materials for teachers or organising workshops to ensure the smooth work.</p> <p>Also, colleagues were sharing their tips and experience to other colleagues.</p>
What support you would have liked to have?	<ul style="list-style-type: none"> <li>•The teacher would appreciate to have a mock lesson and a guide how to divide the lessons correctly</li> <li>•The teacher would also appreciate to receive a suggested version of the lessons based on the topic of the lesson (mathematics, languages...)</li> <li>•And also, to have online materials which they could use to improve their lectures</li> </ul>

## DIGI Case 26. Learning block during on-line lessons

<p>What were the critical points to make the shift towards digital learning and how did you manage it?</p>	<p>It was necessary to create e-mail addresses and accounts for the pupils who previously did not have them, so they could access the platform. However, it was quite a tough decision to choose only one platform which will be used by the whole school.</p> <p>Problematic was also testing and giving grades to the pupils. It was not possible to give grades only, therefore the school decided to give an oral evaluation of the students even if this evaluation is problematic due to the possibility of being biased.</p>
<p>What were the positive aspects of digital learning versus traditional learning?</p>	<ul style="list-style-type: none"><li>•Pupils as well as teachers developed digital skills</li><li>•Teachers discovered new tools which they might use in the offline lessons as well</li><li>•Schoolbooks and applications publishers are now offering more tools and possibilities which might be used in the offline lessons as well</li><li>•The schools' technical equipment was improved due to the state financial contributions</li></ul>
<p>Were there any negative aspects of digital learning versus traditional learning?</p>	<ul style="list-style-type: none"><li>•Problems with the "traditional" evaluation of pupils</li><li>•It was not possible to have all lessons online, such as PE, arts classes and so on</li><li>•Some students lost their ability to work independently due to the overload of support from their parents</li><li>•Teachers did not have a possibility to communicate with pupils who did not connect to lessons and there were also no ways how the teachers could force those pupils to connect</li><li>•Some of the pupils lost their motivation due to more complicated interaction with their classmates and teachers</li></ul>
<p>Is digitalization embedded in the school strategy?</p>	<p>Before the pandemic situation, the digitalisation was not part of the school's agenda. However, it changed with covid, and even now (not covid situation) the school is promoting their self digitalisation.</p>
<p>Were companies involved at any stage? For example, if the study case refers to WBL, if companies were involved in the assessment of students... If yes, how?</p>	<p>No</p>

## DIGI Case 27. Using app to practice mathematics after class (during home preparation)

Short introduction of the case study	During the period of online teaching, the Mathman application was used to practice mathematics (geometry as well) outside the class
Country of implementation	Czech Republic
Period of implementation	Spring 2020 – Spring 2021
Target group addressed: - VET learners - Workers - Unemployed - Companies - VET teachers - Secondary students	Secondary students
Who has implemented the case study, and what was their motivation?	Secondary school teacher of mathematics who wanted his pupils to practice mathematics in an easy and funny way
Benefits of the study case	Thanks to the catchy design of the app, pupils were more willing and motivated to practice mathematics outside the lesson Pupils, who has a chance to use this app, had better knowledge in math than the others
Challenges found and how they were faced	This application is only available for Google gadgets (mobile phones), thus pupils who have mobile phones with other operation systems could not use it. Other than this, there were no other challenges.
Procedure for the implementation of the good practice (possible transferability to other VET college)	The app is very intuitive, thus teachers do not have to explain its functions a lot. However, it is desirable that teachers know the content of the app so pupils can choose what “lectures” they should be practicing in the app.
Prior knowledge necessary to implement the case study (for both teachers and students)	Pupils need to have google software phones in order to use this app
VET programme/subjects addressed and EQF level	Mathematics

## DIGI Case 27. Using app to practice mathematics after class (during home preparation)

Learning outcomes addressed	Not available
Digital tools used	Mathman, an app for Google software phones
Was the case study implemented online or hybrid?	Both
What was the support received from your colleagues/your management?	Other mathematics teachers started to use this app as well when they found out how satisfied the pupils were.
What support you would have liked to have?	No support is necessary
What were the critical points to make the shift towards digital learning and how did you manage it?	This app was used as a supportive tool for after class practicing of mathematics. Therefore there were no critical moments in the shift towards the online environment.
What were the positive aspects of digital learning versus traditional learning?	Pupils are used to use mobile phones constantly, therefore to use this app on their phones was really easy for them.
Were there any negative aspects of digital learning versus traditional learning?	The loss of social contact was really difficult for some of the pupils, however, some of them really appreciated the time that they can spend at home during online lessons.
Is digitalization embedded in the school strategy?	It was not, but after the pandemic, our school is trying to be more progressive regarding digital tools.
Were companies involved at any stage? For example, if the study case refers to WBL, if companies were involved in the assessment of students... If yes, how?	No

## DIGI Case 28. Flashcards for teaching languages

Short introduction of the case study	Use of flashcards while teaching foreign language. It is an easy and funny way for pupils to revise the words they have learned
Country of implementation	Czech Republic
Period of implementation	From autumn 2020
Target group addressed: - VET learners - Workers - Unemployed - Companies - VET teachers - Secondary students	Secondary students
Who has implemented the case study, and what was their motivation?	Language teacher, before were pupils revising the words with paper cards during the lessons and after lessons at home, which was not possible to do during the covid times. When we switched to the flashcards application, pupils were telling me that they are revising the words wherever they are, thus it is better for them and they are making better progress.
Benefits of the study case	Pupils can revise the words wherever they are and this makes their progress quicker It is also more comfortable than to have paper cards. Flashcards can be used in chemistry lessons as well to revise chemical nomenclature.
Challenges found and how they were faced	No challenges were spotted.
Procedure for the implementation of the good practice (possible transferability to other VET college)	Teachers need to prepare cards so pupils can use them. Or teachers can let pupils to prepare the cards themselves.
Prior knowledge necessary to implement the case study (for both teachers and students)	Basic computer knowledge
VET programme/subjects addressed and EQF level	Secondary school, foreign language lessons

## DIGI Case 28. Flashcards for teaching languages

Learning outcomes addressed	Not available
Digital tools used	We used Flashcards World, but there are many other similar apps
Was the case study implemented online or hybrid?	Both, we are using the flashcards even now during offline lessons
What was the support received from your colleagues/your management?	No support was needed. I shared my experience with my colleagues and they started to use them as well. Some of the colleagues are trying to use them in the chemistry lessons as well.
What support you would have liked to have?	-
What were the critical points to make the shift towards digital learning and how did you manage it?	No critical points found
What were the positive aspects of digital learning versus traditional learning?	The positive aspect is that pupils can revise the words wherever they are.
Were there any negative aspects of digital learning versus traditional learning?	Lack of personal contact.
Is digitalization embedded in the school strategy?	No
Were companies involved at any stage? For example, if the study case refers to WBL, if companies were involved in the assessment of students... If yes, how?	no





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