



VET4VN

VOCATIONAL EDUCATION AND TRAINING FOR VETERINARY NURSES

- 1** ECVET UNIT
ECVET UNIT MANUAL
- 2** WORK-BASED
LEARNING MANUAL

3 DISTANT LEARNING AND COACHING MANUAL



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ZONE.COLLEGE

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DISCLAIMER:

This document is not a scientific research. However, many sources have been consulted. Those sources are listed in the blue parts and called references, and in the appendixes given in the list sources. Sources are not specifically given regarding (international) APA rules.

Authors have done their best to refer to most used sources.

DISTANT LEARNING AND COACHING MANUAL

Abstract

Many reasons exist that prevent Veterinary Nurse students (VNs) to join classes at school. Students can have limited mobility due to personal issues or health problems, or can be abroad following courses or participating in an exchange program. Students can be out of reach when they are doing their internships.

In all these cases, teachers are looking for possibilities to stay in touch with their students, to guide the students' learning from a distance, and organize the coaching of the student from a distance. Incorporating digital tools into the lessons and coaching, gives many, many possibilities and opportunities to improve the education.

This manual gives a summary of useful sources on DLC, alongside the experiences of the project VET4VN. We sincerely hope, that with all practical information given in this manual, teachers can make their own choices out of all the existing material to level up their distant learning and coaching practices.

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1 PROLOGUE VET4VN PROJECT

Vocational Education and Training for Veterinary Nurse Students

It's being said that in politics, most ideas and decisions are made outside the boardroom. Why should it be different with teachers and their projects and creativity? We, the project partners of VET4VN, experienced the same. Where did we meet each other, and when did we decide to step into the boat to go for our KA2 Erasmus application called VET4VN?

We do have to thank the board of VETNNET for organizing the annual conferences, because the project partners' cooperation started at those conferences! Many, many years, teachers from our organizations visited the conferences. They met and got to know each other better every year. And then, during breakfast, or lunch, or dinner, or when walking in the beautiful gardens of one of the colleges, or during the boat tour at the river Cam, or during drinks afterwards, but to be precise IN Cambridge in 2017, we decided to make the first small steps that would later turn out into this KA2 project.

We do want to point out that creativity shows, and best ideas only arise, when teachers are out of their daily routine. And cooperation only starts, when people have the opportunity to get acquainted. The positive energy during the VETNNET conferences is so very supportive to that. And besides that, they contribute to show different cultures and educational systems. Altogether, that is a very strong basis for our successful project VET4VN!

We do hope that organizations will give lots of teachers the possibility to join the VETNNET conferences in future, to experience the same positivity as we did. And we wish the VETNNET board lots of success, and hopefully their conferences will be possible again every year from 2023 in Uppsala!

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BIC Ljubljana:

Hansenberg Kolding:

Taitotalo Helsinki:

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About the project partners

VET4VN is the abbreviation of Vocational Education and training for Veterinary Nurses. In the project “Vet4VN” six schools from four different European countries have worked together for three years. These are the schools involved:

- Taitotalo (Helsinki, Finland),
- Hansenberg (Kolding, Denmark),
- BIC (Ljubljana, Slovenia),
- Aeres (Leeuwarden, Netherlands),
- Terra MBO (Meppel/ Emmen/ Groningen, Netherlands)
- Zone.college (Doetinchem/ Deventer/ Zwolle/ Almelo/ Hardenberg, Netherlands)

All six partners educate veterinary nurses (VN) on EQF level 4. Despite the fact that these schools train their students towards the same European level of autonomy, responsibility and complexity, huge differences in the way students are educated exist.

The work field of the VN is changing at an incredible speed. Big changes are seen in technology, medications, ICT innovations, role of the clinics in human health, and customer behavior. The work field of veterinary nurses is becoming more and more internationally oriented. Large chains take hold of the work field. This change leads to the need for highly educated VNs in all countries, regardless of differences in educational systems. The schools participating in this project see the urgency to cooperate more internationally, in order to equip the students better for this trend.

The partners in VET4VN have a history of cooperation that goes back for years (starting 2010). Our mutual connection is VETNNET (Veterinary European Transnational Network for Nursing Education and Training). During meetings at international VETNNET conferences we got to know each other. In 2017 we took the next step: we decided to visit each other’s schools to investigate how each partner was training their veterinary nurses. These visits back and forth helped enormously in understanding each other’s curriculum, student population, approach to education and examination and learning environment in and outside of the school. During those visits and meetings, we did not only investigate, but we also talked about what each school would like to improve and how we could benefit from each other. We built trust. We explored the ECVET system and decided that we wanted to move forward with working towards learning outcomes. We applied for a KA 2 project, which was granted to us by Erasmus. The project started in September 2020 and ends in august 2023.

Description of project experiences

Three of the goals of Vet4VN are:

- students at all schools to be equipped with up-to-date and comparable knowledge and competencies
- increase employability of our students in a more international working environment
- to improve our education at level EQF4, to cope with higher demands of the workfield

Our project will have an impact on a broad variety of subjects. And in addition, with Vet4VN we are going to realize this impact on different levels. We aim for:

Short term impact -> accreditation and recognition of learning outcomes and curricula

Long term impact -> better employability, increased international awareness, and lifelong learning

In order to achieve these goals, we have worked on intellectual outputs and have performed pilots.

In this project we worked on four intellectual outputs:

1. An ECVET unit/ unit of learning outcomes
2. An ECVET unit manual/ unit to develop and work with learning outcomes during exchange of students
3. A workbased learning manual
4. A distant learning and coaching manual

Those outputs are worked out by comparing educational systems, relevant literature, and experiences of student's activity pilots. The outputs are meant to be of great help to other educators.

We ended up with three outputs instead of four. Output one and output two are combined. During the creation process the unit of learning outcomes turned out to be an essential element of the "ECVET" manual. It is now an appendix of this manual.

During the project the system of "ECVET" was discontinued. However: the system of working with learning outcomes is still an important way to cooperate internationally and agree upon what a person should be able to do when working in the veterinary sector. It is an important means to work around the enormous differences in education between the countries. ECVET used to make use of the terms knowledge, skills and competences.

Reader tip: when reading "ECVET", know that in all new documents made after this project the term "microcredentials" will be used. ECVET used to make use of the terms knowledge, skills and competences. The word "competence" will be replaced by "level of autonomy, responsibility and complexity". In the documents from this project the term "ECVET" and "competences" will be used, because when our project started those terms were in use and mentioned in the application.

The four intellectual outputs are linked to each other, as shown in figure 1.

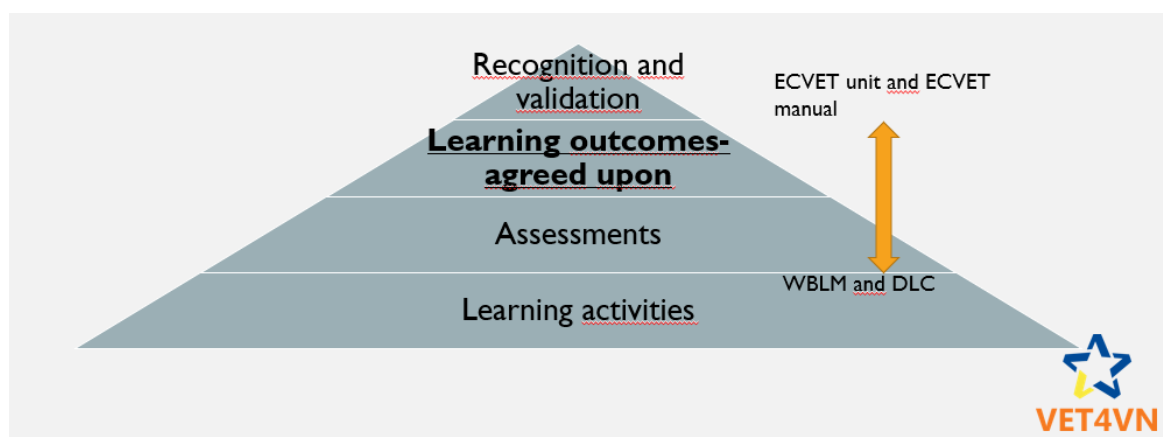


Fig.1. The connection between the four intellectual outputs and learning outcomes

- In the center: a unit of learning outcomes. We agreed upon a set of learning outcomes on radiology. This output is called "ECVET unit"

- Just below learning outcomes: assessments. In an assessment (parts of) a unit of learning outcomes is tested. Assessments should match with the learning outcomes and can be part of distant learning and coaching and work-based learning.

- On top: the "ECVET manual". In this manual is described how to make use of a unit of learning outcomes when a student does (part of the) education abroad. By means of an assessment based on learning outcomes, one can recognize and validate the achieved learning outcome of a student who has been abroad.

- The basis: learning activities. Despite a very different way of learning (for instance in another institution in another country), students can achieve the same learning outcomes. These learning activities can take place in a work-based environment. This is called work-based learning and we have developed a manual for this (WBLM). These learning activities also can take place from a distance, where the student is not in the same (class)room as the teacher/ guide. This is called distant learning and coaching (DLC).

During the project we have had three pilots with students in which we have experimented with international work-based learning, distant learning and coaching and working with learning outcomes.

In the first pilot we prepared an exchange; five students from each school went to Hansenberg in Denmark. During the exchange they had practical lessons on radiology, they made a theoretical assessment and performed a practical assessment. Prior to the exchange we built a distant learning/coaching unit (DLCU). We used the platform "Moodle" for this. Details on this DLCU are elaborated in the DLC manual. So, in the first pilot distant learning and coaching was part of/ a preparation to a live exchange. In the exchange we experienced with work-based learning in an international group and with an international assessment. This pilot was a so-called Learning-teaching-training activity (LTTA).

In the second pilot we decided to focus more on DLC. In this pilot we also organized a student exchange. Five students from each school went to Taitotalo in Finland. During the exchange they had theoretical lessons on radiology, they made an instruction video on positioning with peer teaching. They also performed a livestream to students abroad about this positioning. Prior to the exchange we used the same Moodle platform as in Denmark, but now it was obligatory instead of voluntary. This pilot was a so-called Learning-teaching-training activity (LTTA).

The third pilot on DLC actually was not planned in the original application, but was a spinoff of the second pilot. It turned out that the lessons, peer teaching and performing a live stream in Finland was successful, and that triggered us to try out more DLC. In Finland we had mainly experienced with online learning, but less with online guiding. During the third pilot there was no exchange of students and teachers. One teacher in Finland made connection with one teacher and three students in the Netherlands. All were in a room where normally practical instruction lessons are held. The teacher in Finland gave the instruction; the students in the Netherlands practiced; both the Dutch teacher and the Finnish teacher assisted the students.

All pilots were thoroughly evaluated. This was done by teachers observations and evaluations (Padlet) and student evaluations (google forms).

The whole planning and description of all activities can be found in the original KA2 (key action 2) application for the project.

2 INTRODUCTION DLC

Many reasons exist that prevent Veterinary Nurse students (VNs) from joining classes at school. Students, for example, can have limited mobility due to personal issues or health problems. Students can be abroad following courses, or participating in an exchange program. Students can also be out of reach when they are doing their internships. In all these cases, teachers are looking for possibilities to keep into contact with their students, to guide the students' learning from a distance, and organise the coaching of the student from a distance.

In almost all situations, be it in daily life or in a professional environment, it is essential to have some basic knowledge of IT. So, it is not very strange to also consider digital systems being a part of educational systems. Besides that, digital educational systems can make the learning process much more attractive, funnier, and more efficient. When teachers are thinking of digital tools as being an advantage to their lessons, it will help them a lot. Those systems can help to get an overview of students' progress, development, summative and formative assessments, when students are inside AND outside their classrooms. Furthermore, it can help to keep students interested and motivated. The digital systems can be used to give instructions and demonstrations, to give synchronised lessons, but also to differentiate and, to adapt to the student's individual needs and wishes. So, incorporating digital tools into the lessons, gives many, many possibilities and opportunities to improve the education.

As mentioned before, it is a challenge to stay in contact with students that are out of reach. What is more, the tools offered for this purpose are so diverse, that it is sometimes difficult to see the forest for the trees. . This manual for Distant Learning and Coaching contains the explanation of several useful digital tools. In addition, it addresses several possibilities and limitations for use, and it also reviews the code of behaviour for the use of digital systems. During the pandemic, many new digital ways to communicate and to teach came up. During that period a lot of lessons were learned, and the most important ones are, of course, also included in this manual. Finally, the results and experiences of the student activities of the VET4VN project are presented.

This manual gives a summary of useful sources on DLC, alongside the experiences of the project VET4VN. We sincerely hope, that with all practical information given in this manual, teachers can make their own choices out of all the existing material, and to level up their distant learning and coaching practices.

3 DISTANT LEARNING AND COACHING

Distant Learning and Coaching (DLC) is a method of studying in which teachers and students do not meet in a classroom, instead they use e-learning technologies. Students can therefore learn self-paced or instructor lead, from a distance. There are three general approaches to e-learning:

- **self-paced learning:** students are completely independent from the teacher
- **instructor led and facilitated learning:** students are given different levels of support from the teacher
- **a blend of self-paced learning and instructor led facilitated learning**

3.1 Self-paced e-learning

The self-paced learning method describes itself best as a method in which students are learning completely independent from their teacher.

Students are using different materials for the lecture. For DLC, the material is usually stored on the Webserver or another accessible digital environment to which students have access. Usually, different media elements are used, like texts, graphics, animations, audio, and video sources. Support should be offered as, for example, explanations, interactive activities, or supplemental resources. Different assignments can be a part of this method, in that case it is important to give students valuable feedback on these assignments.

Students are free to learn at their own pace at any given moment. They can develop and use the learning paths that suits their personal time, needs and interest. Within this method, students do not have a fixed timetable. Also, teachers/coaches will not track their learning process and, unless assignments are given, they are not getting any immediate feedback.

Although, as described, the students are responsible for their own learning curve, the teachers' support is necessary. The most common way to keep track of students during self-paced e-learning is via e-mail or other computer communication tools.

Self-paced e-learning is an asynchronous form of e-learning. It means that events are time-independent, each student can study at any time. Using e-mail or discussion forums are examples of asynchronous e-learning.

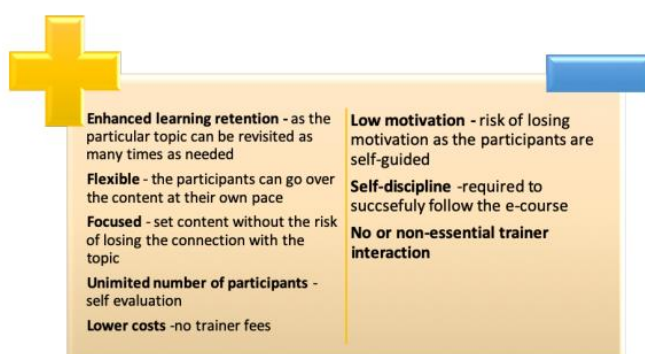


Fig. 2. Advantages and disadvantages self-paced e-learning

Source: Judicial Training Methods Distance Learning Handbook 2020, <https://www.ejtn.eu/PageFiles/19859/Distance%20learning%20Handbook.pdf>

3.2 Instructor led and facilitated e-learning

Using this method, lectures are scheduled, and the student must follow specific timetables. Subjects and activities of the lectures are in a chronological order. The teacher leads the program via an online learning platform. The content of lectures can contain material for individual study, but is usually combined with lectures of teachers online, assignments (including assessments) and collaborative activities among students.

Teachers and students can use different communication tools. Videoconferencing, chatting, whiteboard sharing, live webcasting are examples of synchronous e-learning. Synchronous e-learning means that e-learning takes place in real time.

3.3 Blended learning

Blended learning is a combination of online training and face-to-face training with use of digital components. For example: a teacher in the classroom is using digital tools like online quizzes. The greatest benefit of blended learning is that it minimizes the gap between students and teachers who are not in direct contact with each other in an online training.

There are many ways for blended learning, but the most complete and common one is the three-phase training. It consists of the following:

- Kick-off workshop. In a face-to-face workshop the student is introduced to the e-course. This is the chance to get familiar with the technology and get acquainted with their peers and their teacher(s). This gives them information about what is expected of them during the e-course.
- The e-course.
This is the content of the complete course.
- Closing workshop.
This summarizes the course and gives opportunities for face-to-face evaluation.

3.4 Which kind of skills can be developed?

The skills that can be developed during DLC are divided into three categories; cognitive skills, interpersonal skills and psychomotor skills.

Cognitive skills: can be developed well with DLC. These skills involve knowledge and comprehension, which can be achieved using online material with support of a teacher. Procedural skills are another type of cognitive skills, and can be developed when students have to follow the instructions. While students apply their knowledge during new and unfamiliar situations, they develop their mental skills like, for example, problem solving.

Interpersonal skills: like active listening, presenting can be developed through collaborative activities among students or, for example, with interactive role playing.

Psychomotor skills: when students need to develop physical skills, like specific movements, DLC is less fitting. One needs to consider which tasks are suitable to practise at home and how to demonstrate and guide them during the task.

3.5 When use DLC?

DLC can be used in different situations, it can be used when:

- a lecture needs to be available for students who cannot attend conventional classroom lectures
- a lecture has to be delivered to many students or large groups
- when a lecture aims to develop cognitive skills rather than psychomotor skills

As for why students would not be able to attend a conventional classroom reason can be numerous. The recent pandemic is one of those reasons. Other situations to consider are:

- Students who are abroad (for example for a unit of learning outcomes)
- Students who are not able to join due to personal (health) issues and/or have limited daily time
- Students who have to travel a long way from home to school and who do not have many classes to attend to.

3.6 Why use DLC?

DLC learning can be considered a good method. It can be as effective as traditional training, and teachers can reach a larger group of students at once through DLC.

Students differ not only in personality, but also differ greatly in ways of learning. Implementing DLC gives students the opportunity to study at their own pace and in a way that suits them best. Besides that, DLC also makes it possible to reach out to students who are not able to join conventional classrooms.

Among foreign language students, the language barrier can be stressful and cause difficulties in learning. DLC enables these students a more stress-free situation by avoiding real-time communications.

The content developed for DLC can be re-used for different groups and different students and is therefore reasonably sustainable. Moreover, DLC is a method that is highly accessible and it is fairly simple to collect data from it with different tools.

3.7 Requirements

Students: To successfully execute a DLC method students must have access to a computer with basic programs and access to internet combined with basic computer and Internet skills.

Due to the character of DLC, and the way teachers guide their students when implementing the method, it is highly recommended that students are self-motivated to learn. Before starting the DLC method, it is good to consider the importance of a homogeneous background in knowledge on the actual topic, since groups start all together at the same time.

Teachers: Teachers need to be moderately capable to work with digital materials, tools and platforms. Teachers also have to be familiar with the content of the e-course and the progress students have made/ are expected to make.

Location and equipment: Both students and teachers need to be situated in a room with all necessary equipment, suitable hard- and software and with a functioning network connection. They should be able to focus on the e-course and not get distracted or bothered by IT-struggles.

3.8 Benefits DLC

Benefits that DLC provide can be divided into three groups, namely: benefits for the students, the teachers and the organisation.

Students:

- Learning material is always accessible and it can be offered in various forms (e.g., videos, textbooks, quizzes, animation)
- Students can choose the way they prefer to learn, for example, by means of a textbook or a video
- Students plan their own tasks, aside from livestreaming. This provides more flexibility in their diary when planning activities for work, sports, or social support etc.
- Lower costs and spending less time travelling to and from school

Teachers:

- Developed DLC material can be used in the regular classroom
- It is easier to differentiate between the needs of the students. Material can be easily adjusted to the different needs of the students (younger/older students, students with disabilities)
- The number of students who can participate in DLC and use the lecture material can be larger than in the classroom
- DLC provides different ways to explain the subject, with for example, videos, texts, drawings or animations
- When preparing lectures in advance, teachers can have more flexible working hours
- Teachers can re-use and share prepared materials with colleagues, or can use materials from colleagues
- It saves time and money because there is no travelling time to school (in the end smaller ecological footprint)

Organisation:

- The number of students per lecture can be larger than in the regular classroom, schools will be able to admit more students
- Less staff and lower costs
- Prevention of space problems
- Less travelling costs, contributes to lower greenhouse gas emissions

3.9 Disadvantages DLC

The disadvantages of using DLC can also be divided into three groups, namely disadvantages for the students, the teachers and the organisation.

Students:

- Less direct control of their work and delayed feedback
- Less social interaction with their fellow students
- Less social control from teacher/coach

Teachers:

- Less direct control of students' work and progress
- Immediate feedback is not possible
- Takes more time to give feedback, also due to potential larger number of students
- Less social interaction with students and colleagues
- Less social control, problems (for example, social or personal) will be harder to notice and address
- It takes time to get familiar with DLC and it takes time to prepare material
- More work on the computer
- It takes time to get familiar with different computer programs and applications

Organisation:

- More investments are needed for good IT equipment and software
- More investments are needed for the training of employees, and for the time and resources to develop a DLC program

3.10 Quality e-course

The quality of an e-course depends on several factors. The most important components are:

- **Learner-centred content:** content should be relevant and specific to the needs of students and the responsibilities in professional life
- **Granularity:** segments should be planned in such a way that students assimilate new knowledge step by step
- **Engaging content:** learning content must be presented to students in an interesting, motivating way to stimulate further learning
- **Interactivity:** is essential to sustain student attention and promote further learning
- **Personalisation:** the students' needs and interests are most important when developing e-learning lectures. The teacher must follow the students' progress, lead students and give them proper feedback

3.11 Experience DLC Vet4VN

Described below are our own experiences on working with DLC during the Vet4VN project in 2020-2022. The ECVET unit (unit of learning outcomes) on radiology has been the basis. On this basis we built the program of the LTTA's and the "Moodle". Additionally, we evaluate our experiences. Students experience was measured by means of observations and questionnaires. The outcomes are described in the "evaluation" part.

Experience

At the time we wrote the application for this project, mainly the Finnish school had experience with Distant Learning and Coaching. The Dutch schools had none whatsoever, since the system of teaching veterinary technician students in the Netherlands is based on students living close to the school (with a maximum of an hour drive).

We started our project in September 2020, half a year after the Corona pandemic hit Europe. The pandemic taught us a lot on Distant Learning and Coaching.

During our Learning Teaching Training Activities (LTTAs) with students, we worked with Distant Learning and Coaching on a small scale. For the LTTA in Denmark in October 2021 we used Moodle (an electronic learning environment, ELO) to prepare the students prior to the exchange. In the LTTA in Finland in October 2022 we used the same Moodle platform and we tried a live stream: students in Finland demonstrated several X-ray tasks; students at home attended this live stream.

As a follow up on the LTTA in Finland, we experimented with online coaching. One Finnish teacher in Helsinki, assisted by one Dutch teacher in the Netherlands, guided three Dutch students in the practical tasks of positioning a dog for X-ray. The students volunteered. The task was introduced by means of a short theoretical lesson.

In some schools students who attended the first LTTA shared their experiences with other students.

Evaluation

The pandemic gave each school a head start on Distant Learning and Coaching. Never waste a good crisis is what they say. Forced into Distant Learning and Coaching, we learned by doing. If we had known about the impact of the pandemic prior to the start of our project, we would have approached the needs-analysis for the DLC manual differently.

The LTTAs with students gave us input on how to use DLC transnational, in a mixed set of veterinary technician students, none of them native English speakers.

Students were able to manage with a foreign language, that is, with English (speaking was most difficult, reading and listening was easier). It is important that students feel safe within a group. This can be achieved by investing in a social introduction (games), so students will get to know each other. This is an enormous help in overcoming a language barrier.

The three students who were guided from a distance in performing the practical tasks were really enthusiastic. Although none of the teachers and students were native English speakers, it worked out really well and the students achieved the desired learning outcomes on positioning. It was nice to notice that the education was quite easily done -also remotely with the students at their own school-, first they had to listen to a lecture, and then they completed the task while the teacher accompanied them online. Worked really well! It gave us the insight that it IS possible to train and guide psychomotor skills from a distance. Distance coaching can be part of the learning process of a student, transnationally. And the opportunity to use Teams, Zoom, et cetera creates more possibilities for collaboration between learning institutions.

It is important to be clear about the program and the expectations we have of students' input. This is helpful against cold feet. For the coach/ guide: be aware that a student still might be nervous, even if the student enthusiastically applied for the learning opportunity. Mention the benefits and the disadvantages of learning abroad/ away from home.

Take care that student guidance is secured: a student should be able to contact the guide/ teacher with problems and teachers should be aware that students can experience personal problems which they do not easily show. The possible age difference is something to address as well. It is not just a language barrier and a cultural barrier, but Vocational Educational Training (VET) students from different countries vary widely in age and in the amount of life experience.

It is also important to instruct the students really well before they go abroad. Not all of them are equally equipped to work with another electronic learning environment, or are not that capable with IT at all. Always have a backup plan/ an alternative way to reach out to your student abroad/ a way to keep in contact. Instruct students really well on the IT/ electronic learning environment/ (preferably at school/ live), before they go on distance learning.

Hereby a list of possible effective ways to carry out Distant Learning and Coaching. The list is a mix of ways. The numbers 1 to 5 we tried out and this turned out to be successful; the numbers 6 to 11 list advice from participating students. Both the students in the exchange and the students at home offered the same advice.

- 1 Make use of instruction videos
- 2 Make use of games/ quizzes placed on an ELO
- 3 Make a tutorial video with students from another country (so outside your own country and classmates)
- 4 Perform a live stream
- 5 Attend a live stream on the subject
- 6 Online lessons
- 7 Private lessons online
- 8 To have had lessons beforehand
- 9 With my classmates (peer teaching)
- 10 Make it possible to contact the teacher (email/ chat/ Zoom/ Teams/ skype/ (face)call)
- 11 Make use of teachers/ trainers/ employees of the clinic in the foreign country

Presentations from former participants of LTTAs to future participants led to more enthusiasm to apply for an exchange. This is also an example of peer teaching which lowered the threshold to start with distance/ international learning.

Note: distant learning can never be a full replacement for a complete training/ education. It is a valuable supplement for students who are open to the experience.

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- Student questionnaires from the LTTA in Denmark and Finland (in appendices)
- Student questionnaires from the pilot distance coaching Netherlands-Finland (in appendices)
- Flowcharts on e-learning and list of useful systems and programs for DLC (in appendices)

4 E-LEARNING COMPONENTS

E-learning requires several components, together they form a solid base for e-learning. E-learning content can be divided into simple learning resources, interactive e-lessons, electronic simulations, and job aids.

Simple learning resources: the content of this method is not interactive; students can only read and watch, for example, different documents, power point presentations, audio, and video files. These resources need to match the learning objectives and can be developed based on materials that teachers use in the classrooms.

Interactive e-lessons: involve the student in an active way. Usually, it is a linear sequence of screens in which students can see, for example, texts, pictures, animations or videos. This content is usually combined with questions and feedback. It can also be instructor-led: the teacher develops and leads a kind of curriculum. At the end it usually includes assessments or assignments to evaluate learning.

Simulations: a desirable form of e-learning. The term “simulation” means creating a learning environment that “simulates” the real world. So, the student can learn by doing. It takes an expert to develop this way of e-learning, and costs therefore are often high.

Job aids: provide just-in-time knowledge. This gives students answers to specific questions. In this way students can accomplish certain job tasks. A checklist is an example of a typical (simple) job aid.

4.1 E-coaching

Coaching is essential for students, because the teacher supports them through their learning experience. It is a real contact between student and teacher. Different online tools are available, most common used are email and other digital communication tools like Teams, WhatsApp, Skype and Zoom.

4.2 Collaborative learning

Collaborative activities among students are interesting for them, and are important for development of interpersonal skills. Discussions, knowledge-sharing, working together on a common project or scenario-based assignments are examples of collaborative working and learning.

4.3 Virtual classroom

A virtual classroom imitates the traditional classroom training. It is completely led by the teacher. The teacher is giving the lecture remotely, but in real time to a group of students. This virtual classroom is streamed from a conventional classroom, different materials can be used and shared via the computer with students. Students can participate actively with questions and comments. However, appropriate technology is required.

4.4 Experience e-learning content Vet4VN

Described below are our own experiences on working with DLC during the Vet4VN project in 2020-2022. The ECVET unit (unit of learning outcomes) on radiology has been the basis. On this basis we built the program of the LTTA's and the "Moodle". Additionally, we evaluate our experiences. Students experience was measured by means of observations and questionnaires. The outcomes are described in the "evaluation" part.

Experience

Prior to the first LTTA in Denmark (oct 2021), we decided to make use of Moodle as the electronic learning environment to use for the international group of students. We filled Moodle with different content:

- A text with information on the hosting country and organization
- A text about the program
- A link to Padlet to introduce the participants to each other
- A theory section with a list of professional vocabulary; an online lecture in English on safety by a Finnish teacher; theory documents (pdf) on positioning and safety
- A test yourself section with drag and drop questions built in Moodle and links to quizzes in "Wordwall" (made by Slovenian teachers during the pandemic)
- A theoretical assessment (hidden from students and only accessible during the official test date and time)
- A practical work and assessment section. In this section the students have access to pdf files and word documents on the practical tasks (instructions and job aids)
- Links to You Tube videos on positioning
- Links to questionnaires (made with google forms, freely accessible)
- Photos from all the activities
- Videos of the tutorials made by students (peer teaching): via Dream broker (freely accessible)

We used Moodle as preparation for the exchange program in the LTTA in Denmark and Finland. So, we have no experience with only online teaching and coaching; we used the DLC/ Moodle as a part of blended learning.

For the LTTA in Denmark:

The program on Moodle was voluntary. In Denmark this was followed by mixed groups working on the subject of radiology with:

- Games on safety and positioning and vocabulary
- Theoretical assessment in pairs
- Practicing with dummies and real beagles on positioning
- Practical assessment with dummies

For the LTTA in Finland: Moodle was obligatory. The follow up in Finland was:

- An introduction on peer learning (Finnish teacher)
- Live lecture on X-ray theory with a demonstration of the practical tasks (Finnish teacher)
- Students in mixed groups make a tutorial on safety and different X-ray positioning tasks (peer teaching)
- Students perform their task in a live stream for students at home

Evaluation

We discussed what we needed for our students and our LTTAs. At first, we wanted to use the e-twinning platform for our LTTAs, since this is linked to Erasmus. But the platform was not suitable for our needs. The MS teams environment of Zone College, in which the project partners work, was also not fit for the LTTAs. Both are not electronic learning environments.

We needed a platform with the opportunity for different ways to teach and assess our students. A platform with the ability to include documents, videos, assessments.

Each school has such a platform (and uses all kinds of freely accessible online tools next to it). And each platform connected to a school has accessibility problems for participants outside the own organization. With all the (international) tightened regulations on privacy and digital safety, this is quite a problem to work with. In order to minimize problems on privacy and safety, make sure that participants have given permission for use of images/ videos and have signed the confidentiality statement. Also make sure that copyright regulation is not breached.

In the end, we decided to use the Moodle platform, hosted by Taitotalo. This worked out fine for most students. We advise to instruct students really well beforehand. Also keep close contact with the IT support department; students and teachers are not capable of resolving all technical issues on their own.

The link to Padlet, in which students and teachers introduced themselves before the exchange, was really valuable. Students already investigated with who they would “work” together and it triggered their curiosity and interest.

The theoretical section prepared the students well enough to make the theoretical test. The practical section and the practice with dummies, games and beagles in Denmark prepared the students well enough for the practical test.

Students stated that these theoretical and practical lessons and the theoretical and practical assessments were useful for their work at the veterinary clinic. So, the way in which we built and used the Moodle platform, as a part of blended learning with an exchange program of a week, turned out to be successful.

A live stream is a good possibility for internationalization at home. So, distance learning can also take place at home, with guidance from an external teacher or student.

It is important to connect the lessons with the assessments. And, as described in the ECVET manual, the assessments need to connect to the learning outcomes!

Moodle and its content that was built for the LTTAs is sustainable; it can be used in the lessons on radiology in various schools and learning programs.

Note: access to the model has to be arranged by the “owner” school and privacy and copyright legislation must be taken into account.

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- List of useful sites to build DLCU (in appendices)
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- WBL Manual (intellectual output of Vet4VN project)

5 TEAM AND TECHNOLOGY

In classroom education, designing a Distant Learning and Coaching Unit (DLCU) requires not only knowledge on the subject, but also additional knowledge on technology and media-related skills. Depending on the complexity of the DLCU, many people may be included in the development of the unit. Factors that have impact on the size of the team are the size of the DLCU, the amount of work that is outsourced (if any), the abilities of team members to take on different roles, and the specific technology needed. Besides those factors, costs are also to be considered.

5.1 Team

Depending on the content of the DLCU, in general the team must contain the following role descriptions:

Subject matter experts (SMEs) are responsible for the content of the DLCU. They usually write texts for lessons, choose pictures, choose videos and make assignments and assessments. Later, the SME can also be the online instructor. When SMEs have created an initial framework for the DLCU, it is necessary to decide how many support staff are needed. Sometimes, when a DLCU is small and simple, an SME can create and lead the DLCU on their own. When a more complex DLCU is needed, more team members need to be included (possibly from different countries).

Capacity development manager (CDM) makes an inventory of the needs, executes an analysis of the target group before starting the DLCU, and coordinates all activities and roles in the different stages of developing a DLCU.

Instructional designers (IDs) are responsible for the instructional strategy. They need to understand the training goals, collaborate with SMEs to define which skills and knowledge need to be covered in the course. An appropriate strategy for instruction must be chosen. IDs also are responsible for designing specific e-learning activities and materials that will be part of the course. Content of DLCU is naturally prepared or at least revised by SMEs, but IDs put the content into a proper form that makes DLCU interesting and attractive to students. Suitable instructional techniques and forms and media must support the learning process.

Web developers and media editors are responsible for putting the DLCU on a Web server. Additional databases need to be configured to be able to collect the students' data.

Course administrators, online facilitators, and tutors start their role when implementation of DLCU starts. Course administrators oversee student subscriptions, online tutors and facilitators are actively involved in the learning process, support students and give them feedback.

Technical support specialists are available during the development of the DLCU and during every other stage.

5.2 Train the trainer

When developing a DLCU, one needs to consider that developing and creating a complete DLCU is a new experience for most teachers. Obviously, designing a new DLCU requires time, but also updating and adapting an existing DLCU requires time.

E-learning demands a different approach in teaching, it is not the same as teaching in a conventional classroom. The teaching sequences should be shorter to maximize the attention. In a conventional

classroom a teacher is able to read body language and react to non-verbal communication. E-learning makes that less feasible, therefore a teacher needs to learn how to make participants interact from a distance. According to their reactions, the session may need to be adapted. This also goes for performing teamwork, collaborating with peers can be a challenge during e-learning. Collaborative training is quite easy to implement in a conventional classroom, but when working remotely, it is more complicated. Teachers need more technological skills and supervision of students is more difficult.

Due to the lack of face-to-face contact, teachers will have a different relationship with students. Teachers become more a facilitator and coach instead of a conventional teacher; therefore, teachers need training regarding this topic and school needs to promote online training.

5.3 Technology

Technology is essential to develop and deliver a DLCU. Well-equipped IT department and skilled personnel is also indispensable. Different tools can be used to produce e-learning content. Microsoft PowerPoint or even Word can be sufficient to create simple learning resources. Advanced tools are required to create more interactive content. A very wide range of e-learning tools is available nowadays.

Learning platforms are used more and more to offer courses to students and manage their online activities. A learning platform is a set of interactive online services that provides students access to information, different tools, and resources to support educational delivery and management. There are a lot of different platforms with different levels of complexity, but they all have features in common.

The most important features include:

- Learning content management: creation, storage, access to resources
- Curriculum mapping and planning: lesson planning, personalized learning paths, assessment
- Learner engagement and management: learner information, progress tracking
- Tools and services: forums, messaging system, blogs, group discussions
- Creating educational content (for example quizzes, pools, et cetera) directly on the Learning Management System (LMS)

It is possible to start with DLCU without learning platforms, but it can be difficult and less effective. A platform is necessary to organise content, to deliver different curricula to different students, and to build a community. A platform is also needed if tracking of tasks is essential and monitoring the progress of a student is desired.

A good platform is compatible with the needs of the school. It must not be too complicated to use for students and teachers.

There are two kinds of platforms:

- **Proprietary platforms:** closed sources with licence costs per user, sometimes only an initial fee to purchase the platform. Modifications are impossible or restricted, other than by paying extra for bespoke development. However, they are regularly updated by the software company, security breaches are therefore limited
- **Open-source platforms:** for these kind of platforms, it is typical that as many students as needed can participate free of charge, and new components can be added free of charge, and customization of the program is possible

The platforms can be hosted by an external service provider or run internally by the school. That decision depends on the technical infrastructure and technical capacity of the school. Schools must be able to handle a server and the platform. Keep in mind that updates can be quite frequent. How to run the platform also depends on the institution strategy and the relationship between IT departments and e-learning teams.

When using a learning platform several challenges will be encountered. Most platforms already contain many programs that are suitable for creating a DLCU, such as: e-learning authoring tools, assessment tools, and video capture and editing tools. It is also possible to import different documents, made in different programs, into the platform.

It is impossible to present all the programs and platforms that can be used as this list is changing constantly.

A list of most used systems, programs and tools are included in the appendices.

5.4 Experience team and technology Vet4VN

Described below are our own experiences on working with DLC during the Vet4VN project in 2020-2022. The ECVET unit (unit of learning outcomes) on radiology has been the basis. On this basis we built the program of the LTTA's and the "Moodle". Additionally, we evaluate our experiences. Students experience was measured by means of observations and questionnaires. The outcomes are described in the "evaluation" part.

Experience

We have made use of our own teachers who were experienced in the topic of radiology as subject matter experts. They wrote the learning outcomes that our schools agreed upon (on EQF level 4). They have used existing materials from their own schools together with European material (the Euro Syllabus and the Dossier of European Competences from VETNNET and a RCVS veterinary nursing professional syllabus.) For more information about this process, please read the ECVET manual from the Vet4VN project.

We chose the Moodle platform for our DLCU on radiology safety and positioning.

The teachers also made the theoretical section and the test. This test is linked to the learning outcomes and we made use of existing tests in our schools. The lessons in the theoretical section are a mix of existing (translated) lessons, freely accessible You Tube videos, specially made instruction videos for this course, and already existing quizzes from Wordwall.

For the practical lessons and assessment, we made use of existing lists of learning outcomes in the clinic (from the Netherlands) together with existing European practical tasks (OSCEs and PEPAS). For more information about this process, please read the WBL manual from the Vet4VN project.

Moodle was filled by some of the project partners who were experienced in working with Moodle. Everyone was able to put material, quizzes, and links onto the platform.

For the "live stream" we used Microsoft Teams. A Finnish teacher who is experienced in distance learning provided the technology and materials needed for the live stream. .

For the session in which three students were coached from a distance, we also used Microsoft MS-Teams with additional cameras.

Evaluation

We had enough expertise on radiology amongst us. Most of the participating teachers were experienced in teaching radiology. And we also could fall back on colleagues who knew more about this topic, if necessary.

We also had enough expertise amongst us to make a module on X-ray safety and positioning with enough variety in ways to learn, so that a student will stay motivated. Students answered that the lessons on Moodle were useful for the live tasks during the LTTA.

Working with Moodle went fine. It took a little time to get used to for the teachers who had no experience with this ELO. For most students it went well as well, although some had trouble with it. We did experience some difficulties in accessing Moodle (especially students who were not from the school who owned Moodle).

During the live stream we had technical problems due to the massive number of viewers. The observers at home did not have optimal image and sound. Teams was not suitable for this live stream.

The coaching session with just one teacher abroad and three students in the same room worked technically much better.

It is necessary to get help from IT specialists to optimize the connection and assist with the operation of the equipment (cameras and microphones). Especially, if we are going to upgrade DLC with, for instance, live streams.

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6. DESIGNING DISTANT LEARNING AND COACHING UNIT

To design a high-quality sustainable DLCU, it is recommended to run the following steps: firstly, it is important to execute an analysis of needs, target group and topic. Once this has been done, the actual designing can start. When this is evaluated, designs can be developed and implemented. To complete this route it is almost needless to say that evaluation of the implemented DLCU is vital. In figure 3, from the very useful site https://www.elearningnews.it/_resources/images/ebook/e-learning-methodologies.pdf, the design steps are mentioned. In this chapter each step is elaborated and supplemented with the experiences and evaluation from the Vet4VN project.



Fig. 3 Steps to a successful designed DLCU

Source: *E-Learning Methodologies: A Guide For Designing And Developing E-Learning Courses* by Food and Agriculture Organization (FAO)

6.1 Analysis



Fig. 4. Steps to a successful designed DLCU- analysis

Source: *E-Learning Methodologies: A Guide For Designing And Developing E-Learning Courses* by Food and Agriculture Organization (FAO)

The analysis and design stages are very important to make DLCU effective. Firstly, an analysis of the needs in general should be made, this also goes for an analysis of the students, tasks and topics which the particular DLCU is designed for. Students' needs and learning content need to be connected, together with the appropriate mix of learning activities and technical solutions. Then a solid foundation has been laid for a high-quality DLCU.

To analyse the needs in general, it is important to have a clear starting position. Must DLCUs on any given subject fill a gap in professional knowledge and skills? Is e-learning the best solution to deliver this information at this point? Are there clear learning objectives and do they match up with the content of the assumed DLCU?

Once this is clear the target group (students), needs to be analysed as following:

- Age of the student
- Previous knowledge on the topic. In general, students with a lot of prior knowledge do not need the same kind or level of training support as novices
- Experience in the working field
- Digital skills, equipment and access
- Region or geographic area in which students reside to choose the proper language. This also can be decisive in whether to choose synchronous or asynchronous learning. (If students are located in different time zones, they might have difficulties communicating in real time)
- The location where students will participate e-learning and the location where they can access the Internet; can they study at home, at work or in e-learning centres? This determines how much connection time is required for the course and whether students can download plug-ins from the Internet
- Kind of organization or institution (school, clinic) of the student. This can help to identify specific learning objectives
- The amount of time available for e-learning and the learning context. This information influences the amount of content to be provided and the need for chunking the content into small units
- Network bandwidth. Bandwidth limitations may slow application performance and decrease user productivity
- Computer and software capabilities, such as screen size, number of colours they can display, sound playback, RAM (amount of memory), processor type and speed

Once general needs and audience have been analysed, the content analysis is another important part of preparing the DLCU. The DLCU must contain accurate and relevant content, and the most appropriate instructional methods and media to transfer the information to students have to be chosen. At this point one needs to consider what the outcome of analysis of the target audience is, for example, previous knowledge and skills.

Task analysis means to identify the job tasks that students should learn or improve upon. The knowledge and skills required to perform a certain task must be explained to students. Task analysis is used when the DLCU is designed mainly to build or improve upon specific job-related tasks. Identifying the task, dividing tasks into bite size pieces, identifying required knowledge and skills are components of the task analysis.

Topic analysis means to determine and classify the course content. It is more appropriate when the DLCU is especially focused on the theory of certain topic. It can be used if transferring theoretical information about a topic is desirable.

To summarize, for task and topic analysis the following questions need answering:

- Do students get all the knowledge they will need for assessments and/or assignments?
- Do students get all the knowledge they will be needing for their career?
- Are the types of learning activities interesting, motivating, inspiring and well-matched to the level of the students?
- Is the course duration, timing and number of hours to be invested by students suitable and realistic?
- Are technical solutions suitable and accessible for students?
- Are instructions clear and understandable to students?

6.2 Design



Fig.5. Steps to a successful designed DLCU- design

E-Learning Methodologies: A Guide For Designing And Developing E-Learning Courses by Food and Agriculture Organization (FAO) https://www.elearningnews.it/_resources/images/ebook/e-learning-methodologies.pdf

After completing the analysis the next step is designing the DLCU.

Learning objectives/outcomes should be the main focus, they describes what students need to know or be able to do at the end of the DLCU. Objectives must be specified for the DLCU as well as for each single activity. Defining learning objectives makes clear what is to expect from the students at the end of the DLCU.

To put content of the DLCU in a logical and practical order, the next step is sequencing. The most common way is that the DLCU starts with a general overview, and then focuses on specific topics. At the end, it is closed off with a general conclusion. In the meantime, knowledge and skills are acquired through simple information followed by more complex concepts and tasks.

Now that the DLCU is defined, the decision must be made which methods and techniques are most suitable to present to the students. A combination of several instructional methods should be used in DLCU.

Expositive methods

Expositive methods are used for acquiring information. Students listen, read and observe. Usually, a topic is presented in the form of presentations, videos, demonstrations, interactive content, case studies, virtual classroom or webinar. Whilst using those systems, it gives students the opportunity to get familiar with the basics of all concepts. Students can also be given assignment and assessments, to check whether they have understood the content.

Application methods

Application methods are methods which emphasize the active work that students need to deliver. Application methods include demonstration-practise methods like job aids, case-based or scenario-based exercises, role play, simulations/serious games, guided research or project work.

Collaborative methods

Collaborative methods are important as the social dimension of this kind of learning ensures the developing of soft skills. They encourage and engage students to share knowledge and to perform tasks in a collaborative way. This includes online guided discussions, collaborative work and peer tutoring. Discussion forums, e-mails, chats, audio or video conferences, wikis, blogs and shared documents are examples of collaborative methods.

To design a delivery strategy, the following subject should be considered: learner-related factors, technology aspects and organizational requirements.

Learner-related factors

Factors to consider about students:

- students' ease with delivery channels – audio and video conferencing can be difficult and frustrating for non-native language students. In that case, e-mail or discussion forums are more appropriate. Students can take the time they need to read and write.
- Students' level of technical expertise. They are not all experts and might even have trouble with basic digital systems like e-mail. It is wise to make an inventory of how much technical support can be offered.
- Their available time – students may come from different environments. Some of them have jobs, others have access to computers and internet all the time. Different time zones can be a factor as well. Consider whether the first-choice self-paced learning instead of facilitated learning is suitable.

Technology aspects

- Students' electronic devices like computers, smart phones, I-pads and their access to the internet must be taken into account, when preparing a DLCU.
- Depending on access to the internet, choose between a self-paced unit (asynchronous learning) or facilitated learning unit (synchronous).

Developing a self-paced learning unit with a lot of multimedia and interactivities, will require much more time and money, compared to a virtual classroom. Therefore, time and money issues must also be considered when developing DLCU.

If the DLCU is meant to reach as many students as possible in the shortest period of time, online virtual classes might be the best option.

Costs for different systems vary a lot, but on the other hand, DLCUs can be used many times.

Instructor-led courses are cheap to develop but expensive to deliver, while self-paced courses based on interactive content are expensive to develop, but cheap to deliver. Knowing the exact number of students and their technological abilities are important factors when designing any DLCU.

There are many programs, applications and platforms available for DLCU. Prior to designing a DLCU, it is essential to know what one needs. Think about the need for:

- Livestreaming: from a distance or in school classes
- Written documents: word, pdf or PowerPoint for example
- Tools to read documents out loud (think of disabilities like dyslexia, or language development disorder)
- Share videos or animations: think of local regulations for sharing online videos and images
- Give and receive feedback written, voice and video feedback
- Create tasks & exams
- A folder where students can hand in their tasks
- Listing of students who have performed their task
- Option to give the result of the task or exam
- Group discussions: In a big group of students with a teacher or mentor and in smaller subgroups with only students to work on tasks
- Face to face meetings for coaching or feedback
- Timetables and agenda: what, where, when?
- Games to practise knowledge up to date a lifelong learning stimulation
- Registration of the worked hours of the student
- Free applications you can use

Once the DLCU has been designed, it is time to evaluate the strategy. To execute a good evaluation the purpose of evaluation needs to be clear, several ways are available:

- **Formative evaluation;** check the quality of the course in order to improve it before it is implemented, if necessary
- **Confirmative evaluation;** measure the effectiveness of training and learning immediately after the course has been implemented
- **Summative evaluation;** evaluate older courses to see if they are still valid or need adjustments

Student evaluation:

- **Certification;** evaluate the students' progress and/or provide certification linked to the progress

If students make progress and are ready for certification, this implies that the DLCU is designed appropriately.

6.3 Development



Fig. 6. Steps to a successful designed DLCU-development

E-Learning Methodologies: A Guide For Designing And Developing E-Learning Courses by Food and Agriculture Organization (FAO) https://www.elearningnews.it/_resources/images/ebook/e-learning-methodologies.pdf

In the phase of selecting content for DLCU, keep in mind that, usually, a lot of material on the topic is already available, such as:

- user manuals and technical documentation
- handouts and lecture notes
- PowerPoint slide shows or other presentations
- documented case studies
- photographs, images, graphs, videos and animations
- training materials, such as self-study guides, web guides and quizzes
- reference materials

Existing training material and documents cannot be automatically transformed into e-learning materials because e-learning differs from face-to-face training. Specific formats are needed, and especially self-paced students need a lot of instructions how to use DLCU.

For example: we cannot just use a PowerPoint presentation made for teaching in a classroom as e-learning content, especially not for self-paced learning. Only if recorded explanation and/or examples are added, it can be used as appropriate material for DLCU.

Preparing materials is less demanding when instructor-led synchronous learning is selected. In that case, there is more interaction with students and face-to-face explanations can be provided.

Developing the content special attention must go to the following subjects:

- Always review the proposed learning objectives. Only then, the content will match the learning objectives
- Make sure that the content, assessment tests and exercises correspond to the lesson objectives
- Keep in mind that students sometimes do not have basic knowledge. Something easy and obvious to teachers can be completely unknown to the students. Also use simple examples familiar to everyone
- Classify topics and goals for each lesson. Determine which knowledge students require to know and what knowledge is a bonus

Language is also important to students so:

- Use simple and plain language. Sentences should be short- not longer than 25 words (write like you speak)
- Avoid complex sentences and diacritic marks
- Use active verbs whenever this is possible
- Pay attention to jargon, leave it out or adjust to students
- Especially if one is addressing a multicultural audience, avoid culture-specific slang, colloquialisms, and examples
- Use personal pronouns (for example, “you”) to refer to students. This involves students and make them feel more at ease
- Use gender-inclusive, non-sexist language (e.g., instead man/women just use “people” or “one”)
- Spell out acronyms in full the first time they are used. It is useful to make a list of acronyms in the attachments

During the developing stage it is useful to implement a storyboard. A storyboard is a document that DLCU developers use to describe the visuals, texts, audio elements, interactions and navigation that will be used in an DLCU. It is a blueprint for the design of the DLCU.

Techniques for presenting a DLCU content can be:

- storytelling
- scenario-based approach
- toolkit approach
- demonstration-practise method

Finally, before implementing the DLCU, decisions must be made regarding the courseware DLCU will hold. Courseware means computer programs or other material designed for an educational or a training course.

When the DLCU is rather complex, an expert (team) is needed during the development to support the construction of the final courseware.

There are many authoring tools specifically designed for producing e-learning content without having programming skills. However, media editors are still needed to develop graphics and other media elements.

When selecting an authoring tool, take the responsible team in consideration: do people have enough knowledge and skills, what is the amount of costs or means, how much time and space is available for creative freedom.

6.4 Experience developing Vet4VN

The first step of developing a DLCU is to analyse the general needs and the target group. Knowledge about the subject is an obvious factor before developing and implementing the content. The final design of the unit is important, it is the design that keeps students motivated. Evaluation of the complete process provides information which is needed to keep improving the unit.

Described below are our own experiences on working with DLC during the Vet4VN project in 2020-2022. The ECVET unit (unit of learning outcomes) on radiology has been the basis. On this basis we built the program of the LTTA's and the “Moodle”. Additionally, we evaluate our experiences. Students experience was measured by means of observations and questionnaires. The outcomes are described in the “evaluation” part.

Experience

Needs analysis: Although all the partner schools in this project teach the students on EQF level 4, our educational systems are very different from each other. In order to more easily compare the student's (or employee's) potential, we wanted to work with learning outcomes instead of taking the educational programs as a starting point.

In order to make visible if a student has achieved the desired level of the learning outcomes, we had to agree upon assessment. This we have done. From this point of departure, we built the DCLU: it should contribute to an international learning process which leads towards to the achievement of learning outcomes, measured by the theoretical and practical exam.

Target group analysis: Although all the partner schools in this project teach the students on EQF level 4, our students are very different from each other. The Slovenian school is very active internationally and have the youngest students. The Dutch students are a little bit older (16-20), but they often still live with their parents or live in the area in which they grew up. The Danish students are a little bit older than the Dutch students, and since Kolding is the only school in Denmark with Veterinary Nursing education, a large part of the students lives in a boarding school during weeks with lessons. Finally, among the Finnish students are adults who already have years of working experience in another job. Due to the large distances in Finland, the Finnish students are most used to Distant Learning and Coaching.

Task and topic analysis: We used a questionnaire amongst the partners to discover which topic would be most suitable for the first set of learning outcomes. We started with one suggestion (veterinary dentistry) which turned out to be a subject that is hard to estimate the scope of. This was replaced by veterinary radiology, a subject everyone teaches in similar ways, the content is the same and the student responsibilities regarding radiology tasks in veterinary practice are compatible in all countries.

Learning objectives: A smaller group with representatives from different schools did the work together. We used the existing curricula from the partners and the questionnaire and also material from outside our own schools to get a picture of what was necessary. This included the Euro Syllabus and the Dossier of European Competences from VETNET and a RCVS veterinary nursing professional syllabus.

How much time is spent on a subject differs per country and also per school. Also the way to teach a subject is very different per school (some teach it completely in practice placement and work based, and others mainly at school with both theoretical and practical lessons).

We used the Zoom document: "Guidelines for the Description of Learning Outcomes" as inspiration and guide.

We asked for feedback from all partners a couple of times during the development.

We came across differences in national legislation: by law, not all veterinary nurses are allowed to do the same tasks in different countries. (For instance: contrast X-ray). There are also national differences regarding safety issues.

It is important to agree upon the way to assess. Otherwise it is not possible to give students credits for their achievements. We have agreed upon the assessment beforehand, during our Trans National Meetings.

For radiology, it was a good idea to assess both theoretical knowledge and practical skills. The assessment of theoretical knowledge consisted of multiple choice tests whereas the assessment of

practical skills consisted of a OSCE task (objective structured clinical examination) from the PEPAS project (see link below), with an additional oral examination. This two-pronged testing approach means that the competences are assessed properly and the student achieves all competencies.

It is crucial to create the assessments based on the described learning outcomes (also if you use already existing assessments or exams). In that way, you do not accidentally skip a part of the learning outcomes. The assessments (assessment grid) should cross-refer to the detailed learners outcomes. So, first the learners outcome, then the assessment. In that way you can secure that the student has really achieved the desired level of the learners outcome.

It is a good idea to make use of existing assessment material, so you do not have to start from scratch.

Sequencing:

Moodle for LTTA in Denmark 2021: Students first see the program of the week. Then they access the theoretical part with instruction, tutorial video and quizzes. And then they access the practical part. Some parts were hidden at first (the theoretical test and the links to the evaluation questionnaires).

Moodle for LTT in Finland 2022: Students first see the program of the week. Then they access the theoretical part with instruction, tutorial video and quizzes. And then they access the practical part. Some parts were hidden at first (the links to the evaluation questionnaires). Some parts were put onto the platform during the week (the tutorials they made during the week).

The live stream was not integrated in Moodle.

Instructional strategy: We used the DLCU in combination with live teaching/ learning/ coaching and a live stream. So our DLCU was part of blended learning. We used a combination of:

- expositive methods used for acquiring information (presentations, videos, interactive content, tests and exercises, to check understanding of the content)
- application methods which emphasize the active work that students need to perform (job aids like the PEPAS tasks)

We did not use collaborative methods in the DLCU. Collaborative methods are important for the social dimension of learning, that is, developing soft skills. We only used collaborative methods during the exchange, with several games and practices in Denmark and the making of the tutorial and performing the live stream in Finland.

Delivery strategy:

Studying Moodle before the LTTA was voluntary for the Danish students and obligatory for the Finnish students. Students were instructed by their own teachers, if possible in the classroom, but some students (for instance from Zone.college) online because they were not at school since they were doing an internship.

The live stream was delivered to students at home. For this activity, we selected the groups whose schedules could most easily accommodate the live stream into their regular schedule. So: the selection was not based on the students' phase in their education.

Evaluation strategy:

This DLCU (online course radiology on Moodle) was used to test how students learn in an international environment and to generate input for our learning outcomes, our assessments, our DLC manual and our Work-Based Learning Manual (WBLM).

Evaluation took place via questionnaires for students. The questionnaires were made with google forms.

Content development

We made sure that the content, assessment tests and exercises “matched” the learning objectives.

We kept in mind that students sometimes do not have basic knowledge. We actually described them as “guinea pigs” and mentioned that we were really happy that they wanted to help us try out our material.

Storyboard development and course ware

We decided to keep it simple and use Moodle. This is an existing electronic learning environment and “fit for the job”.

Evaluation

It is important to develop the assessments on the basis of the Learning outcomes. Make sure the learning activities in the DLCU match the learning outcomes in the assessments.

Despite the differences between our educations and the differences between the students, the students were able to manage this DLCU. In the student questionnaires, the students mentioned that the lessons in Moodle were useful for the assessment tasks, and the assessment tasks were useful for their work at the veterinary clinic. We found that there was a large difference in experience in radiology between the students. The students who had a little bit of experience in radiology were the most positive on the learning effect of using Moodle and the live stream. Both the students that were really experienced and the students who had none experience in radiology at all, were less positive (but not negative).

We have not been able to test all the learning outcomes. Since we only had one week per LTT, including travelling time, we decided to pilot a part of the whole set of radiology. We kept it small and started to pilot the safety and positioning part.

Our DLCU in Moodle was built especially for the LTTAs. It was evaluated as an effective option for DLC. It can be altered for DLC on the subjects of radiology safety and positioning.

At first, Moodle was voluntary. Between the two LTTAs we evaluated this and we decided that it should be obligatory for the second LTTA. That leads to a better starting position for all participating students.

The live stream is a good means for DLC, but the technical issues must be addressed. And the target group of students should be in the phase of their study in which they have had some basis theory on the subject, but still have a lot to learn. In that way the learning effect will be maximal.

The combination of the DLCU (Moodle) with the live exchange activities in Denmark and Finland was appreciated by the students. They mentioned that they had developed self-confidence, their English skills and their radiology skills.

The student questionnaires gave us valuable input for further development of the intellectual outputs of this project. It also showed us that students were able to learn in an international setting, to manage themselves in the English language, to prepare themselves for a theoretical and practical test, to make a tutorial themselves and to perform a live stream on the subject. So (except for the ones who were already really advanced in radiology) they did improve their radiology skills and made steps towards the desired learning outcomes.

The choice to go with Moodle was fine. Most teachers and students were able to work with it, even if they had no experience beforehand. The “course” that we built was simple to teach, train and guide a group of international students with very different levels of experience for a week and turned out to be effective.

If we want/ need more elaborate functions/ ways to teach and train a student, we will also have to implement somehow a way to collaborate from a distance. This we have not done yet. For this step we will need more IT support.

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- Student evaluation/ questionnaires of both LTTAs (in appendices)
- ECVET manual (intellectual output of Vet4VN project)
- WBL Manual (intellectual output of Vet4VN project)

7. IMPLEMENTATION



Fig 7. Steps to a successful designed DLCU- implementation

E-Learning Methodologies: A Guide For Designing And Developing E-Learning Courses by Food and Agriculture Organization (FAO) https://www.elearningnews.it/_resources/images/ebook/e-learning-methodologies.pdf

The implementation stage means the actual course delivery. Students and teachers need to get familiar with the course, material and methods. Conditions to implement the complete DLCU have to be optimal. It is advisable to have IT-skilled personnel in close proximity during implementation, and solve or prevent technical problems right away.

Since a DLCU is mainly a combination of instructor-led, e-tutoring and collaborative learning components, managing students' activities is essential during the implementation. This gives developers tools and input to improve and adjust the DLCU.

7.1 The structure of an online course

The structure of the DLCU is of great importance when it is in its implementation phase and is about to be made accessible for students and other users. It is advisable to make this structure and planning clear and transparent prior to the implementation. To build a certain structure and make sure that all those involved get familiar with the method and the material, the following actions should be performed in listed order:

Kick-off event

This is meant to present the goals of the DLCU and general planning. It needs to be motivating for students of course, but students also need to understand at one glance what is to be expected, how and when. The overall planning including activities, planned assignments or assessments and methods that will be used, needs to be presented to the students. For this kick-off event one can use videoconference, e-mails or recorded videos.

Pre-course learning activity

Organising a pre-course learning activity is an accessible method to give students the opportunity to get acquainted with a DLCU. It can be their first experience with DLCU, and they are given the opportunity to decide whether it is a course to their liking. Implementing a pre-course learning activity also helps to motivate students and give them a good impression before they actually start the course.

For this activity students can be offered their first interactive lesson (not necessarily connected to the DLCU content). In this way, learners can get used to online learning platforms.

Planning

The DLCU normally consists of a series of learning activities, they can be scheduled on a daily or on a weekly basis. Make sure that these learning activities and their planning is accessible to students. It is

obligatory that students have a good overview and know what the exact planning is for learning activities.

Since students are usually involved in several types of activities, they need to be able to prepare themselves for these different types of activities. Activities like: self- study (including reading, watching videos and animations, listening to audio recordings), individual or group assignments, discussions with other participants or teachers, and exchanging ideas within workgroups.

It is not uncommon that a DLCU includes a final assessment (or assessments throughout the course).

As mentioned earlier, it is obligatory that students have insight into the overall planning. Students should carefully prepare assessments, and types of assessments should be presented to the students in advance.

Managing learners' activities

When instructor led courses are scheduled, it is essential to plan and document students' activities.

In synchronous learning, such as e-conferences or virtual classrooms, special attention must be taken to the technology set-up requirements as described in chapter 2 (for example a stable internet connection and a suitable live-stream program).

7.2 Experience implementation Vet4VN

Described below are our own experiences on and our evaluation of actually implementing the DLC during the Vet4VN project in 2020-2022. The ECVET unit (unit of learning outcomes) on radiology has been the basis. On this basis we built the program of the LTTA's and the "Moodle". Additionally, we evaluate our experiences. Students experience was measured by means of observations and questionnaires. The outcomes are described in the "evaluation" part.

Experience

Structure, kick off, pre-course activity, planning, managing learners' activities:

Moodle was built with different blocks: partly organization (which hotel, how to travel in Denmark/ Finland, the program of the week, timetables of buses et cetera), and partly education. The education parts were split up in:

- Online lectures
- Links to instructional videos
- Practice games
- (word) documents with theory
- Assessments (theoretical and practical) – these were only accessible on the planned assessment time
- Links to questionnaires to evaluate the (distant) learning

The students were informed about the access to Moodle by the Finnish teacher who built the DLU. Then they were informed by their own teachers about how to work with Moodle/ the expectations we had from the students. The kick-off event was organized in a different manner per school. Some teachers introduced it live, during an existing course; Others informed students per email and with an online Teams meeting.

We did not have a specific pre-course activity.

Moodle was necessary during the preparation of the students before the exchange, and for the guidance of the students during the LTTA.

Most students were able to work with the materials on Moodle, but some were not able to. There were some technical difficulties (for instance: the email with the access link looked a lot like spam,

so that the school mail server from the recipient blocked this mail).

We did not use the DLU to follow students' progress. Moodle was part of blended learning in a pilot setting of maximum one week.

Evaluation

The DLU/ Moodle was simple and effective. It is a good basis to further develop a DLU. In this further development the following of the students' progress through formative and summative assessment should be implemented. And/ or it should be part of blended learning and student must be guided/ coached in another way (email/ Teams et cetera).

We experienced the importance of a kick-off event. Some Dutch students did not access Moodle. This was partly due to technical difficulties (the invitation link landed in their spambox), and partly because the introduction was done online and not live. It was difficult to get them to school at that time, so the guidance was suboptimal. The ones who were properly introduced into/ guided through the DLCU (Moodle) had a head start compared to the students who did not open Moodle previously to the LTTs.

The experiences we have had with this Moodle/ DLU in an international group can be taken forward to other Electronic learning environments. Start with keeping it simple!

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- WBL Manual (intellectual output of Vet4VN project)

8 EVALUATE LEARNING ACTIVITIES



Fig 8. Steps to a successful designed DLCU- evaluation

E-Learning Methodologies: A Guide For Designing And Developing E-Learning Courses by Food and Agriculture Organization (FAO) https://www.elearningnews.it/_resources/images/ebook/e-learning-methodologies.pdf

8.1 Feedback and evaluation

The last session of DLCU is all about feedback and evaluation. Not only student activities have to be evaluated, but actually the whole DLCU. Most common way to evaluate this is to use surveys, discussions with students can also be very useful.

All the output from the different evaluations will help to improve the DLCU and in preparing new online units.

Evaluating learning activities is essential for both self-paced and facilitated online courses. Evaluation allows to assess students' progress, the quality and effectiveness of the course, improve future learning activities and content. It is very important to think about evaluation from the earliest (design) stage.

Evaluation takes place on four levels:

Reactions: how do students respond to/ react to the DLCU, are they actively participating? Questionnaires and surveys are suited to measure this. In facilitated e-learning, the observation of the teacher on student behaviour also gives input.

Learnings: Do students achieve the desired/ planned learning outcomes? Observations, tests and assessments are suitable to measure this. It is very important that the assessment tests match the learning objectives. Therefore, it is very important to create the assessment tests in the designs-stage of the DLCU- just after the definition of the learning objectives for each learning unit.

Behaviour: which behaviour of the student is changed due to this DLCU? Observations of learner's performance on the job or other practical situations is suitable to measure this. Do they use/ have they improved their knowledge/ skills/ level of autonomy and responsibility? Can they manage more complex tasks after finishing this DLCU?

Results: what is the result for the organization? For instance: improved quality of education, decreased costs, higher accessibility to education.

Evaluating students learning outcomes is an important factor, especially if they will be given a certificate. This will affect the content and time of the assessment tests that are to be integrated into the course.

There are many possibilities of assessing the students, moments for evaluation can vary as well. Sometimes it is useful to assess students' knowledge and skills before the course starts. During the course, a middle evaluation is recommended, this means to assess students at a certain point in the course. At the end of the course a final evaluation is done, this means assessing the students after the DLCU is completed.

It is very important that the assessment tests match the learning objectives. Therefore, it is very important to create the assessment tests in the design-stage of the DLCU- just after agreeing on the definition of the learning objectives for each learning unit.

An appropriate evaluation form contains instructions for students how to perform the task (for example: click, drag, press a key) and a series of options and question.

Commonly used types of questions for the assessments of learnings are those with response options and feedback like:

- multiple choice
- multiple responses
- matching
- ordering
- fill-in-the-blank
- short answer/essay

To develop high quality questions it can be useful to implement the following:

- Practise questions should be created for all critical topics or tasks
- The text of the questions must be as clear as possible
- Incorrect options should be probable; an obviously wrong option does not play any useful role in the learning process and decreases the learner's interest
- Incorrect options should make students think the answers over carefully. Their purpose is to expose common errors. The feedback is then useful information.
- Each question should end with a question mark (?). In that case students are able to answer the question before reading the possible answers
- Textual responses for each option should be of about the same length. If one of the responses is much longer than the others, the learner can be misled that this is the correct one.
- After the learner responds to a question, the learner should get immediate feedback.

To evaluate the reactions of learners, their behaviour, and the results of the DLCU, surveys and questionnaires should be distributed amongst all involved parties that worked with the DLCU. It is wise to include the following topics:

- Practicality of the course
- Transparency of the course
- Educational level and degree of difficulty
- Implementation and accessibility
- Level of interest meets the expectations
- Expectations vs reality

8.2 Experience evaluation DLCU Vet4VN

In the evaluation, we tried to structure interpretation and give meaning to predicted or actual impacts of proposals or results. We looked at the original objectives, and at what is either predicted or what was accomplished and how it was accomplished. Described below are our own experiences and evaluation on working with DLC during the Vet4VN ECVET unit (unit of learning outcomes) on radiology in 2020-2022.

Described below are our own experiences on working with DLC during the Vet4VN project in 2020-2022. The ECVET unit (unit of learning outcomes) on radiology has been the basis. On this basis we built the program of the LTTA's and the "Moodle". Additionally, we evaluate our experiences. Students experience was measured by means of observations and questionnaires. The outcomes are described in the "evaluation" part.

Experience

Reactions: Evaluation of Moodle took place via questionnaires to students. The questionnaires were made with google forms. This DLCU (online course radiology on Moodle) was used to test how students learn in an international environment and to generate input to our learning outcomes, our assessments, our DLC manual and our Work-based learning manual (WBLM).

Learnings:

In Denmark, we have given the students a theoretical multiple choice test which could be found on Moodle. They had to make the test with another student, because we wanted feedback on the test itself and to see if they could cooperate with a foreign student. Also in Denmark, we gave the students a practical assignment, which had partly been prepared in the lessons on Moodle (as part of blended learning, besides live lessons in an international setting).

Behavior:

We have not been able to see change (improvement) in the students' behavior in their work. We asked the students in the questionnaire "how useful or transferable is all you learned for your own education?" In that way we got an insight on how their behavior might change.

Results:

We used the Moodle as part of the two LTTAs. The LTTAs were pilots to investigate and build on:

- Experience how students learn in an international group
- Check if the learning outcomes unit on radiology we had established including the assessments would work out
- Write a manual for international Work-Based Learning
- Write a manual for Distant Learning and Coaching

Evaluation

Despite the differences between our education systems and the differences between the students, the students were able to manage this DLCU. In the student questionnaires, they mentioned that the lessons in Moodle were useful for the assessment tasks, and the assessment tasks were useful for their work at the veterinary clinic. (reactions)

In the LTTA in Denmark we actually gave the students a theoretical and a practical test. During the test they had to cooperate, so we have not tested them individually. They all passed the tests. (learnings)

They also mentioned that -besides the development of English and personal skills- they had improved themselves at radiology. (behavior)

From the observation during the LTTAs, working with the Moodle and the student questionnaires we got feedback on how to develop the

- ECVET Unit- Unit of learning outcomes and its assessment(s)
- Manual to develop international learning outcomes
- Manual for Work Based Learning
- Manual for Distant Learning and Coaching

Additional result of this DLCU is that the project partners improved their international cooperation. It lowers the threshold to start with, experiment with and expand (student)exchanges, and other forms of distant coaching. Thanks to the DLCU, we had a follow up, in which a colleague in Finland provided a practical lesson for three students in the Netherlands. This lesson was also really appreciated by and valuable to these students.

And last but not least: we have strengthened our international network. This is important for the participating schools.

Final conclusion: Distant Learning and Coaching (with and without a DLCU) can be very valuable and effective. Think big and start small.

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- WBL Manual (intellectual output of Vet4VN project)

9 PRIVACY AND SAFETY ISSUES

Online education, and use of digital systems and tools, is quite different from original old-fashioned teaching in the classroom. It is more difficult (even impossible) for the teacher to notice reactions of the students and read body language, sometimes it is not even clear whether students are actually joining the group. Besides that, the teacher has to keep in mind that everything that happens in any digital system, can be misused, which can lead to unsafe and unlawful situations. Example: A teacher and participating students cannot see if someone is secretly recording the session with another device. That is why it is highly recommendable to establish rules considering privacy which all involved agree on. These rules make sure that the privacy of all participants is never an issue.

Since 25 May 2018, the General Data Protection Regulation (GDPR) has been applicable. This means that the same privacy legislation applies throughout the European Union (EU). The link to this regulation is placed in the “links” section. While working with DLC and making use of all kinds of platforms and systems like teams/ zoom, this regulation is unavoidable. It contains information on the rules and obligations during DLC and clarifies what is possible and impossible within the limits of this framework. Due to the sensitive content, privacy needs to be guaranteed at all times. This not only goes for the courseware and learning environment but especially for the participants. Each individual has the ultimate right of privacy of personal data. The school organization is responsible for the main part of this data protection. The consequence is that school organizations have to make strict rules and make sure that they are followed. The privacy regulation also influences the use of digital tools.

Next to the GDPR, each country has its own legislation on copyright. When working international on DLC, it is important to do research in order to determine which materials are lawful to use and share. A link to start this investigation is placed in the “links” section.

Described below are our own experiences on working with DLC during the pandemic and during the Vet4VN project in 2020-2022. The ECVET unit (unit of learning outcomes) on radiology has been the basis. On this basis we built the program of the LTTA's and the “Moodle”. Additionally, we evaluate our experiences. Students experience was measured by means of observations and questionnaires. The outcomes are described in the “evaluation” part.

Experience

Because there are many different digital systems, it is important to keep potential risks in mind. These risks can occur at different levels:

- Participants are not aware of the risks and rules of sharing personal information
- All digital systems are vulnerable to data breaches, both by malicious actors and through unintentional human error. Therefore, all personal information stored in a digital system is vulnerable..
- Information used in the digital session might be used afterwards or in a different way without the participants knowing about this (for example online bullying)
- In teams meetings, for example, participants can see and hear what is going on at someone else's home or internship. And furthermore, it is never clear who can watch and listen in the first place.
- The teacher cannot always be sure which student is in the meeting, and which is not. And also the progress of students is not always clear.

Before entering the DLCU (Moodle and Padlet) students received a consent form for taking and distributing images.

Evaluation

Because of the risks mentioned before, it is very important to formulate rules. And it is also very important to make sure that every participant sticks to the rules. Teachers should enforce the rules. Working with different digital systems and digital tools is possible with the following practical rules:

- Agree on the systems you are going to use, and stick to that agreement.
- Never ask students to make an account for some other digital tool.
- Use only tools that can be used without an additional personal account.
- Let school organizations buy licenses of tools you would like to use.
- When using a digital tool; ask students to fill in a fake name, for example a funny one, so results can never lead to their person.
- Students can never be forced to use extra digital systems or tools.
- Check if a tool can be used, for instance with help of this flowchart:



Figure 9. Flowchart to check if a tool can be used.

<https://todaysteachingtools.com/privacy-wetgeving/ict-tools/ict-formatief-tools-toetsing/>

In digital live meetings:

- Be on time.
- Present yourself, and welcome each individual, ask some questions.
- Use the blur or background button.
- Everyone who is not talking should switch off the microphone.
- Never talk about secret or personal matters, it is never certain who can hear the conversation.
- Never let anyone take photos or make recordings, or ask permission beforehand.

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10 FINAL RECOMMENDATIONS

Implementing online learning and coaching is another way of teaching and can be of great value for an institution, but is a time-consuming activity and will not replace live-classrooms. Despite the disadvantages, in an international setting it can be of great value and actually contribute to a more international oriented mindset and learning experience. As globalisation is taken place all around us, certainly in veterinary practice, it is relevant to investigate how an institute can set up and develop Distance Learning and Coaching.

In this manual, we describe the experiences we have had in DLC. Besides our experiences, we have made use of sources. The e-book e-learning-methodologies is a valuable source to use in setting up DLC. (https://www.elearningnews.it/_resources/images/ebook/e-learning-methodologies.pdf)

The choice of a suitable platform is very important and must be thought of in advance. Switching platforms or changing the technology during the development of the course or later is very difficult and stressful. Working with e-learning and especially e-learning teams will have consequences for the personnel and the organisation.

To ensure the success of distance learning, not just participants, but also teachers who are going to be involved must accept this type of learning. This is important to avoid demotivation and the failure of the project. When institutions plan to implement distance learning, it (is essential) can be of great value to set up a new team. In that way, teachers can get as much support as they need from IT-specialists. Furthermore, it diminishes work overload for them, and will improve the quality of the courses and ensure technical reliability.

This means that funds must be available for: education on the subject, the training of teachers who are going to be involved, other teachers who will take over the normal lessons, and the hiring of trainers.

But also more investments are needed for good IT equipment and software (for example installing computers, screens, Wi-Fi, computers for participants et cetera).

Participants also need to be educated on the new way of teaching. They need a computer, good Wi-Fi and their surroundings must be suitable to follow an online lesson. This takes time and money.

In conclusion, one needs to calculate in advance if the extra efforts and costs are worth it.

Do the results of Distant Learning and Coaching compensate for the extra costs of this method. In an internationally oriented learning setting, whereby the distances are too large to bring a student to school, it can be of great importance.

The recommendations for DLC are:

- Do not hesitate to start, motivated students manage really well
- Think big and start small
- Make use of existing material (see also the flowcharts in appendix I)
- Make sure the ICT soft- and hardware is operational, make use of ICT skilled personnel

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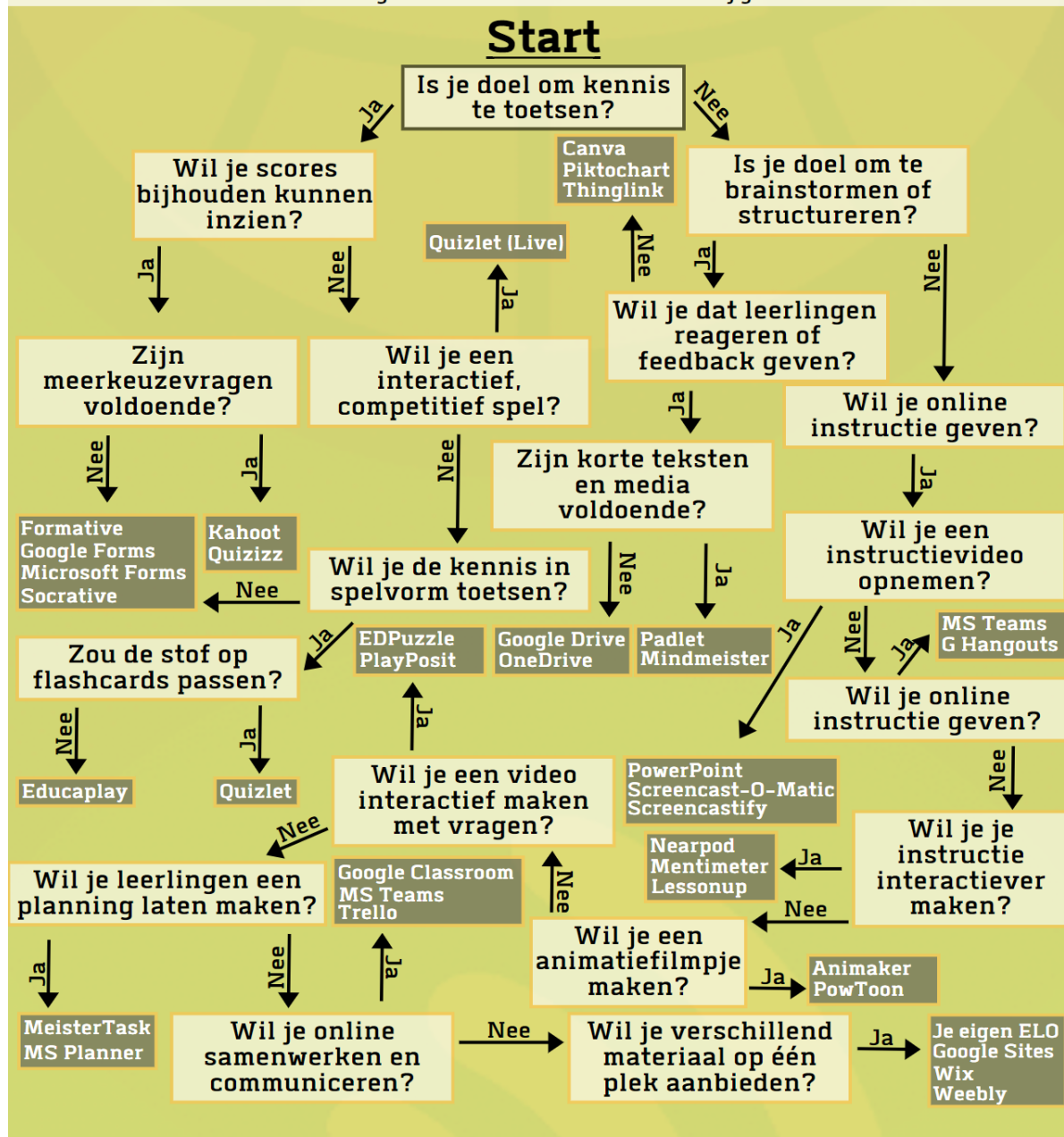
LIST OF ABBREVIATIONS

DLC – Distance Learning and Coaching
DLCU – Distance Learning and Coaching Unit
ECVET - European Credit system for Vocational Education and Training
ELO – Electronic Learning Environment (Dutch; Electronische LeerOmgeving)
EQF - European Qualifications Framework for Lifelong learning
GDPR - General Data Protection Regulation
IT - Information technology
ICT- information and communications technology
LTTA – learning – teaching- training activities
OSCE – objective structured clinical examination
PEPAS – pan European practical assessment system
RCVS – Royal College of Veterinary Surgeons
VN – Veterinary Technician
VET – Vocational Education and Training
Vet4VN – Vocational Education and Training for Veterinary Nurses
VETNNET- veterinary European transnational network for nursing education and training
WBLM- work based learning manual

APPENDIX 1- Flowcharts for E-Learning

Welke educatieve ict-tool voor e-learning zoek je?

Deze zoekkaart mag voor niet-commerciële doelen vrij gedeeld worden.

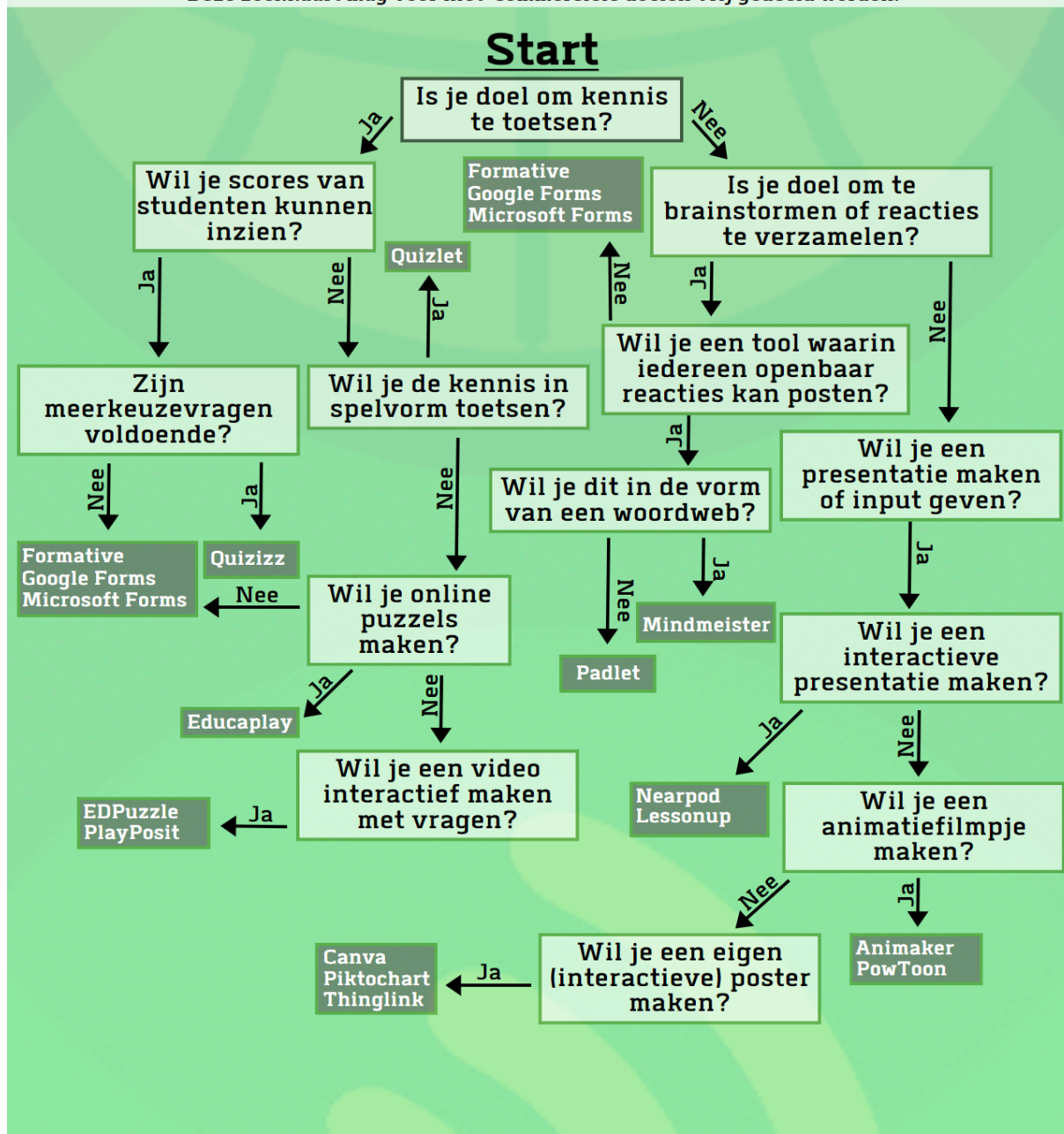


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Welke educatieve ict-tool wil je embedden?

Deze zoekkaart mag voor niet-commerciële doelen vrij gedeeld worden.



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<https://todaysteachingtools.com/welke-educatieve-tool-wil-je-embedden/ict-tools/ict-tools-keuzes/>

APPENDIX 2- List of most used systems, programs and tools for DLC

Hereby a short description of most used systems, programs and tools for DLC. Each system, program and tool has its own benefits.

- Canvas

An open, usable, cloud-based technology, it enables easy integration of the content, tools, and services that teachers need, and students want. See tutorials:

<https://community.canvaslms.com/t5/Video-Guide/tkb-p/videos>

- TalentLMS

TalentLMS is a highly adaptable, hassle-free cloud-based Learning Management System. Feature-rich, fully customisable, and mobile-ready, it enables institutions of any type or size to build tailor-made, online training platforms. Key features include building assessments, quizzes, games, polls, and surveys, the creation of learning paths; customisation to any depth; integration with Wordpress, Zoom, BigBlueButton, GoToMeeting, report generation, and the issuing of its own certification.

See tutorials: <https://help.talentlms.com/hc/en-us/articles/360014658393-Getting-started-with-TalentLMS>

- Google Classroom

Google Classroom is a tool in Google Apps for Education that helps trainers create and organise assignments quickly, provide feedback efficiently, and easily communicate with their classes. Features include the ability to create and manage classes, assignments, and grades online without paper, add materials to assignments, such as You Tube videos, a Google Forms survey, and other items from Google Drive, direct, real-time feedback, and use of the class stream to post announcements and engage students in question-driven discussions. See tutorials:

<https://edu.google.com/products/classroom/>

- Moodle

Moodle is a modular system based on plug-ins, which are like Lego blocks that you put together to build whatever you want. There are plug-ins for different kinds of content, and plugins for all kinds of collaborative activities. Features include file sharing, gamification, collaborative learning, a library, assessment, grading, course authoring, video conferencing, dashboard analytics, and additional functionalities such as cloud mobility and messaging. See tutorials:

<https://enhancingteaching.com/Moodle-2-how-to-tutorial-guides/Moodle-2-how-to-tutorial-guides-for-teachers/>

- Blackboard Learn

A scalable, reliable foundation on which to build a professional learning experience. A flexible learning platform that enables extending online learning, increasing learner engagement, and optimising learning outcomes. Features include file sharing, gamification, collaborative learning content library, assessment, grading, authoring, mobility, messaging, content delivery and content storage and management.

See tutorials: <https://www.blackboard.com/teaching-learning/learning-management/blackboard-learn>

Video Capture and Editing

Many tools enable fast and easy converting different content into professional videos. You can add annotations and other attractive features, and even add internal assessments, knowledge checks, polls, and quizzes. Videos can also be created in these tools and then set into the learning platform as an e-Learning authoring tool.

Learning platforms with authoring tools

- WileyPLUS

This is an online teaching and learning platform with a wide range of options. Video tutorials, automated grading, homework, quizzes, and exams are integrated. You can also find CANVAS, D2L, Blackboard and Moodle in there. See the tutorials: [https://www.wileyplus.com/wileyplus-training-series/Judicial Training Methods – Distance Learning Handbook - 2020 34](https://www.wileyplus.com/wileyplus-training-series/Judicial%20Training%20Methods%20-%20Distance%20Learning%20Handbook%20-%202020%2034)

- McGraw-Hill Connect

McGraw-Hill 's „Connect“ is a web-based assignment and assessment platform teamed up with backboard learning, a virtual learning environment and learning management system. Features include: Remote Computer Monitoring, Website & Application Blocking, Teacher/Student Screen sharing, Interactive Quizzes, Presentation Building, Students Assignment Distribution/ Assignment Collection, Progress Reporting, Shared Content Libraries, Grading and reporting and automated grading, Learning Content and Pre-made Content Aligned to Standards, Multimedia Content, Gamification, Reporting and Analytics. See tutorials: <https://www.mheducation.com/highered/support/connect.html>

- Open eLearning

Free software providing an e-learning development tool, a very user friendly and popular open-source e-learning authoring Tool. Intended for the design of e-learning courses for all Learning Management Systems. It is a very wide range of features for easy editing of courses and educational games, enables the creation of engaging multimedia courses efficiently and speedily. Integrates with Wordpress and Moodle, OpenEdx and Chamilo.

See tutorial: <https://www.openelearning.org/docs/open-elearning-docs.htm?GettingStartedwithOPenelearnin.html>

Study Tools

Study Tools helps students to study, prepare for the tests with different kinds of, quizzes, flashcards or assessments. They can be used by teachers and students.

- Quizlet: An online study application that allows students to study information via learning tools and educational games. Short introduction: https://quizlet.com/_1h6ae1?x=1jq&i=4ggrk

- Kahoot!

A game-based learning platform used as educational technology in schools and other educational institutions. Sample quiz: <https://create.kahoot.it/share/regent-elearning/ad50170f-ebcd4043-810f-f36586232627>

- Brainscape:

Is a web and mobile education platform that allows students to study adaptive flashcards. Electronic flashcards can be created by students, teachers, or trainers. Flashcards created by other users are also available. Introductory video: <https://youtu.be/zblvSI2oKTM>

- StudyStack

Offers free flashcards. The teachers can create their own sets or use sets shared by other users. The sets can be converted into games. <https://www.studystack.com/flashcard-922160>

- McGrawHill Connect This is a set of study tools integrated within a robust LMS but able to be used separately, for interactive quizzes, games, and revision.

- GoConqr

Is a free online learning platform where you can create, share, and discover Mind Maps, Flashcards, Study Planner & other resources. Introductory video: <https://youtu.be/LWubGdhIMx4>

- Anki

Is a program which makes remembering things easy. It uses efficient, less traditional study methods. Introductory video: <https://youtu.be/F1j1Zx0mXME>

- Wordwall

Is a tool where you can create different types of assessments like quizzes, match ups, word games, and much more. Students' results analysis as also available. <https://wordwall.net/>

- ClassMarker

Is an online quiz creation tool used for the creation of public or private tests. The tool makes quiz configuration easy, with settings such as test duration, randomising questions, instant feedback, choosing from multiple question types, custom certificate creation and branding, and automatic grading.

- Topgrade

This is a multi-platform learning system where registered users create quizzes, courses, and flashcards specific to their own courses, and play quizzes created by others. It can be used to design various question types such as multiple-choice questions, match-the-following, and fill-in-the-blanks. Images and time limits can be added to quizzes.

- FlexiQuiz

Is an online tool to create courses or online tests. A time duration can be configured for tests, which can be made public or private. There is an option to choose from a variety of question types.

Synchronous e-learning tools

As the name indicates those tools to be used when e- learning is going on in the real time. Many of these tools have other option that can be used in e- learning.

Real Time Communication Tools

- Chat

Chat is a form of synchronous text-based communication allowing students and teachers to meet in “real-time” for conversation, discussion forums, question and answer sessions, or virtual office hours. Many platforms (Zoom, BBB, Blackboard, Skype, Teams, GoToMeeting) offer this feature and allow the chat sessions to be recorded for later viewing.

- Skype

Skype’s free version enables one to make voice calls, video calls, send instant messages or chat, and send SMS (Short Message Service) text messages. Skype basically turns the computer into a telephone. A contact list is created when Skype users accept contact requests from other Skype users.

Web conferencing and synchronous online training platforms

- BigBlueButton

BigBlueButton is an open-source web conferencing system. It supports real time sharing of audio, video, slides (with whiteboard controls), chat, and the screen. Instructors can engage remote students with polling, emojis, multiuser whiteboard, and breakout rooms. Trainers and content designers can record and playback content for later sharing with others.

BigBlueButton include:

- Online tutoring (one-to-one)
- Flipped classrooms (recording content ahead of your session)
- Group collaboration (many-to-many)
- Online classes (one-to-many)

- Zoom

Zoom is a cloud-based video conferencing service - either by video or audio-only or both, all while conducting live chats - and it permits sessions to be recorded for later viewing. You can join these meetings using a webcam or phone. Zoom Rooms require an additional subscription on top of a Zoom subscription and are an ideal solution for larger companies.

Zoom’s main features include:

- One-on-one meetings: Host unlimited one-on-one meetings even with the free plan.
- Group video conferences.
- Screen sharing: Meet one-on-one or with large groups and share your screen with them so they can see what you see.
- Breakout rooms: allow you to split your Zoom meeting into a maximum of 50 separate sessions.

- Microsoft Teams

MS Teams is a persistent chat-based collaboration platform complete with document sharing, online meeting.

The features include:

- Conversations within channels and teams.
- All team members can view and add to different conversations.
- A chat function.
- Document storage in SharePoint.
- Online video calling and screen sharing.
- Online meetings and audio conferencing.
- Microsoft Teams is included in Office 365 for free.

- Google Hangouts

Google Hangouts offers a free way to run live online classes. Hangouts is available on mobile devices, tablets, and computers, so your trainees can video conference with you anywhere where they can connect to internet. It includes the ability to instant message, call, or text contacts.

https://www.YouTube.com/watch?v=GbcnI_TLy8

- GoToMeeting

GTM is a web-hosted service. It is an online meeting, desktop sharing, and video conferencing software package that enables the students to meet teacher or other students via the Internet in real time. GoToMeeting can enable teachers to host classes of all sizes – from small size groups sharing 25 HD webcams to huge, 250-attendee lectures.

Webinar Tools

The best webinar software makes it easy to record, share, and follow up with participants without much difficulty. High-quality video, built-in surveys, live-chat features, streaming capabilities and many more features are important for a good webinar.

Livestorm, Demio, WebinarJam, Webinarninja, GoToWebinar, LiveWebinar, EverWebinar, My Own Conference, and EasyWebinar are the recommended tools.

Mobile learning tools

Mobile learning has emerged as one of the most popular types of learning recent times. Mobile devices are used constantly so this creates a need for developing mobile e- learning tools.

- Claro

Claro will help create an online course including mobile-compliant HTML5. The tool provides excellent features and options to incorporate into your learning course. Options that come with this tool include pre-designed mobile themes along with a wide variety of assessment functionality of the kind commonly available in a desktop course.

- Adrenna Mobile

Adrenna Mobile is a revolutionary solution for mobile learning that brings formal, informal, social, and collaborative learning, and performance support to one central platform – mobile.

- iSpring Learn, iSpring Learn enables create e-courses directly or just upload existing content, invite students, and track their results.

- Brainshark Tool, for creating both online and mobile video presentations.

- **Blackboard Mobile** The mobile tool for Blackboard – a major education LMS tool. With mobile learning experiences gaining in popularity, many of the abovementioned tools now offer a mobile learning option, including TalentCards, TalentLMS, Canvas LMS and GoToWebinar.

Content Development Tools

- **Adobe Captivate**

Adobe Captivate is a widely recognised name in the photography and design industry. Captivate is used to storyboard courses, and tap into an extensive interactions library, including transitions and triggers. Courses can be built quickly and easily with their user-friendly interface.

- **iSpring**

This tool takes PowerPoint presentations and turns them into e-learning courses. iSpring Suite also offers plenty of course templates and themes, backgrounds, and more. iSpring can integrate with most popular LMS platforms, including Moodle and Learnbook.

- **Elucidat**

Elucidat is a cloud-based authoring tool that focuses on simplicity and user-friendliness. It works similarly to Google Suite, allowing multiple users to work on the same piece at once free from concerns about version control.

Presentations

Choosing the right presentation software tool can also be essential for e-learning. Good presentation keeps the learner to stay focused and improve their motivation.

- **Prezi**

This is a cloud-based business presentation tool that is ideal if a highly interactive platform is needed. The software features an intuitive interface that shows the big picture within the workspace, with the ability to zoom in on the smaller details of the presentation.

- **Camtasia Studio**

This flexible presentation software tool features a screen recorder, HD video importer, and a wide range of editing tools. It is intended for both Mac and Windows devices, meaning that virtually anyone can use this tool to create professional presentations that show off their e-Learning courses or complex processes or interactive content screen-by-screen.

- **GoAnimate**

GoAnimate boasts an impressive range of themes, characters, props, and other pre-made elements that make presentation production stress-free. It offers a simple and straightforward drag and drop interface. Content is simply moved from the library, or existing elements are shifted around to create the perfect professional online presentation. There is no need to edit or record with a third-party tool. When

finished, simply publish the video on any website or export it to YouTube.

APPENDIX 3 - Questionnaire LTTA Kolding, oct 2021

With the input from this questionnaire, the project partners can improve the work they have already developed. You will help us a lot by filling out this form. Note: There are no "wrong" answers! If something this week did not work out well, we will have to work on that. So we need to know. Also: if something worked out really well, we will know how to carry on.

Which school are you from? *

- BIC Slovenia
- Hansenberg Denmark
- Aeres/ Nordwin Netherlands
- Taitotalo Finland
- Terra Netherlands
- Zone Netherlands

Language 1: I was able to express myself in English *

- 1 Absolutely not ---- 10- perfectly

Language 2: I was able to understand other students *

- 1 Absolutely not ---- 10- perfectly

Language 3: I was able to understand the teachers *

- 1 Absolutely not ---- 10- perfectly

Language 4: I was able to read instructions *

- 1 Absolutely not ---- 10- perfectly

Language 5: I was able to understand the information on the Moodle platform *

- 1 Absolutely not ---- 10- perfectly

Working in a group 1: I was able to cooperate with the students *

- 1 Absolutely not ---- 10- perfectly

Working in a group 2: Participants were open and cooperative to each other *

- 1 Absolutely not ---- 10- perfectly

Working in a group 3: The group enjoyed working together *

- 1 Absolutely not ---- 10- perfectly

Working in a group 4: the group had a lot of fun during the theoretical and practical lessons *

- 1 Absolutely not ---- 10- perfectly

Working in a group 5 : Working in an international group was a positive experience to me *

- 1 Absolutely not ---- 10- perfectly

Working in a group 6: By working in an international group, I learned more than I would have done on my own *

- 1 Absolutely not ---- 10- perfectly

Selection and participation 1: I volunteered for this week *

Yes/ no

Selection and participation 2: I was appointed by my teachers to join this week *

Yes/ no

Selection and participation 3: I was motivated to join this week *

Yes/ no

Selection and participation 4: At first I hesitated to join this week *

Yes/ no

Selection and participation 5: I was looking forward to going abroad this week *

Yes/ no

Selection and participation 6: At first the idea of going abroad scared me *

Yes/ no

Personal goals 1: If we had asked you some months ago whether you wanted to work in your own neighbourhood after graduation? *

Yes/ probably/ no

Personal goals 2: This week stimulated me to search for job opportunities outside my own neighbourhood *

Yes/ probably/ no

Personal goals 3: Have you been abroad before? Please specify *

Personal goals 4 : Did you have an internship abroad before? Please specify *

Personal goals 5: What is the benefit of being abroad for you personally? *

Theoretical lessons 1: The subjects during the lessons were new to me *

1 Absolutely not ---- 10- perfectly

Theoretical lessons 2: The subjects during the lessons were known to me *

1 Absolutely not ---- 10- perfectly

Theoretical lessons 3: The digital information in Moodle was attractive *

1 Absolutely not ---- 10- perfectly

Theoretical lessons 4: The subjects during the lessons were clear *

1 Absolutely not ---- 10- perfectly

Theoretical lessons 5: The subjects during the lessons were important to make the theoretical assessment *

1 Absolutely not ---- 10- perfectly

Theoretical lessons 6: The lessons in Moodle were easy to follow *

1 Absolutely not ---- 10- perfectly

Theoretical lessons 7: The lessons in Moodle were easy to find *

1 Absolutely not ---- 10- perfectly

Theoretical lessons 8: The subjects are useful for my work at the veterinary clinic *

1 Absolutely not ---- 10- perfectly

Practical lessons 1: The practical lessons on Tuesday and Wednesday were attractive *

1 Absolutely not ---- 10- perfectly

Practical lessons 2: The practical lessons on Tuesday and Wednesday were clear *

1 Absolutely not ---- 10- perfectly

Practical lessons 3: The practical lessons on Tuesday and Wednesday were important to make the practical assessment on Wednesday *

1 Absolutely not ---- 10- perfectly

Practical lessons 4: The practical lessons on Tuesday and Wednesday were easy to perform with a group *

1 Absolutely not ---- 10- perfectly

Practical lessons 5: The practical lessons on Tuesday and Wednesday were nice to play *

1 Absolutely not ---- 10- perfectly

Practical lessons 6: The practical lessons on Tuesday and Wednesday were instructive *

1 Absolutely not ---- 10- perfectly

Practical lessons 7: These practical lessons are useful for my work at the clinic *

1 Absolutely not ---- 10- perfectly

Theoretical assessment 1: the questions in the assessment (the multiple choice test) were clear to me *

1 Absolutely not ---- 10- perfectly

Theoretical assessment 2: the content of the assessment was prepared during theoretical and practical lessons *

1 Absolutely not ---- 10- perfectly

Theoretical assessment 3: this assessment is useful for my work at the veterinary clinic *

1 Absolutely not ---- 10- perfectly

Practical assessment 1: the assessment was clear to me *

1 Absolutely not ---- 10- perfectly

Practical assessment 2: the content of the assessment was prepared during theoretical and practical lessons *

1 Absolutely not ---- 10- perfectly

Practical assessment 3: this assessment is useful for my work at the veterinary clinic *

1 Absolutely not ---- 10- perfectly

Open ended question 1: Which difficulties did you face during this week? *

Open ended question 2: Does this activity stimulate you to be more internationally active? Please explain *

Open ended question 3: Which improvements would you suggest for the theoretical assessment? *

Open ended question 4: Which improvements would you suggest for the practical assessment? *

Open ended question 5: What if you were abroad and your teachers were in your home country; how would you like to prepare yourself for a similar theoretical assessment? *

Open ended question 6: What if you were abroad and your teachers were in the home country; how would you like to prepare yourself for a similar practical assessment? *

Open ended question 7: How useful or transferable is all you learned during this week for your own education? *

Open ended question 8: How useful or transferable is all you experienced during this week for your own personal development? *

APPENDIX 4 - Questionnaire LTTA Helsinki, oct 2022

With the input from this questionnaire the project partners can improve the work they have already developed. You will help us a lot by filling out this form. Note: There are no "wrong" answers! If something this week did not work out well, we will have to work on that. So we need to know. Also: if something worked out really well, we will know how to carry on.

Which school are you from? *

- BIC Slovenia
- Hansenberg Denmark
- Aeres/ Nordwin Netherlands
- Taitotalo Finland
- Terra Netherlands
- Zone Netherlands

Language 1: I was able to express myself in English *

- 2 Absolutely not ---- 10- perfectly

Language 2: I was able to understand other students *

- 1 Absolutely not ---- 10- perfectly

Language 3: I was able to understand the teachers *

- 1 Absolutely not ---- 10- perfectly

Language 4: I was able to read instructions *

- 1 Absolutely not ---- 10- perfectly

Language 5: I was able to understand the information on Moodle platform *

- 1 Absolutely not ---- 10- perfectly

Working in a group 1: I was able to cooperate with the students *

- 1 Absolutely not ---- 10- perfectly

Working in a group 2: Participants were open and cooperative to each other *

- 1 Absolutely not ---- 10- perfectly

Working in a group 3: The group enjoyed working together *

- 1 Absolutely not ---- 10- perfectly

Working in a group 4: the group had a lot of fun during the theoretical and practical lessons *

- 1 Absolutely not ---- 10- perfectly

Working in a group 5 : Working in an international group was a positive experience to me *

- 1 Absolutely not ---- 10- perfectly

Working in a group 6: By working in an international group, I learned more than I would have done on my own *

- 1 Absolutely not ---- 10- perfectly

Selection and participation 1: I was motivated to join this week *

Yes/ no

Selection and participation 2: At first I hesitated to join this week *

Yes/ no

Selection and participation 3: I was looking forward to going abroad this week *

Yes/ no

Selection and participation 4: At first the idea of going abroad scared me *

Yes/ no

Personal goals 1: If we would have asked you some months ago: did you at that time want to work in your own country after graduation? *

Yes/probably/ no

Personal goals 2: This week stimulated me to search for job opportunities outside my own neighbourhood *

Yes/probably/ no

Personal goals 3: Have you been abroad before? Please specify *

Personal goals 4 : Did you have an internship abroad before? Please specify *

Personal goals 5: What is the benefit of being abroad for you personally? *

personal goals 6: How did this week change your feelings about searching for job opportunities abroad? *

Lessons 1: The subjects during the lessons were new to me *

1 Absolutely not ---- 10- perfectly

Lessons 2: The subjects during the lessons were known to me *

1 Absolutely not ---- 10- perfectly

Lessons 3: The digital information in Moodle was attractive *

1 Absolutely not ---- 10- perfectly

Lessons 4: The subjects during the lessons were clear *

1 Absolutely not ---- 10- perfectly

Lessons 5: The lessons in Moodle were easy to find *

1 Absolutely not ---- 10- perfectly

Lessons 6: The lessons in Moodle were easy to follow *

1 Absolutely not ---- 10- perfectly

7: The subjects during the lessons on Tuesday were important to make the tutorial videos *

1 Absolutely not ---- 10- perfectly

Lessons 8: The subjects during the lessons on Tuesday were important to perform the live stream*

1 Absolutely not ---- 10- perfectly

Lessons 9: The subjects (lessons, Moodle, tasks) are useful for my work at the veterinary clinic *

1 Absolutely not ---- 10- perfectly

Tutorial 1: the task was clear to me *

1 Absolutely not ---- 10- perfectly

Tutorial 2: the content of the tutorial was prepared during theoretical and practical lessons *

1 Absolutely not ---- 10- perfectly

Tutorial 3: these tutorials are useful for my work at the veterinary clinic *

1 Absolutely not ---- 10- perfectly

Live stream 1: the task was clear to me *

1 Absolutely not ---- 10- perfectly

Live stream 2: the content of the live stream was prepared during theoretical and practical lessons *

1 Absolutely not ---- 10- perfectly

Live stream 3: these live streams are useful for my work at the veterinary clinic *

1 Absolutely not ---- 10- perfectly

Open ended question 1: Which difficulties did you face during this week? *

Open ended question 2: Does this activity stimulate you to be more internationally active? Please explain *

Open ended question 3: Which improvements would you suggest for the tutorials task? *

Open ended question 4: Which improvements would you suggest for the live stream? *

Open ended question 5: What if you were abroad and your teachers were in the home country; how would you like to be assisted in doing radiology abroad? *

Open ended question 6: How useful or transferable is all you learned during this week for your own education? *

Open ended question 7: How useful or transferable is all you experienced during this week for your own personal development? *

APPENDIX 5- Questionnaire students at home LTTA Helsinki, oct 2022

With the input from this questionnaire the project partners can improve the work they have already developed. You will help us a lot by filling out this form. Note: There are no "wrong" answers! If something did not work out well, we will have to work on that. So we need to know. Also: if something worked out really well, we will know how to carry on.

Which school are you from? *

- BIC Slovenia
- Hansenberg Denmark
- Aeres/ Nordwin Netherlands
- Taitotalo Finland
- Terra Netherlands
- Zone Netherlands

Language 1: I was able to understand the students (in English) *

2 Absolutely not ---- 10- perfectly

Language 2: I was able to understand the teachers *

1 Absolutely not ---- 10- perfectly

Live stream 1 : This live stream was a positive experience to me *

1 Absolutely not ---- 10- perfectly

Live stream 2: The subjects during the streams were new to me *

1 Absolutely not ---- 10- perfectly

Live stream 3: The subjects during the streams were clear *

1 Absolutely not ---- 10- perfectly

Live stream 4: The live streams on radiology are useful for my work at the veterinary clinic *

1 Absolutely not ---- 10- perfectly

Personal goals 1: This live stream stimulates me to search for an internship abroad *

Yes/ probably/ no

Personal goals 2: This live stream stimulates me to search for job opportunities outside my own neighbourhood *

Yes/ probably/ no

Personal goals 3: Have you been abroad before? Please specify (Holiday? Internship? Other?) *

Open ended question 1: Which difficulties did you face during the live stream? *

Open ended question 2: Does this live stream stimulate you to be more internationally active? Please explain *

Open ended question 3: Which improvements would you suggest for the live stream? *

Open ended question 4: What if you were abroad and your teachers were in the home country; how would you like to be assisted in doing radiology abroad? *

Open ended question 5: How useful or transferable is all you learned during this live stream for your own education? *

APPENDIX 6 - Questionnaire online practical radiology lesson nov 2022

Thank you for joining the experiment with a Finnish teacher and a group of Dutch students, working from a distance but still together on radiology. With the input from this questionnaire the project partners can improve the work they have already developed. You will help us a lot by filling out this form. Note: There are no "wrong" answers! If something did not work out well, we will have to work on that. So we need to know. Also: if something worked out really well, we will know how to carry on.

Language: I was able to understand the teacher *

2 Absolutely not ---- 10- perfectly

This practical lesson from a distance, by a foreign teacher, was a positive experience to me *

1 Absolutely not ---- 10- perfectly

This practical lesson improves my radiology knowledge and skills *

1 Absolutely not ---- 10- perfectly

Open ended question 1: Which difficulties did you face during the lesson? *

Open ended question 2: Which improvements would you suggest for this lesson/ this way to be guided from a distance? *

Open ended question 3: What worked out well/ was successful in this lesson? *

Open ended question 4: How useful or transferable is all you learned during this lesson for your own education? *

Open ended question 5: Does this experience stimulate you to be more internationally active? Please explain *