DISK

Digital Immigrants Survival Kit

DISK
DIGITAL IMMIGRANTS SURVIVAL KIT

IO5

TRANSFERABILITY
AND IMPLEMENTATION GUIDE

As revealed by the DigComp framework 2.1[1] almost half (46%) of the European population doesn't reach satisfactory levels of digital competences. The DISK – Digital Immigrants Survival Kit Project (2019-1-PT01-KA204-060898) objective is to develop missing digital competences in adult and senior learners to enable them to take an active role in the modern, ever-changing digitalized world. Adult learners' knowledge and skills need to be shaped on technology-based resources in order to accomplish everyday tasks and thrive in different aspects of life. This means empowering the learners and making them feel capable of using the digital tools for their ends, in a useful and secure way. In this sense, the 15 learning modules conceived by the DISK partners aim at fostering social inclusion and participation of the aforementioned target groups by providing a training path able to consolidate their digital mindset and tackle the divide between natives and immigrants of the Information age.

Specifically, the training modules available on the dedicated MOODLE platform deal with pivotal macro-themes connected to the five DigComp2.1 areas, namely:
1. information and data literacy;
2. communication and collaboration;
3. content creation;
4. safety; and
5. problem-solving

The 15 training modules will support the adult learners in achieving different digital competences regarding the creation, storage and sharing of data/online content and related copyright issues, e-government and other online services, digital communication, social media and cybersecurity.

Following the UNESCO OER Recommendation[2] and addressing the Sustainability Goals (SDGs) education[3], the project training modules are open, free and under the CC BY SA license.

The present guide developed by the partners in the ERASMUS+ DISK project will support adult and senior learners (50+) but also Vocational Educational Training (VET) providers, stakeholders and organizations in implementing the project results and outcomes in a flexible way. It will be useful to adapt the different elements of the project during the project lifespan and after (competences to be achieved, new technologies for training, training contents, etc.). It also represents a key document for the project sustainability, not only in the partners country but also in other European countries.

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[1] Carretero, S., Vuorikari, R., & Punie, Y. (2017). DigComp 2.1: The digital competence framework for citizens with eight proficiency levels and examples of use. Luxembourg: Publications Office of the European Union
[2] https://unesdoc.unesco.org/ark:/48223/pf0000373755.locale=en
[3] https://unesdoc.unesco.org/ark:/48223/pf0000247444.locale=en

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Introduction

In a technical and digital-dominated environment, inclusion demands that people feel capable to use the digital tools and means for their ends, in a useful and secure way. The DISK – Immigrants Survival Kit project gathers 5 partners with complementary skills and experiences in the field of adult education and innovation. The consortium consists of the University of Porto (Portugal), EFQBL (Austria), EDRASE (Greece), Training 2000 (Italy) and QOOL (Ossiannilsson Quality in Open Online Learning (QOOL) Consultancy, a specialist in course quality in open online learning & Open Educational Resources OER (Sweden).

Description of the target groups

Digital immigrants is an umbrella term which includes individuals who are disadvantaged in society due to their lack of digital competences. This means that the developed courses are tailored on the needs of low-skilled and/or low-qualified adult European citizens.

This ERASMUS+ project mainly addresses the 50+ generations, namely adult and senior learners who are interested in developing digital competences to become active members of the society and take the most out of technology-based solutions in their routines. Despite being integrated in other socio-economic spheres, many adults and seniors need support to become competent and confident with ICT and the Internet.

Objectives

The DISK project aims at developing missing digital competences of adults through the use of 15 standalone learning modules which explore the use of ICT, digital tools, and the Internet in everyday life. Having the DigComp 2.1 (during the project's lifespan, DigComp 2.2.[4] was launched so later adapted to this version) as the main reference, adult and senior learners are supported in the upskilling of their digital competences through a training path that can be freely accessible and adapted to different needs. Adult educators are also encouraged to exploit the DISK training material and dedicated platform to reuse and repurpose the module's content, which is created under the Creative Commons License (CC BY-SA 4.0).

Outcomes

There are 5 main outcomes (https://www.disk-project.eu/web/project-results-2/) within the project framework and can be considered the elements of the so-called "survival kit", namely:

1. Competence Map (IO1), a comparative analysis of the digital competences of typical adults (approx. 20 people) in each partner country collected through a self-evaluation questionnaire;

2. Developed training content (IO2), a set of 15 training modules developed following different training principles, adult teaching methodologies and frameworks (e-Xcellence framework, European Association of Distance Teaching Universities[5], the Flipped Adult Education handbook);

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3. Training path and pilot testing (IO3), each module coincides with a training path considering fundamental elements such as the learning outcomes, possible personalization/personal approach, working style, training approach (group-based training, active training, project-based training);
4. Open Educational Resources (OER)(IO4), developed out of the implemented and evaluated training modules in line with the 5 Rs (Reuse, Retain, Revise, Remix and Redistribute)
5. Transferability and implementation guide (IO5), a document summarizing the DISK survival kit and its implementations.

Modules' overview – content and structure

The following table summarizes the topics at the core of each DISK training module (https://www.disk-project.eu/web/project-results-2/development-of-training-path-pilot-testing/)

MODULE	DESCRIPTION
1 - **Video production and use of video**	This module aims to gain knowledge on the sources, creation, adoption and use of videos including the basic technical background of videos, video formats and files.
2 - **Images**	This module covers the most common image formats, image compression, the use of images and efficient methods to store them.
3 - **Techniques for image creating**	It covers the techniques for creating images using devices like cameras or smartphones, but also creating pictures on the computer with suitable software.
4 - **Images for documentation of specific situation**	This module covers the creation of content using images, how to perform an image specific Google search for free, and how to incorporate images in a text; sharing data in the form of an image on a blog/web page
5 - **Dealing with Authorities and Government**	This module presents existing services offered digitally by the government. These services are the basics for the expected extension of e-government solutions proposed by the European Commission.
6 - **Social contact**	This module presents the creation and publishing of digital contents on the Internet, paying attention to copyright.
7 - **Digital communication**	This module supports learners in using digital communication tools, together with some communication rules that apply to digital tools.
8 - **Use booking, selling, and other platform**	This module provides the learner with the main common information and data literacy at digital platforms useful in everyday situations like booking and buying services or products.
9 - **Searching information**	This module shows how to browse and identify a specific information needed, using filters and refine own searching criteria to make the process smoother.
10 - **Digital help for daily problems**	This module presents typical digital problems (e.g., broken screen, crypto currency, image search, video sources) that can be identified by the learners and also might be solved by them.
11 - **Privacy and device safety**	This module shows how to protect the learners' digital identity through the correct strategies and modalities (Face recognition, PIN code screen lock, fingerprint screen lock, etc.)

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12 - **Use of web tools**	This module provides practicing web tools for general tasks, in facilitating a self-diagnosis of personal digital competences, in acquainting learners with innovation.
13 - **Payment using the internet**	This module presents digital payment methods currently used by everyone (credit cards, PayPal) and bank account management.
14 - **Google search techniques**	This module provides knowledge on the sources access, creation, adoption and use of videos including the basic technical background of videos, video formats and files.
15 - **Learning activities and options like OER & MOOC[6]**	This module shows how to select and manage different online learning activities, how these platforms work, different usability and some examples of success to learning and engaging activities.

Table 1: Modules and content description

The DISK training content frameworks

The DISK partners have created a framework for each module to guide the creation of the training material as OER, available on the dedicated Moodle platform. The framework describes the structure of each module in terms of:

- Content overview
- Learning objectives (LO) in relation to the Competence Map
- Notional learning time, between 4 and 6 hours per module
- Steps to accomplish the learning objectives
- Learning content type on Moodle (H5P interactive presentations, videos, forums, glossary, self-assessments, etc.)
- Activity/ tasks learners should complete
- External resources (links, videos, images, etc.)
- Evaluation, specifically the self-evaluation Mandala (see section 3) at the beginning and at the end of each module, serving as a compass for the learning process of digital immigrants; and the intermediate interactive activities/quizzes. This section also contains the learning outcomes (knowledge, skills, attitudes) in reference to the DISK competence map (IO1).

In general, the framework offers a model to be used by trainers, educators and teachers when facing the DISK courses for the first time while providing hints for original training paths to be created and adapted in different learning environments.

Modularity of the DISK training course

Becoming "digitally fluent" also helps disadvantaged and marginalized adult learners to overcome different obstacles which can occur in daily life in a digitalized society. From basic digital tasks to complying with e-government procedures, the modules provide a valid and well-structured tool for personal enhancement and social participation. Furthermore, the pandemic crisis intensified our relationship with technology, revealing not only a generational gap, but also a social, demographic and economic disparity among adults and seniors when it comes to becoming active and participating actors in our society. In this

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[6] Massive Open Online Course, https://joint-research-centre.ec.europa.eu/what-open-education/mooc-massive-open-online-course_en#modal

sense, the course is free of charge and fully accessible by anyone at any moment; learners can follow the training path proceeding from Module 1 to 15 sequentially or start from any topic according to their interests or needs. In fact, the self-evaluation mandalas placed at the beginning and at the end of each module can really support the self-study and raise the learner's awareness about his/her learning improvements or weaknesses. Moreover, chat groups for text-based, real-time synchronous discussions and forums available on the Moodle platform can foster a more personalized training experience and engage learners through cooperative learning.

Although conceived to give full autonomy and responsibility to learners in their learning process, the course can also be adapted in other training environments where a trainer is present. The training material created under OER principles ensures the malleability of the training modules and makes the contents and multimedia resources easy to share and reuse, also for adult educators and trainers. Every interactive presentation, video, image and external link can be shaped for different groups of adults, basing the training material on educational level, age and environmental conditions. The summaries of the lessons learned sessions are hints for trainers to develop different training paths. The teacher-student interaction at the core of adult learning is ensured by forums where the trainer can give extra information or dispel their doubts about the topics.

Accessibility issues (e-mail address and IT tools)

Being adults with low digital skills, it is necessary to ensure that every participant who is willing to enrol in the DISK training course has an email account. In this sense, adult educators should include this point as a requirement before starting the DISK training course or support interested students in creating one. This should not be an obstacle, but rather be the first hands-on activity for participants, taking their first steps into the digital world. The adult educators should, thus, support the future participants in creating the credentials they will use for the course.

It is also necessary to ensure that every participant has proper hardware and software to engage with the courses. This can be ensured by listing the different elements needed before starting a DISK training module and going through them in a preparatory moment with course participants.

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1. Media and interactive content (LMS)

As a learning management system (LMS), Moodle is a cloud-based platform that enables trainees to complete training or e-learning courses and keeps track of where they are in the training process. On the other side, adult educators can access this platform from their computer and reuse, repurpose and/or create new training material inspired by the DISK project.

The Moodle LMS was chosen by the DISK consortium based on its accessibility (it's free of charge), ease of setup and administration - both from the teacher and learner perspectives, and the possibility to host both trainer-led and self-paced e-learning courses.

For the DISK training course, we focus in building a course that could be administered without a full-time trainer. Other valuable features include:

- Mass data upload and convenient file management (include cloud storage services like Google Drive and Dropbox)
- Easy backup
- Simple and intuitive text editor across all web browser and devices
- Multilingual capability (over 100 language packs)
- Robust user community and resource centre

Moodle also supports open standards such as SCORM, which means it can host most standard e-learning content that includes text, video, tests, quizzes, and surveys.

1.1. Specific settings on Moodle

How to create copies of a course

Adult educators, trainers and teachers may want to create copies of the DISK course to build their own version of the course. In line with the Open Education Resources (OER) principles, the DISK partners have published the related files in English on the website (https://www.disk-project.eu/web/project-results-2/oer-development/) and users who are interested in using the training material can download the files and implement them in their own Moodle training platform. The files included in each training module are described in the OER description file that is included (https://www.disk-project.eu/web/project-results-2/oer-development/).

1.2. Tracking learners 'information and reports (options of integration with H5P)

Moodle allows those operating as teachers to obtain different types of data on the learners enrolled in their course. This data can help teachers understand better if and how users are using the learning material, and how they are doing.

The reports available on Moodle can be accessed by clicking on the right-side gear menu "More". he course administration page will open.

One of the most useful reports is the activity report. The teacher can set a time filter and see how many times the module activities were displayed, who visualized them and their most recent access.
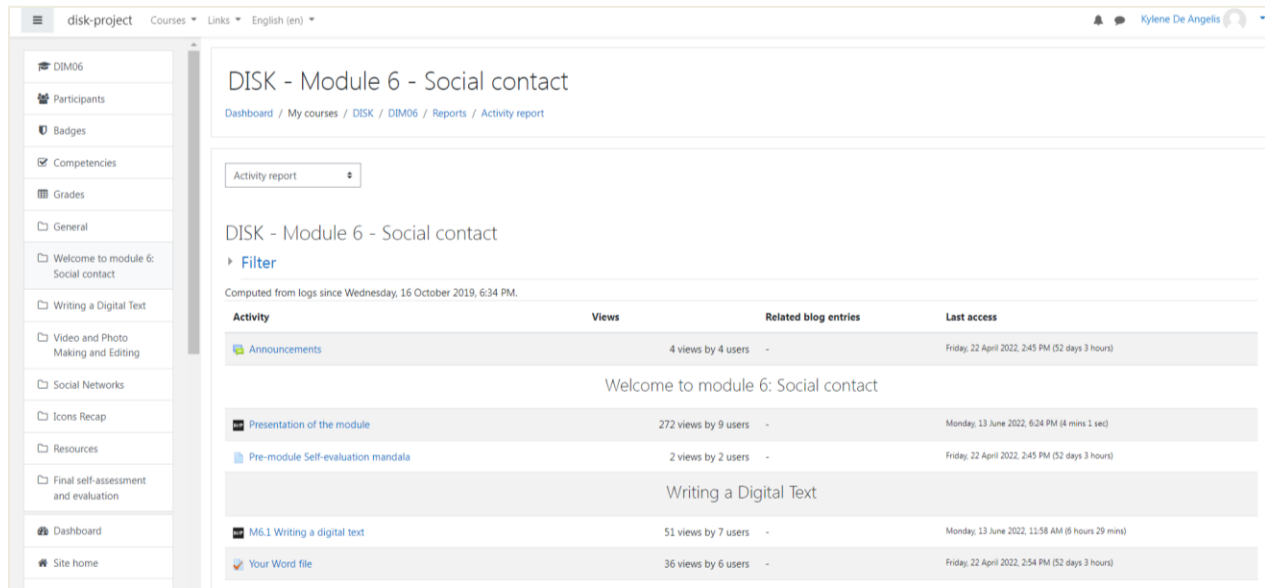
Figure 1: Screenshot from Module 6 settings (Source: Training 2000)

The course participation report is useful to understand who took part in specific activities. The filters settings allow the teacher to select:

- The activity/resource to be monitored
- A specific time frame
- The type of users (Manager, Teacher, Student or Guest)
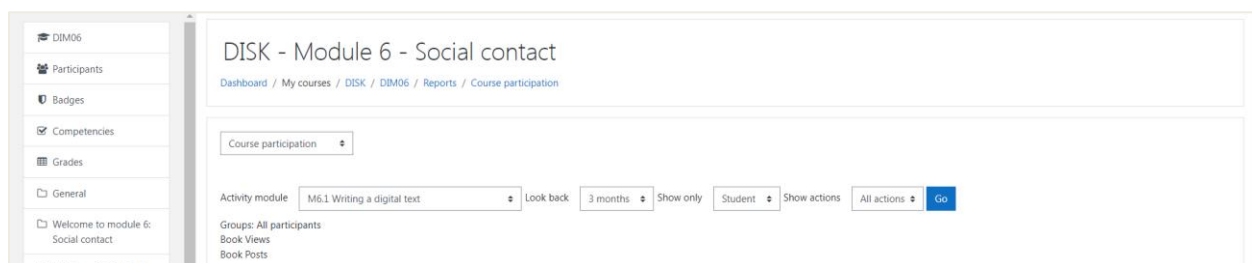- The related action (View or Post)

Figure 2: Screenshot from Module 6 settings (Source: Training 2000)

DISK badges

Among the convenient Moodle features used to track the users' progress, badges are one of the most interactive and innovative ones. Adult educators and learners can track progress and completion of individual activities or resources, and/ or to achieve the DISK module badge.

The DISK partners decided to issue a badge after learners have completed a module (see the Badge Gallery on the DISK website: https://www.disk-project.eu/web/project-results-2/development-of-training-content/badges-gallery/). The 15 badges were built in the "Badges" section available on the left-side menu of Moodle. DISK badges were created by filling the fields with the badge building section in terms

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of issuer information, competence correspondence (based on the frameworks) , image (created with Accredible[7], a cloud-based and free badge design platform) and specific criteria.

In particular, DISK badges were created following simple criteria. The "Activity completion" settings allow partners to release a badge for each module after the user has visualized the activities/ resources included in the dedicated criteria section. In this way, the DISK Module badge is issued if the learner has opened all activities/ resources in the module.

As mentioned, each module is linked to the DISK competence map (IO1) and to specific learning outcomes aimed at developing missing digital skills in adult learners. Together with the self-evaluation mandala, badges are a good way of celebrating achievement and showing progress, but in a more structured and measurable way.

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[7] https://www.accredible.com/

2. The Self-evaluation Mandalas

The self-evaluation Mandala is a graphical-based method to display the learners' increasing competences and learning progress. This method of self-evaluation was developed by Peter Mazohl in 2016 and first presented at the ICERI (International Conference for Education, Research and Innovation) in 2017[8].

The Self-evaluation Mandala:

- Gives students the possibility to control and measure their learning results easily
- Proves the increase in competences
- Motivates the students
- Enables a simple and visible documentation for the students (and teachers) of the competences gained through engaging with the modules and the learning that occurred.

Strict definition of competence-based learning (SchoolEducationHighway, 2014) outcomes created by the teachers are transformed in a graphical pattern where the learners can indicate graphically their current status of competences. After the learning process, the achievements are marked in the Mandala again. The difference between before and after shows the success of the learning process at a glance. It also has a motivating impact on the students because it's a success-based evaluation of their learning outcome.

2.1. The development of the Mandala – from the idea to the tool

To express the competencies, a depiction based on a half-circle was developed and labelled with the three competence items: knowledge, skills, and attitudes. The heading defines the description of the competence.

Use of a Likert-scale

To offer the possibility to express the self-estimation in the three fields, each field is split into four areas. This follows the idea of a Likert-type scale. These areas represent the various levels (worst level near the middle point of the half-circle, the best value in the area with the biggest distance of the middle point).

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[8] P. Mazohl, H. Makl, K. De Angelis, A. Soeiro, M. Filioglou, E. Ossiannilsson (2020) SELF-EVALUATION MANDALAS: A LEARNERS' MOTIVATING TOOL IN THE "DIGITAL IMMIGRANTS SURVIVAL KIT" PROJECT, *ICERI2020 Proceedings*, pp. 5480-5486.

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Here is an example from the developed courses.

Module Images

Competence

Know about images and be able to work with images properly

Edit, store and use images in an appropriate and legal way.

Skills to distinguish image formats, to save them in various environments, to do the basic editing steps and to be able to use images properly.

Know image formats, know how and where to store then and how to edit and finally to use them.

Legend

I can explain how to do it and help others

I can do it alone

I can do it with assistance and/or guidance

I can't do it at all

Figure 3: Basic considerations of the depiction (source: Peter Mazohl)

How to use the Mandala

Before the course, the learners colour in their estimated levels of competence for each item. This can be done using different methods:
- Printing the mandala, painting the selected areas with a pencil, taking an image with a smartphone, and finally uploading the image to the learning platform.
- The mandala is provided in an electronic format (for example an image in JPEG or PNG format) and the learners use an image editor to paint the selected areas. This needs digital competencies (to download, save, edit with an image processing or editing program, to save the mandala again, and finally to upload it to the learning platform).

After the course, the empty mandala is taken again and coloured by the learners. The contrast between the two mandalas makes the learning success directly visible.
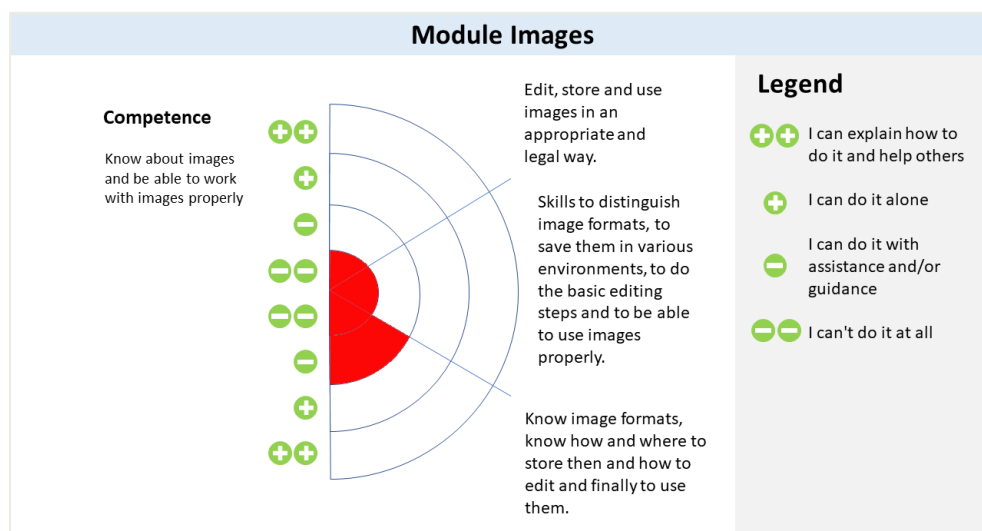
Module Images

Competence

Know about images and be able to work with images properly

Edit, store and use images in an appropriate and legal way.

Skills to distinguish image formats, to save them in various environments, to do the basic editing steps and to be able to use images properly.

Know image formats, know how and where to store then and how to edit and finally to use them.

Legend

I can explain how to do it and help others

I can do it alone

I can do it with assistance and/or guidance

I can't do it at all

Figure 4: The painted mandala before the course. (Source: Peter Mazohl)

Module Images

Competence

Know about images and be able to work with images properly

Edit, store and use images in an appropriate and legal way.

Skills to distinguish image formats, to save them in various environments, to do the basic editing steps and to be able to use images properly.

Know image formats, know how and where to store then and how to edit and finally to use them.

Legend

I can explain how to do it and help others

I can do it alone

I can do it with assistance and/or guidance

I can't do it at all

Figure 5: The painted mandala: after the course. (Source: Peter Mazohl)

Does and don'ts of the Self-evaluation Mandalas

Never use the mandala to evaluate course results. It is a personal self-assessment that has a motivating character. Deriving an actual, objective learning success from the mandala is inadequate or correct.

Normally, learners can keep the results of the mandalas private. However, there are situations in some groups that are close and where the mandalas are shared because the learners are happy about their special successes, which they want to communicate to others. The trainer can decide, depending on the group and the motivation, if sharing of mandalas is positive and if he/she should let it happen.

2.2. Mandala creation by trainers

For translation into other languages, or to adapt the mandala to specific needs, the Open Educational Resources (published in the frame of the IO 04 and available from the download page of the project) offers the original PowerPoint slide of the mandala to be edited.

The process to create the ready PNG file covers 3 steps:

- **Translation or adaptation of the text**

Figure 6: The Mandala structure ((source: Peter Mazohl, EFQBL)

- **Save the PowerPoint file**

  Save the PowerPoint file as you are used to doing.

- **Export the slide in the PNG format**

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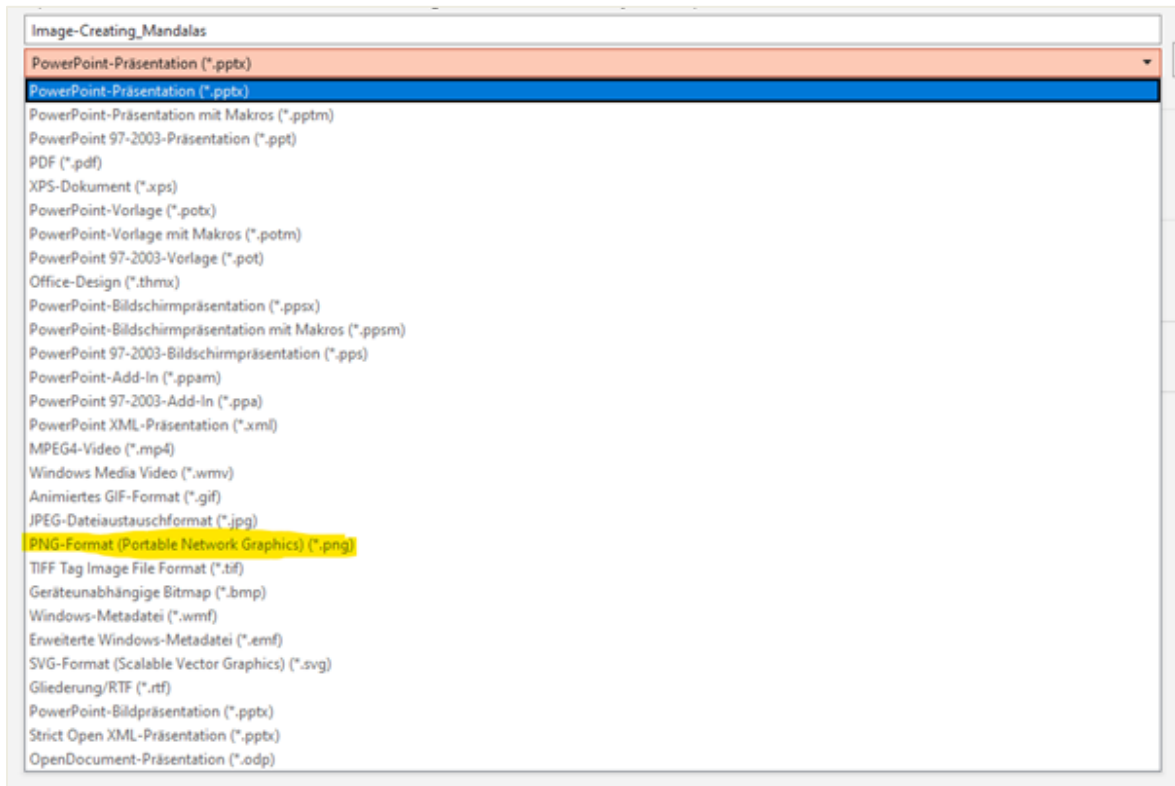
Figure 7: Selection of the export file format (source: EFQBL)

Now select the "save as" option and open the list of optional formats. Search for PNG-Format.
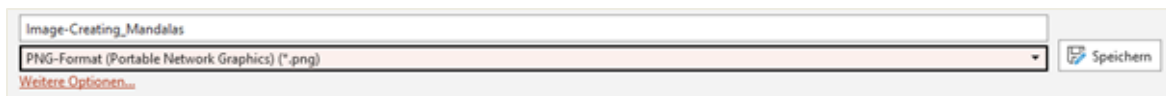
Figure 8: Selected format, ready for export (source: EFQBL)

In consequence, you get asked if you want to export all slides or only the currently selected.
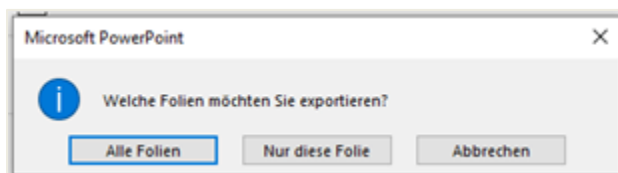
Figure 9: You decide to export a single png file (of the current slide) or all slides (in a subfolder, source: EFQBL)

Since you would like to create a single PNG file for the upload, select "This file only". You will find the ready PNG file in the same folder as the PowerPoint is available.
If you select "all slides" PowerPoint will create a subdirectory and save all slides as a single PNG-File.

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3. Production of multimedia and interactive training material

The DISK training model is based on two main elements:

- The contents (from the DISK Competence Map) and
- The use of interactive ICT tools for digital immigrants

In particular, the OER platform was implemented with different types of interactive learning solutions. The Moodle platform supports the adult learners' engagement through a three-party interaction, namely with the content, with the facilitator and with other participants. For the 15 training modules, one of the most versatile learning tools used was H5P, followed by Google presentation. Additionally, the eXe-Learning editor has been used to create self-evaluation parts or case studies. H5P allows the user to create, share and reuse rich interactive content on the web in the form of interactive presentations, interactive videos and images with hotspots, games and quizzes. All of these activities and resources were necessary to structure the content of the course which, as said, followed the principles of Flipped Learning 3.0, giving the learner an individual space for hands-on activities (learning by doing approach) in a collaborative learning environment.

3.1. H5P Course presentations

For every module, the DISK partners used H5P course presentation content type to create a slide-based format able to transfer knowledge through a balanced set of text, images, quiz and external resources (images, videos, articles, websites, etc.). The introduction to the topic was provided through an editable H5P timeline which sequenced the main sub-topics of the Module together, starting with the learning outcomes to be reached by the learners.
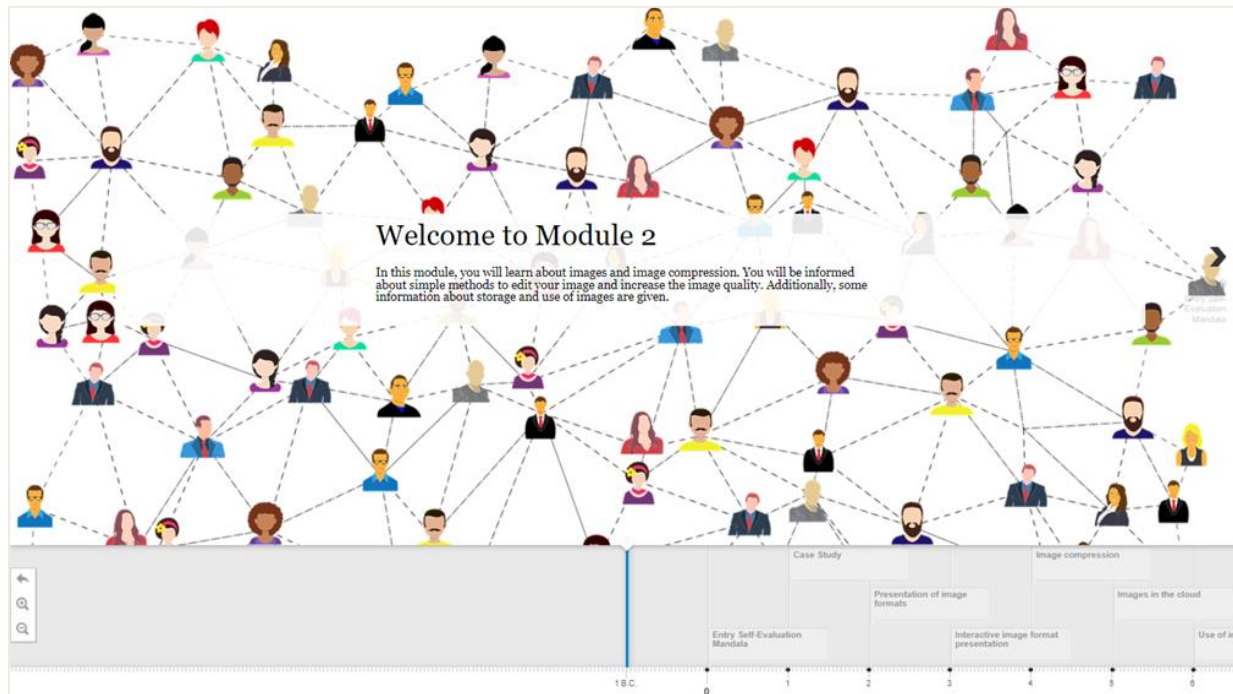
Figure 10: Screenshot from Module 2 - TImeline (Source: Training 2000)

Using the H5P course presentations, every partner chooses to provide knowledge in the most creative ways. This interactive tool allowed the partners to display the topic's content while providing basic knowledge and clear instructions for adults who are not familiar with ICT tools. Interactivity was provided through embedded videos designed to keep the learner's attention focused and testing his/her knowledge acquisition. This supported self-study and discovery.
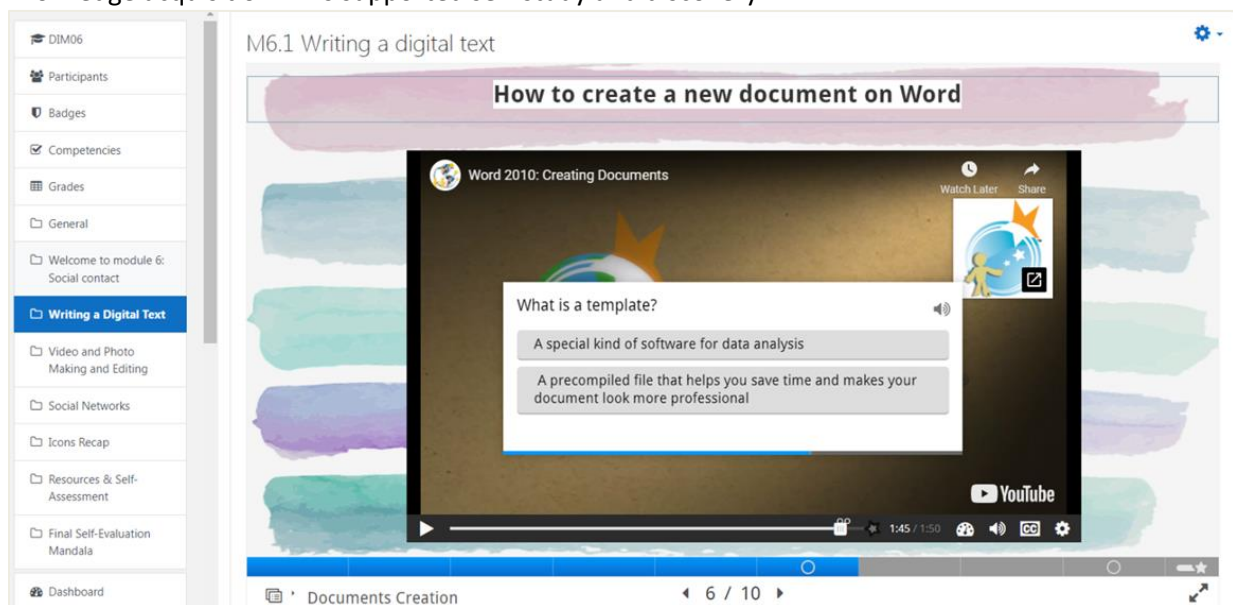
Figure 11: Screenshot from Module 6 – H5P presentation (Source: Training 2000)

3.2. Hyperlinks

were referred both to internal and external resources. In the first case, a glossary was created to support the learners' journey in the digital world, as in Module 6, 7, 8, 9, 11 and 15.
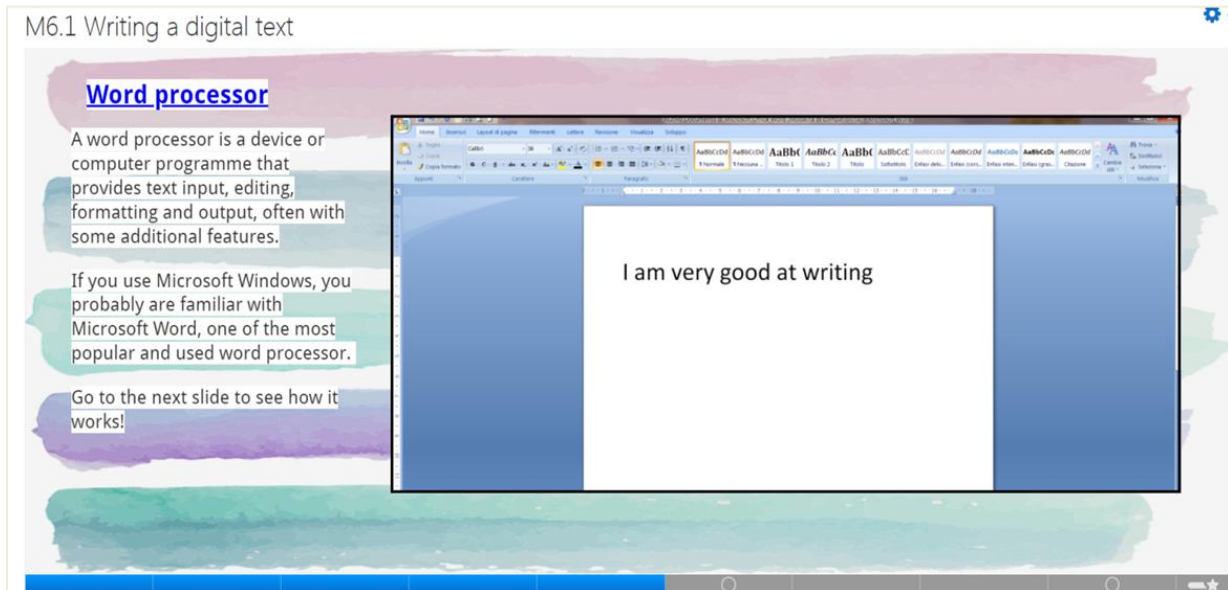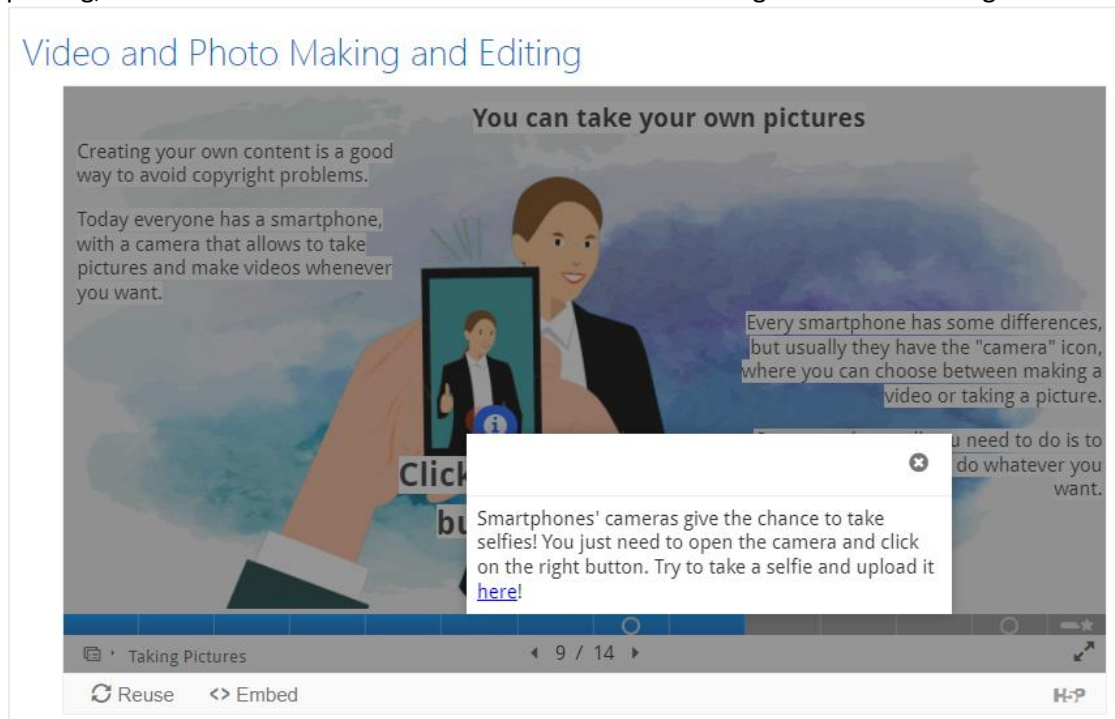

Figure 12: Screenshot from Module 6 – Link to the Module glossary (Source: Training 2000)
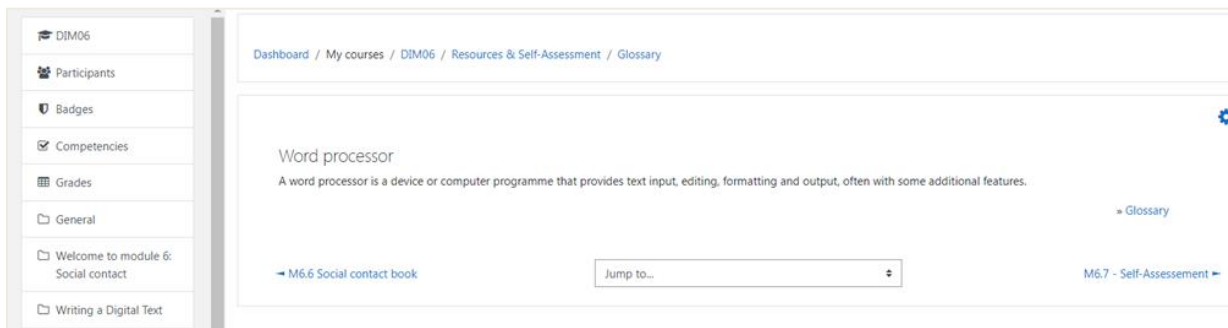
Figure 13: Screenshot from Module 6 – Link to the Module glossary (Source: Training 2000)

In the second case, external links were given to adult learners to discover more about a specific topic with other informational resources. In both cases, the partners decided to always open the links in a new tab in order to keep the learners' eyes on the main course page, making the surfing activity easier in an independent tab. The aim was not to mislead the digital immigrants while taking the course autonomously.
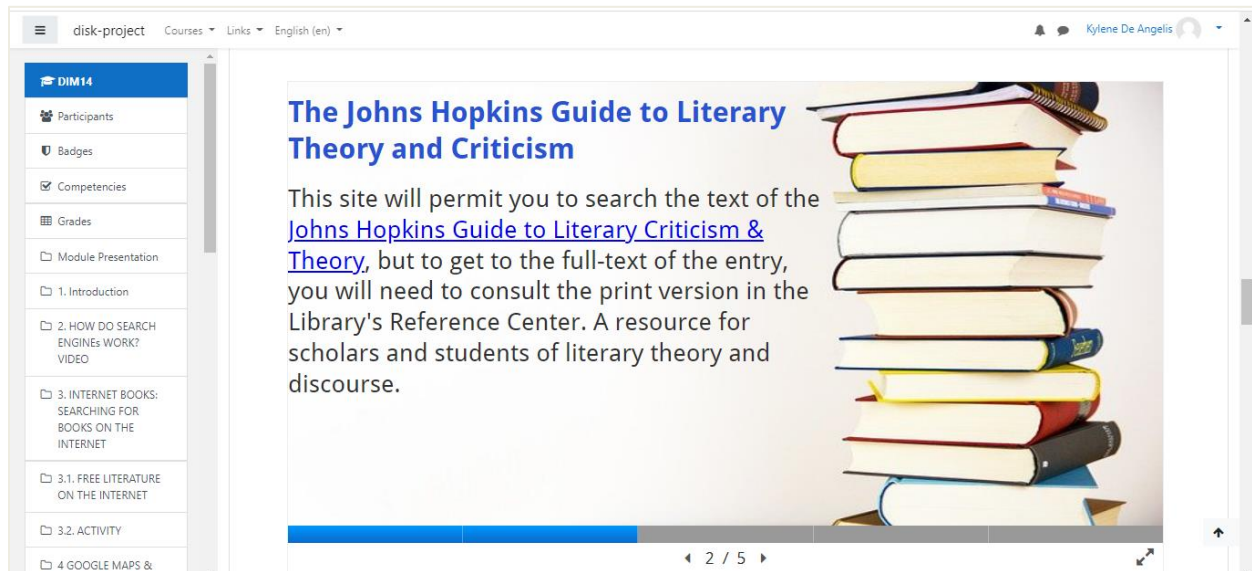
Figure 14: Screenshot from Module 14 – Link to a website (Source: EDRASE)

3.3. Different Moodle-based communication solutions

These special features address chat groups, forum, discussion topics; they were also linked in the H5P presentations with the aim of stimulating learners to share their experiences and ideas about the topics. This was essential for adult education, which is based on experiential learning.

Chat groups can be used for text-based, real-time synchronous discussions. These are particularly useful if more than one learner is online at the same time. On the other hand, **forums** allow for reflection before posting; teacher-student and student-student interactions are guaranteed all along the course.

Figure 15: Screenshot from Module 6 – Link to the discussion forum (Source: Training 2000)

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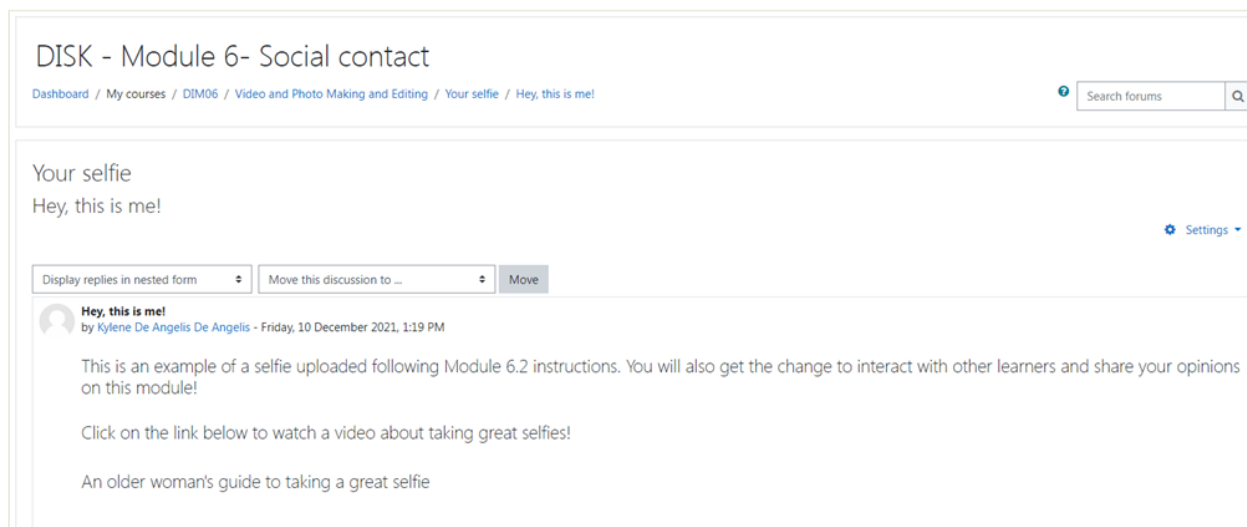
Figure 16: Screenshot from Module 6 – Link to the discussion forum (Source: Training 2000)

Moreover, **H5P embedded quizzes** gave immediate feedback to the course participants supporting an active, self-directed and self-paced learning process. The same goal was reached by the summaries at the end of the different topics, as for example in Module 8- Use booking, selling, and other platforms.
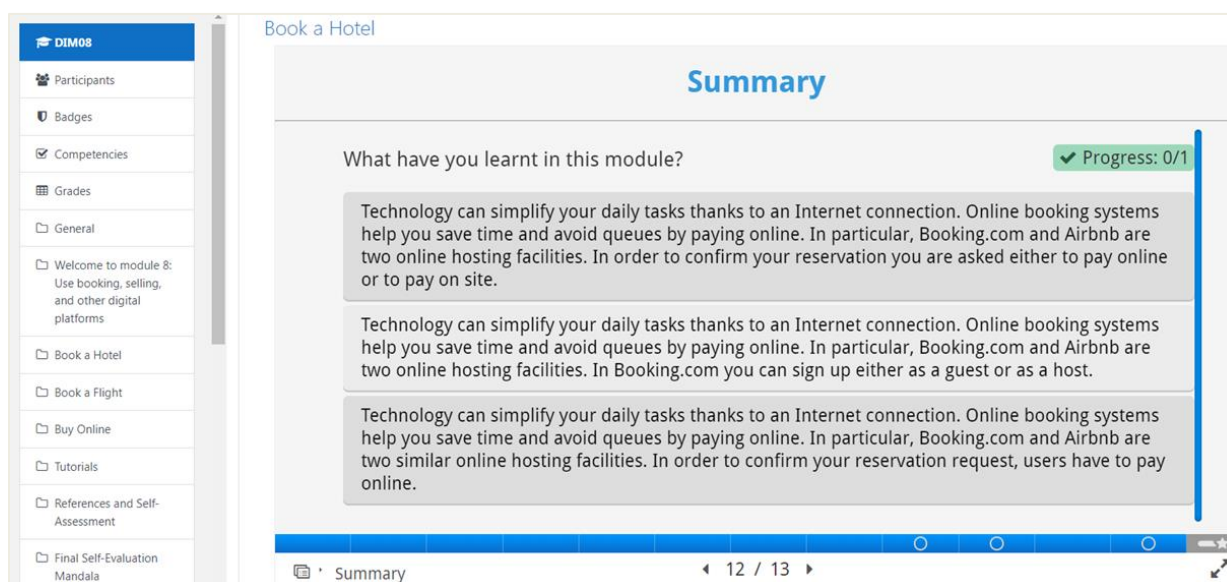
Figure 17: Screenshot from Module 8 – H5P presentation- Book a hotel (Source: Training 2000)

3.4. H5P Flashcards

This is another interactive solution that creates an intuitive content presentation paired with images, questions and answers. For the DISK course participants, this H5P solution was used to summarize the most common icons that every internet user can find while using ICT tools and surfing the internet. The following screenshot comes from Module 6.
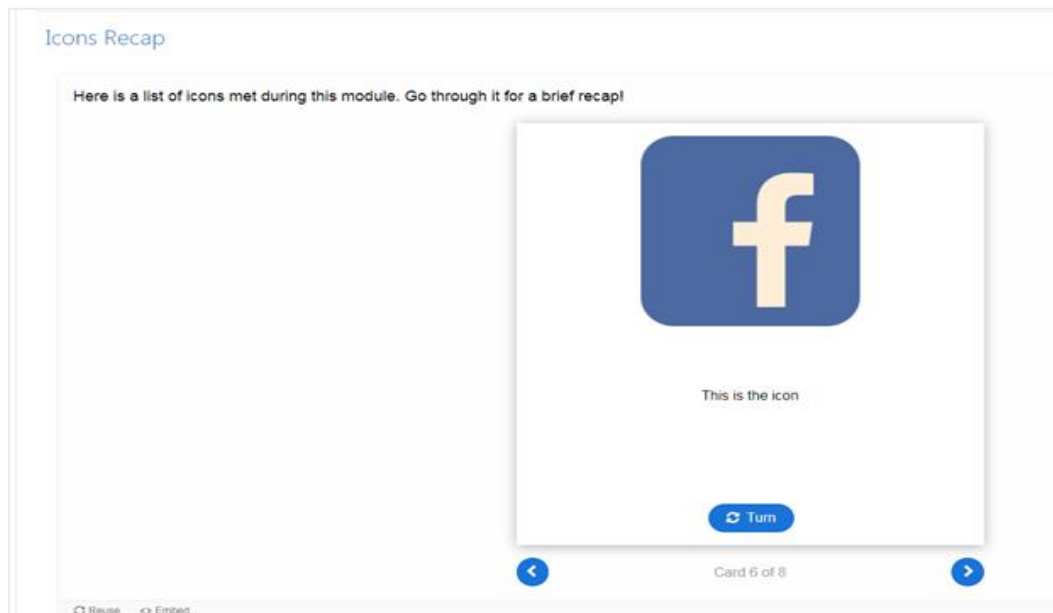
Figure 18; Screenshot from Module 6 – H5P flashcard- Icons Recap (Source: Training 2000)

3.5. H5P interactive videos

As previously seen, by using H5P interactive videos, DISK partners chose to embed different types of interactions in their videos. From an educational perspective, videos can help learners acquire new knowledge through a different cognitive strategy, namely using imagery and animation. Every partner can either choose videos available on YouTube, create their own by recording tutorials or using software for animations. In each case, the aim was creating more engaging videos with H5P by adding different types of questions and informational resources.

Video tutorials were an important tool for transferring knowledge and retaining it efficiently. In the modules, video tutorials were integrated with voice-overs (Module 2) and on-screen captions (Module 7, 8 and 11) thanks to H5P, offering a multidimensional experience to adult learners. Interactions may or may not pause the video when they appear, either as buttons or directly along the video.

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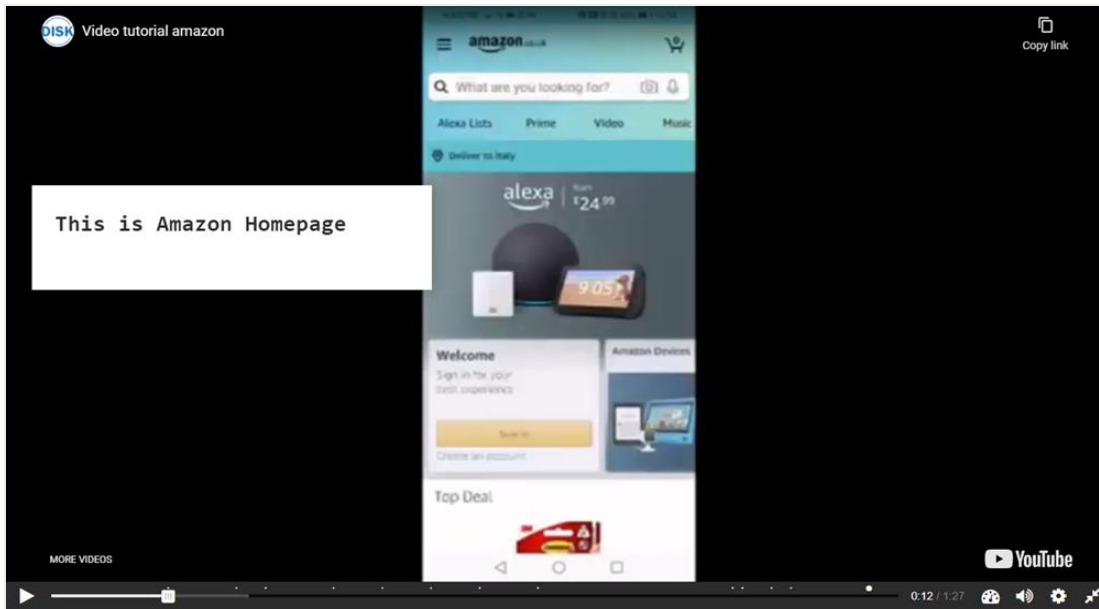
Figure 19: Screenshot from Module 8 – H5P interactive video – Amazon video tutorial (Source: Training 2000)

The H5P framework supports interactivity because learners can respond to prompts with their keyboards, mouse or smartphones to answer short quizzes or access extra learning sources. The summaries at the end of every H5P presentation are very useful to provide an overview of the topics presented and check the learners' improvements.
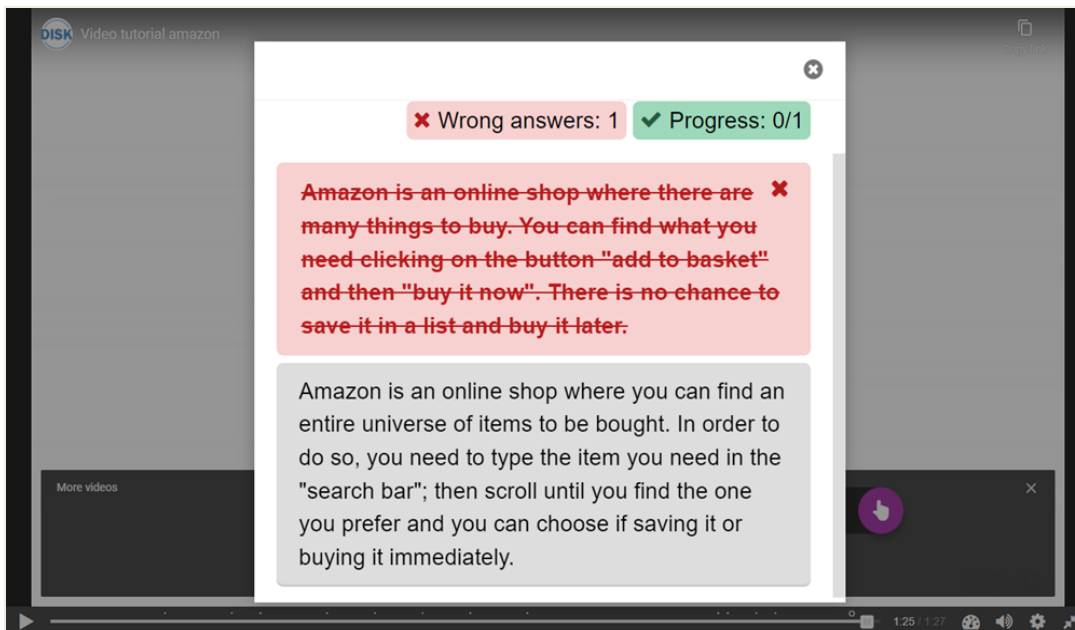
Figure 20: Screenshot from Module 8 – H5P interactive video – Amazon video tutorial (Source: Training 2000)

Educational animations can also be used to provide information to people of all ages in a clear, accessible, and informative way. This training methodology was used in Module 7- Digital communication and focused on an example of good verbal communication.
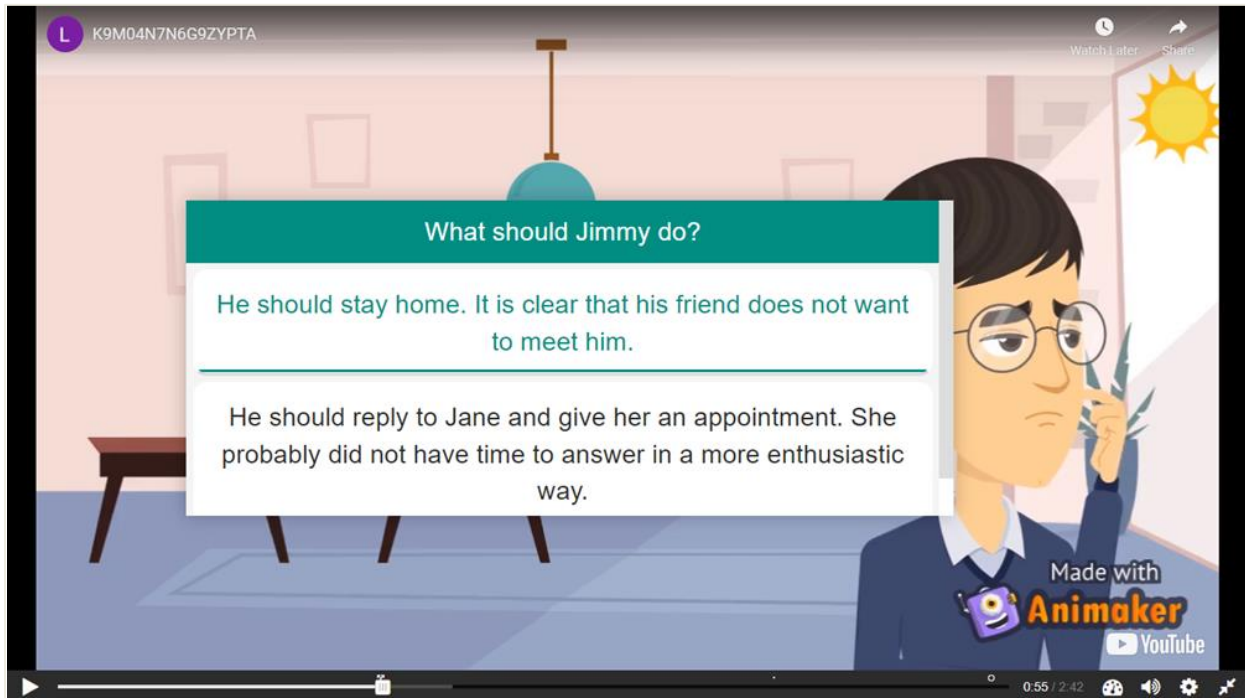
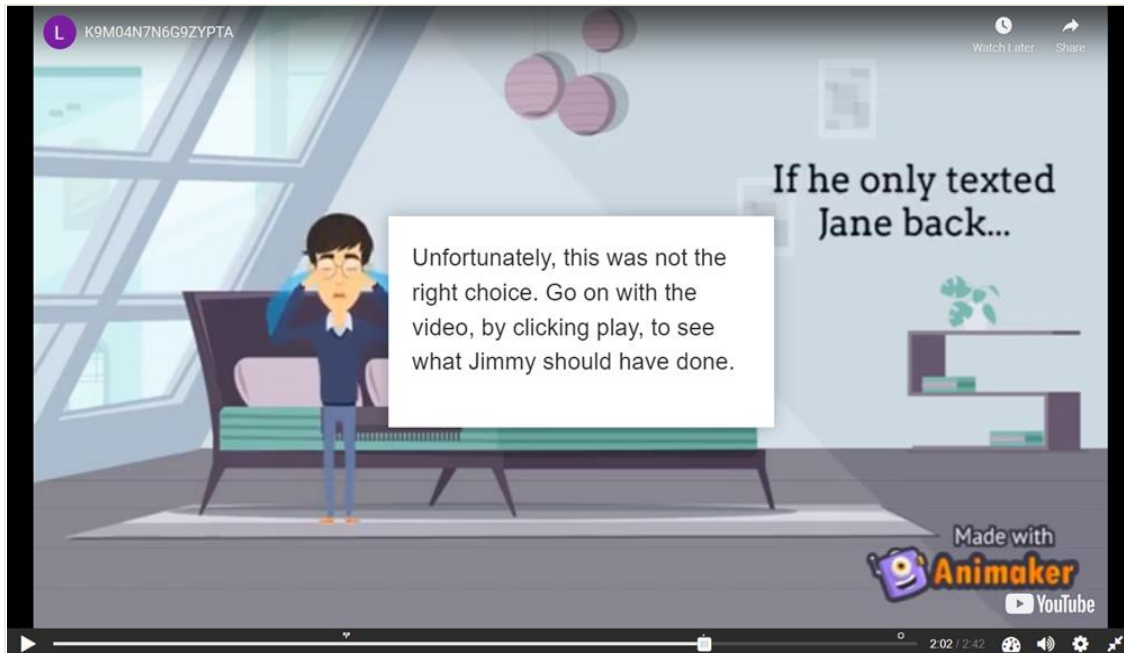*Figure 21: Screenshot from Module 7 – H5P interactive animated video- What's a good digital communication? (Source: Training 2000)*

Technically speaking, information is broken into chunks, as for micro-learning, which is easy to present and understand. In Module 7, an animation was provided by another online platform, namely Animaker[9] which offers basic editing options for free. It involved a story with characters interacting with each other to provide information. Thanks to the H5P Crossroad interaction tool, learners could choose between two options with two different endings, thus feeling more involved and in control of a self-paced learning process and able to revise everything promptly.

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[9] https://www.animaker.com/

Figure 22: Screenshot from Module 7 – H5P interactive animated video- What's a good digital communication? (Source: Training 2000)

3.6. H5P quiz content type

The H5P framework was used by the DISK partners for different self-evaluation activities, e.g., multichoice, drag and drop and fill in the blanks which were disseminated along all modules.
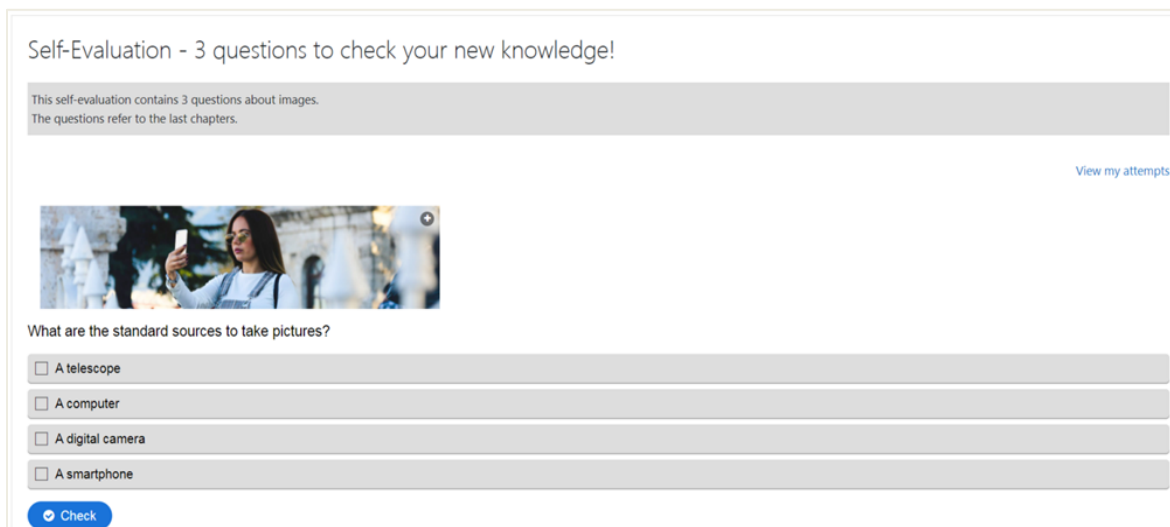

Figure 23: Screenshot from Module 3 – H5P question set (Source: Training 2000

Other platforms or software used for the creation of the multimedia material were:

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3.7. HTML presentations

This type of content has been created using the tool iSpring. The output is pure HTML5 code with CSS. The integration into Moodle was done using the file activity. The created web presentations are an alternative to the H5P or Google presentations.
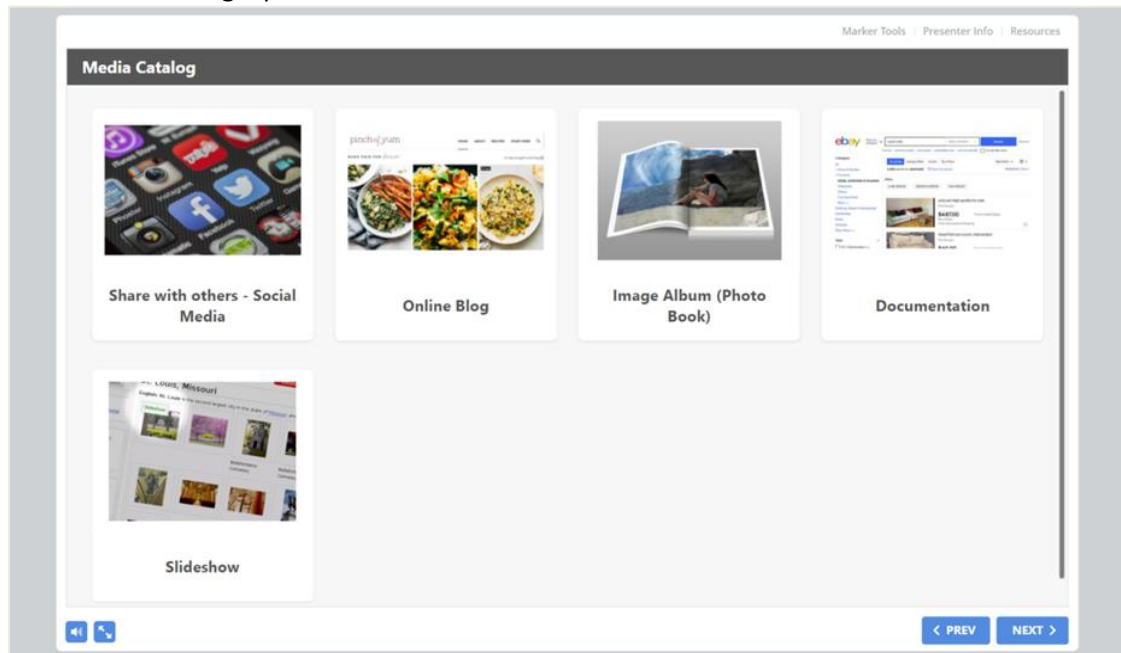
Figure 24: Screenshot from Module 2 –HTML interactive presentation (EFQBL)

Technical background

Web presentations were also used for building up training content. HTML5 is one of the three basic web technologies for structuring and presenting content on the World Wide Web. The tool iSpring enables users to easily create numerous contents. Unfortunately, the tool enables the conversion from PowerPoint presentations into HTML5 in the commercial version only.

3.8. Google Slides

This Google tool has the same features of any slideshow software but, unlike H5P, it   doesn't offer any embedded interactivity (besides adding external links). In the modules, Google Slides was used both to introduce learners to an activity (Module 4- Images for documentation of specific situations) and to present a new topic through a slideshow with a voice-over.
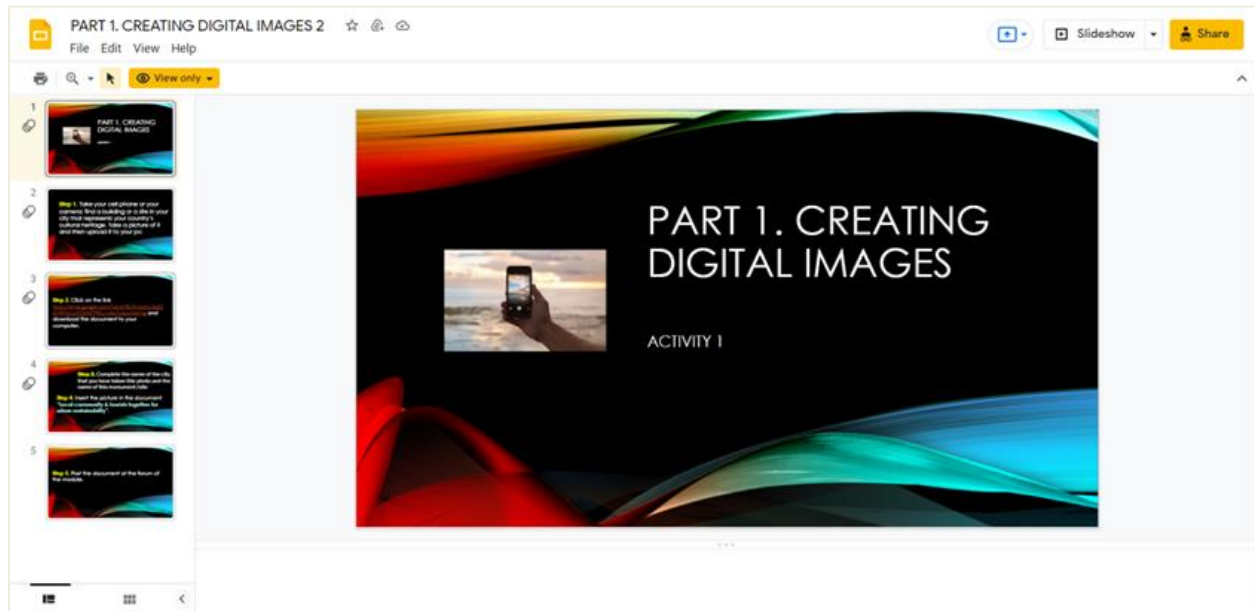
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Figure 25: Screenshot from Module 4 –Google presentation (EDRASE)

The following screenshot is taken from Module 14- Google search techniques. In this case, the focus was letting adult learners explore Google tools and related functionalities.

Figure 26: Screenshot from Module 14 –Google presentation (EDRASE)

3.9. eXe-Learning free software tool

eXe-Learning is a web-based authoring environment that was used in the DISK modules for both presenting new information and creating self-assessments. This hypertext medium is very intuitive and

allows the teaching/learning community to publish online learning content without becoming proficient in complicated web-publishing applications.

For example, in Module - Techniques for image creating, eXe-Learning was adapted to give an overview about the various digital devices which adults can use to take pictures or create them. In this case, the DISK partner in charge of the Module designed an outline that reflected a sequence of devices and software in a more essential but visually pleasing way in a new tab.
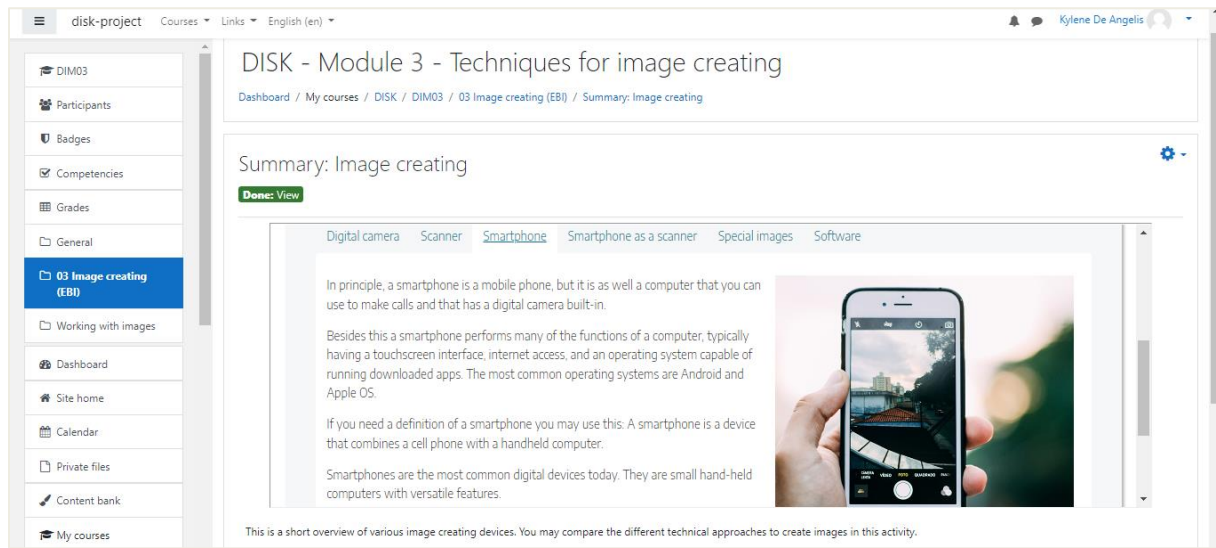
Figure 27: Screenshot from Module 3 – eXe-Learning embedded presentation (EFQBL)

Creating self-assessment activities with eXe-Learning was particularly useful for the project because it allowed partners to create an independent environment able to gather the grades of its users after finishing the test. This was particularly useful when designing quizzes that are supported by LMS like Moodle, which always requires a password.
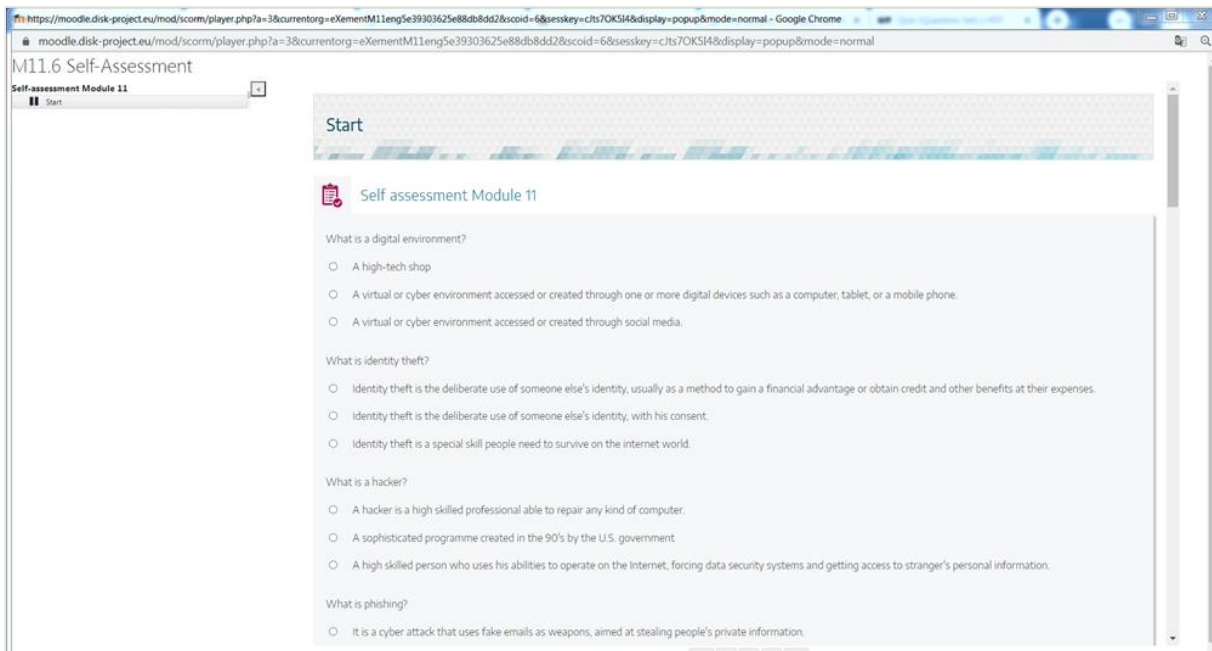
Figure 28: Screenshot from Module 11 – eXe-Learning embedded multiple choice (Source: Training 2000)

The Moodle platform represents one of the most advanced Learning Management System that can be used to provide an interactive learning experience through different software and H5P is one of them. Together with eXe-Learning and HTML, they are a valuable ally for the target group addressed by the DISK project because they offer interactive solutions able to enrich every learning process significantly.

The aforementioned tools were only a few examples of interactive solutions chosen by the partners to implement the course, but the main goal was supporting adult and senior learners in acquiring useful digital skills. Under the OER Creative Common license, the DISK course can assume different forms in the hands of trainers and learners searching for a digital competences' enhancement

4. Educational uses

This part of the guide cares about the pedagogical and andrological approach of the training courses.

4.1. Flipped Learning 3.0 Approach

Flipped Learning 3.0 describes a modern pedagogical approach of the original version of "Flipped Learning". It is a further developed methodology of Flipped Learning and is based on learner-centered and active learning. It offers more than simple pedagogical advice – it is a complete framework for teaching!

Further information about Flipped Learning in Adult Education is available from the "Flipped Adult Education" webpage. EDRASE was a partner in this Erasmus+ project (2018-1-AT01-KA204-039224). The Flipped Learning Guide (for Adult Education) is available here: https://www.fade-in.eu/web/the-projects-results/the-flipped-learning-guide/

Major cornerstones for Flipped Learning 3.0

The complete framework offers guidelines and recommendations for training and learning. Several issues are crucial and summarized below.

The 187 Global Elements of Effective Flipped Learning

Flipped Learning 3.0 currently uses the 187 Global Elements of Effective Flipped Learning. These elements are organized and structured in 12 sectors (the core items of effective Flipped Learning). Errol St. Claire Smith, the Director of Global Development in the Flipped Learning Global Initiative, created a 12-sectored wheel to visualize these core items.

These sectors are:

- Understanding Flipped Learning
- Communication and Culture
- Planning for Flipped Learning
- Individual Space Mastery
- Group Space Mastery
- Assessment
- K-12 Focus – non-relevant in Adult Education
- Learning Spaces
- IT Infrastructure
- Student Feedback
- Evidence and Research
- Professional Development

The sectors include the relevant elements. Jon Bergmann, one of the pioneers of Flipped Learning, teaches chemistry and science in American high schools. He visualized his approach to the elements as a kind of periodic table in which the sectors represent the groups and the elements are grouped together.
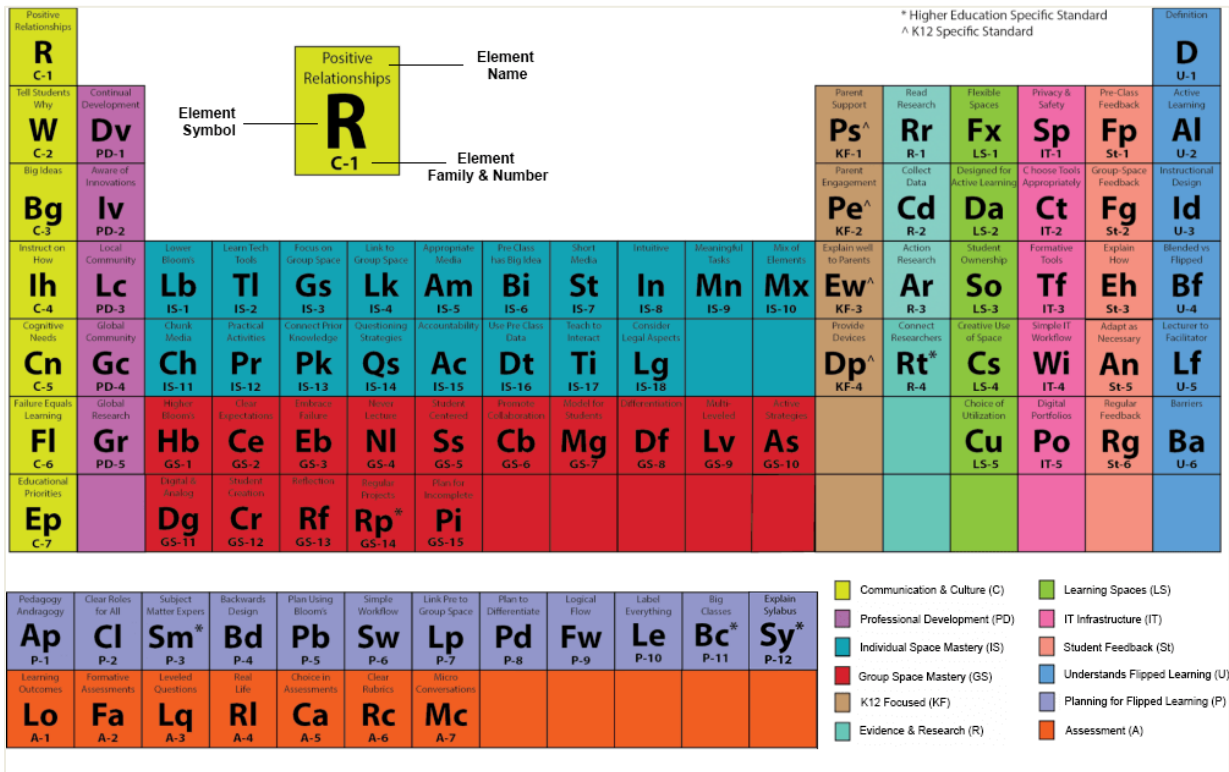
Figure 29: The common elements of the 187 Global Elements of Effective Flipped Learning 3.0 (© Flipped Learning Global, published in the frame of the cooperation agreement for the Fade Project).

Bloom's taxonomy

Bloom's taxonomy is well-known and at least 50 years old. Entering the early 2000 the taxonomy has been revised, restructured, and formulated as verbs (to express the "doing" as an activity and not the property). The revision was done by David Krathwohl[10].
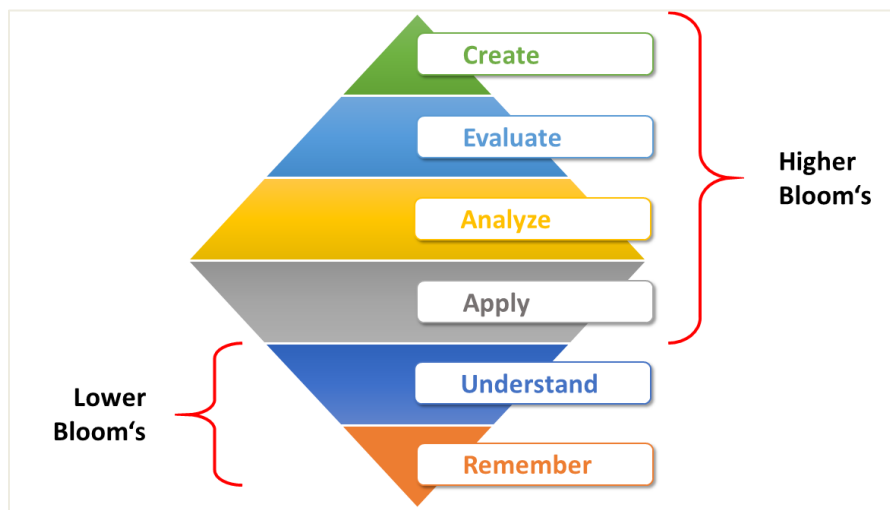

Figure 30: Bloom's Taxonomy (revised) adapted for Flipped Learning 3.0 (Source; FAdE Erasmus+ Project)

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[10] Krathwohl, D. R. (2002) A Revision of Bloom's Taxonomy. (PDF) in *Theory into Practice. V 41. #4. Autumn, 2002.* Ohio State University)

The taxonomy is used to explain which learning parts are implemented in the Individual Space and what comes to the Group Space. Individual Space focuses on Lower Bloom's while Group Space cares about content from Higher Bloom's. The general pedagogical approach is based on learner-centered learning and training, which means active learning.

Individual (Learning) Space

This is the place and the time, where and when the learner is alone. The assignments are in line with the "Lower Bloom's". These assignments focus on knowledge-based learning and the appropriate understanding. The learning process uses active learning assignments – often realized as multimedia-based and interactive learning content.

Group (Learning) Space

Learning of content related to the "Higher Bloom's" is done in the group learning space. The pedagogy is active learning in the "Group Space", if possible, implemented as group-based activities.

Active Learning

Active learning involves students doing things and thinking about the things they are doing. This is closely related to watching, listening, discussing, taking notes, reflecting, and other activities. Active learning can create personal connections to the material for learners (in context with higher motivation to learn), allows learners to practice essential skills (collaboration, self-esteem, self-paced learning, sense of community with peers and trainers), and finally leads to better learning outcomes.

This simplified synopsis of active learning should clarify why active learning plays such a significant role in Flipped Learning 3.0. The FAdE Project's guide summarizes numerous proven active learning approaches for Adult Education.

4.2. Flipped Classroom versus Flipped Learning 3.0

The two terms "Flipped Classroom" and "Flipped Learning" are often mixed up and seen as the same item. But this is not true – especially if you care about "Flipped Learning 3.0".

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Flipped Classroom	Flipped Learning 3.0
If you search on the Internet, you will find many similar descriptions of flipped classrooms. They focus mainly on three issues: ● Teachers prepare video files that learners can view at home. ● Learners can view the content as often as they want at their own pace. ● In-depth and expanded engagement with the content can take place during classroom instruction. The flipped classroom is a simple pedagogical approach to learning and training. There is some impact to Flipped Learning 3.0. Nevertheless, these two things must not be confused because they are two entirely different items.	Flipped Learning – as it is developed by Jon Bergman and Errol Smith (and currently promoted by the flipped learning network) – describes the pedagogical approach as follows: "Flipped Learning is a pedagogical approach in which direct instruction moves from the group learning space to the individual learning space, and the resulting group space is transformed into a dynamic, interactive learning environment where the educator guides students as they apply concepts and engage creatively in the subject matter." **Source**: https://flippedlearning.org/definition-of-flipped-learning/ This definition makes it necessary to follow the term "group learning space" and to care about the term **dynamic**, **interactive learning** environment" and to care about the technics of active learning. Other criteria to identify Flipped Learning are the "Four Pillars" (a description that makes it easy to understand the approach to Flipped Learning). These pillars are: 1. Flexible Environment 2. Learning Culture 3. Intentional Content 4. Professional Educators

5. Lesson learnt from the piloting experience

This section includes the feedback received by adult learners and/ or adult trainers who voluntarily joined the pilot phase of the DISK online training course. The evaluation questionnaire aimed at asking trainees different questions on the training material, interactive content and self-evaluation elements (mandalas, quizzes).

5.1. External feedback from trainers

[A]. **Technical instructions of learners**

It is significant to provide careful and thorough instructions to the learners on how to use Moodle. A short on-site Moodle training session worked sufficiently.
For Blended-Online Trainings (as implemented by EDRASE), or when distance education is the format, this training must be done using a video conferencing tool (like Zoom or Google Meet). This approach also was appreciated by the learners.

Comment: With older learners (65+ generation), or others with low digital communication literacy, you must expect greater difficulties and challenges that can compromise their smooth participation. Having some trainer present in some moments at least to facilitate learning how to interact with the courses and the platforms is crucial.

[B]. **Support of learners**

In case there is a Blended online training course, learners need to have an introductory tutorial about the teleconferencing tool. This may include:

- A tool manual or a video with instructions how to handle this tool.
- An online introductory test meeting where the use of this tool is explained, and examples of its functions are tested.
- During the previously mentioned introductory meeting, a tutorial lesson can be performed on the use of the Moodle platform. It is the best opportunity for the trainees to ask questions, get immediate answers and practice some Moodle platform functions. Also, other trainees might come across with questions they hadn't imagined before and find their solution.
- Another benefit from the introductory meeting is the feeling of group, the bonding between the people who will be involved together. This creates a climate of cooperation between the trainees that will then help in communication and interaction between them. It will also enhance the discussion on the course forum, whenever it is needed.

5.2. Feedbacks from learners

The DISK training course was evaluated by adult learners and seniors from different backgrounds. The feedback received from the testing groups across the project partners' countries was generally good. The material is considered to be useful and consistent with the needs expressed by digital migrants and the development of ICT competences for daily activities.
Specific feedback was also collected and implemented in the training modules available.

5.3. Dos and don'ts from the trainers/ teachers

The course concept of all modules uses Blended Learning as the delivery model. The course modules use the two Flipped Learning Spaces (Individual and Group Learning Space). This approach requires a certain course pressure, which should not be changed in individual details. Here are some warnings and suggestions:

- Do not forget to care for well-done instructions of the learners dealing with the use of the learning platform.
- Do not shift training content from the Distance Learning to the on-site training. You mix the two crucial learning spaces, and this dilutes the course concept.
- If you want to shift content, you should restructure the complete course module. You still may use the learning content from the Distance Learning Platform, but you have to care for an entirely new instructional design.
- Do not add simply some content without deeper going considerations!
  If you add content, please check the relevance and integrate the content carefully into the course module. Do not forget to adapt the self-evaluations by adding relevant questions.

5.4. Recommendations of trainers to use the material

Here are some recommendations to use the provided material.

- The course modules are based on flipped learning. The Moodle course offers the material for the Individual space. For the on-site training, you have to define well-structured, practically oriented assignments based on active learning (hands-on training). This open frame enables you to create tailored activities that fit best to the group of learners.

- Explain exactly how the course is implemented. This issue addresses specifically the individual space. Follow the Flipped Learning 3.0 element "Clear Expectations": Learners (and trainers) must have clear expectations. This covers mainly the learning or training outcomes. Besides this, it is necessary to clear the procedures of the training from the beginning, who has which responsibility, what must be done, how long the response time in each case is, and all the other organizational issues.

- Care for sufficient support for the learners. The number of supplying people during the on-site training depends directly on the age of the learners, directly on the number, indirectly on the pre knowledge.

- Especially in groups with older participants, you may mix analogue and digital approaches in the on-site training. Technology enhanced learning or training is a modern way of teaching, much appreciated by the learners nowadays. Nevertheless, technology is not the last word of wisdom. Analogue methods, like handwriting or creating some scribbles with paper and pencil, are of the same importance in active learning like the creation of a digital mind map. **Hint**: Analogue methods can be used by groups, as a way to implement collaborative learning as well. Further information is available from the FAdE Blog.

6. Transfer potential of the DISK training course

This chapter gives some recommendations and offers specific considerations for the transfer of the developed trainings to other fields of education as well as to other structured or age-based groups.

6.1. Transfer to other training environments

EDRASE worked on their pilot courses with "Blended-Online Training". The approach is similar to the use of Blended Learning (as a delivery method). The on-site training is replaced by video conferencing.

6.2. Transfer to different groups of Adult Learners

In the frame of the project, pilots also have been implemented addressing different groups of adults.

65+ Generation

This group consists of people who have recently retired and have worked with computers in their last years of professional life and have gained some experience from it. The other group recruits from people that on average have lower levels of digital competencies and also lack experience in handling a laptop or a tablet.

In these inhomogeneous groups, trainers have to differentiate the assignments to the group and also provide differentiated support to the learners in on-site training. In any case, the pre-training to master the learning platform is necessary. During these instructions, basic knowledge to handle the electronic device may be given.

Intergenerational Learning

The project team considered transgenerational trainings. A pilot with younger adults (between 20 and 30 years old) mixed with Adults between 45 and 75 years. The pilot was evaluated positively. The preconditions for such trainings are

- Trainers experienced with intergenerational learning
- A well-structured group
- Open learning situations that enable building groups and allow collaborative work (The COVID-19 situation with physical distance and wearing masks makes such trainings more or less impossible).

6.3. People with migration background

Integration of people from foreign countries is a challenge. Besides the different culture and language learning, the experience of learning how to be a European citizen is in the foreground.
Digital competencies may be an issue for some members of this group of adults. Provide the modules in languages that they are familiar with is essential as well as working with the migrant groups to understand which modules can be of use and which contents may be changed or adapted to better fit the needs of the groups.

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6.4. Transfer to School Education

All the content that has been offered in the individual modules is suitable for school lessons and represents a practice-oriented extension of learning digital skills. While the curriculum focuses on traditional digital competencies in most European countries, like word processing or the use of spreadsheets and presentation software, the course modules offer a "practical approach to everyday life use of digital competencies". A typical example is the topic "Digital Signature". Extremely useful in daily life, this issue is not taught in most European countries in schools.

Integration into School Education

The consortium recommends using a Flipped Learning 3.0 approach to integrate the taught topics into the standard learning process. The individual learning space can be implemented using the content from the Moodle learning platform while in on-site lessons group-based practical work stands in the foreground.

This approach reduces on one hand the needed lessons in school but enables practical work of the pupils and students on the other hand.

6.5. Transfer to Higher Education

The work of the consortium in this DISK ERASMUS + project is also relevant to higher education students. The modules offered and the content within the modules are relevant and appropriate, especially for self-study and personal learning, for students to acquire competencies (knowledge, skills and attitudes) and to practice others that may be central to learning in a digital time and society.

Even though not all modules may be equally useful in higher education settings where most students are not digital immigrants, they can become a relevant support for students who belong to specific higher education public such as older students that come to university after years away from formal education settings, for migrant students who may benefit from specific information regarding national and institutional bureaucracy, for example, or to further explore issues that are of general social concern, and often overlooked in many educational settings such as privacy, digital security, content rights, searching and filtering information, etc.

Besides the content, it is particularly interesting and relevant to learn about the use of Mandela, Flipped Learning and DigComp 2.2. The tools used, such as H5P, eXe-Learning, are also very useful: it is well described how to use the tools and how to work with them.

It is more likely that the modules are intended for self-study and building schools' own capacity but could also be used as modules/OER in courses to design e-learning modules or to use and apply different media, tools and innovations.

Appendix

List of figures