



**Strategic Partnership  
for adult education**  
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## **INFORMATION MANAGEMENT THROUGH ICT TOOLS**

**Short Term Joint Staff Meeting Online**

**presented by  
KREATEAM**

## **1. INFORMATION MANAGEMENT THROUGH ICT TOOLS**

### **1.1. INTRODUCTION**

The basic meaning of information is simply facts about a person, event, situation etc. Simple definition of communication is simply the act of transferring information from one place, person or group to another. In other way, communication means exchanging information by speaking, writing or using some other medium.

Nowadays technology is one of the primary medium to manage information and communicate with others. It is not just trending in people's everyday life, but technology has an important role in education and business. Therefore, digital skills have become essential in today's life. In this learning unit we concentrate on digital skills necessary for managing information and communication through technology.

This learning unit's theoretical approach consists of 2 sub-units: managing information and communication. These sub-units explore the main issues of concern with adult learners nowadays. In these sub-units there are different and simple exercises in order to enshrine the basic digital skills necessary for managing information and communication through technology.

### **1.2. THEORETICAL APPROACH TO LEARNING UNIT**

#### **1.2.1. Managing information through technology**

When we speak about how to manage information through technology, there are few topics that need to be considered. Such as, digital footprint – what is it and how to control it; different search engines; figuring out what information is credible and trustworthy; referencing and plagiarism.

Digital footprint is a trail of data you create while using the Internet. That means that it trails all your activity – websites you visit, emails you send and information you submit to online services. Whether or not your information is shared intentionally, it's being gathered by advertisers, employers and companies from which you shop. This information is called your digital footprint—and it's becoming more important than ever in today's digital economy. While there's no official definition of the term "digital economy," it can be summed up as the entire ecosystem built from our online connectivity.

In this newfound era, your digital footprint can no longer be ignored. The more you spend time on social networking websites, the larger your digital footprint will be. Even "liking" a page or a Facebook post adds to your digital footprint, since the data is saved on Facebook's servers.

If you want to track down your digital footprint, the first thing you should do is Google yourself.

**Exercise 1**

Go to [www.google.com](http://www.google.com) and search yourself. Search your name with quotation marks around it. For example, "John Smith". Searching for your name in quotation marks ensures that the search engine will search for that phrase, not picked apart. After that, add in your state/city to narrow things down. Then go to [www.bing.com](http://www.bing.com) or <https://duckduckgo.com> and do the same research.

*In your search:*

- *If you don't want some information up, you can contact the site admin (use the "contact us" link) and ask for the information to be taken down.*
- *If you come across old social media accounts you no longer use – log into these accounts and request for their deletion.*

While you can often delete content from social media sites, once digital data has been shared online, there is no guarantee you will ever be able to remove it from the Internet. In addition, you can probably find everything online by the help of search engines. A search engine is a web-based tool that enables users to locate information on the World Wide Web.

Popular examples of search engines are Google, Bing, Yahoo etc. Search engines utilize automated software applications that travel along the Web, following links from page to page, site to site.

The information gathered, is used to create a searchable index of the Web. Every search engine uses different complex mathematical formulas to generate search results. In order to speed up your Internet, there are some tips and tricks for that.

**Exercise 2**

*Go to a google.com and search free training opportunities for yourself in your region. For that use:*

- *Use quotes to locate a specific phrase. For example, "free training in Tallinn" ●*
- *If necessary, then include stop words, such as "and", "or" etc.*

Google is not your only option for search engine. Less profit-motivated search engines like DuckDuckGo.com and Bing may take a little getting used to, but they can sometimes make clearer efforts to protect users' browsing privacy. Data privacy concerns are on the rise. Facebook has received a lot of heat recently, causing many individuals to start questioning their own privacy. This area is one that DuckDuckGo really shines. In fact, the way DuckDuckGo handles data is what set this search engine apart from the beginning.

According to DuckDuckGo, it never stores your personal information or search history. It doesn't follow you with ads or track you across the Internet. DuckDuckGo's mantra is simple, "no tracking, no ad targeting, just searching."

If you search information from the Internet, then you have to be careful as not all written sources are reliable, no matter how sound their arguments may appear to be. As you read from the e-learning module, there are several issues that needs to be considered, in order to evaluate the reliability of a writing or a website. Such as:

- Is the information updated?
- Is it related directly to the topic it discusses?
- Does it provide sources for supporting ideas?
- Are these sources reliable?
- Is the purpose of the information to inform, to persuade, to sell or even to entertain?
- Has the information been written and published recently?
- Does a date of publication appear?
- Who is responsible for the information?

It is up to you to determine the bias and the source of what you read. Website owners can print anything they want, true or not, without a worrying about the consequences. For example, many Web pages are published anonymously by individuals. Are the views of individuals as reliable as those of experts from universities or from the government which cite sources?

As a reader, you must be careful about what you consult as a reliable source of information. That a source is in print or posted on the Web does not automatically make it trustworthy. You can always find information on any source. As a critical reader, you deserve the best, the most current, and the most reliable. Be sure to screen what you find to make sure that it is reliable.

**Exercise 3**

*Check the credentials of these websites:*

- <https://worldnewsdailyreport.com/>
- <https://www.thebureauinvestigates.com/>
- <http://newspunch.com>
- <https://www.apnews.com/>

*Which of these websites are credible and trustworthy? Which of them are not?*

Academically, there are many cases of students who find themselves accused of plagiarising, but often it has happened unintentionally. Sometimes it is difficult for people to understand that all the information, pictures, videos found online, is still somebody's work and it needs to be referenced to. Just because it is up in the Internet and easily accessible, it does not mean that you can take it freely. By referring to the works of established authorities and experts in your subject area, you can add weight to your comments and arguments. This helps to demonstrate that you have read widely and considered and analysed the writings of others. Remember, good referencing can help you attain a better grade or mark (often between five and ten percent of the total). Most importantly, good referencing is essential to avoid any possible accusation of plagiarism.

**Exercise 4**

*Write a short paragraph about your thoughts about learning and education. Use one of these quotations in your text correctly:*

- *“An investment in knowledge pays the best interest.” Benjamin Franklin*
- *“Education is the key to success in life and teachers make a lasting impact in the lives of their students.” Solomon Ortiz*
- *“Education is the most powerful weapon which you can use to change the world.” Nelson Mandela*

**1.2.2. Communication through technology**

Communication means exchanging information by speaking, writing or using some other medium. For example, communicating through technology and the Internet. For better understanding about communication through technology it is important to regard these subjects: online communication, social network sites and interacting with technology.

People prefer more and more online communication than traditional forms, because it has many advantages, such as like flexibility to communicate with each other across the world. There are different types of online communication: emails, chats and chat rooms, forums, instant messaging, VoIP, video or audio conferences and blogs.

Since online communication is documented, it can be stored for later reference and has been known to be of importance especially related to legal aspects. Online communication saves a lot of time as well since the people involved can perfectly carry it on while doing other things as compared to a verbal communication where both parties have to be present.

**Exercise 5**

*Make groups of 3-4 persons and do a group chat using at least two forms of communication (emails, chats and chat rooms, forums, instant messaging, VoIP, video or audio conferences and blogs). After the chat, analyse as a group which are the positive and negative sides of these ways of communication.*

Social networking sites are online platforms, where people build social networks or social relationship with other people who share similar interests, activities, backgrounds etc. Social networking sites allow users to share ideas, digital photos and videos, posts, and to inform others about online or realworld activities and events with people in their network.

While in-person social networking, like a gathering in a village market to talk about events, has existed since the earliest development of town. The Web enables people to connect with others who live in different locations, ranging from across a city to across the world. Depending on the social media platform, members may be able to contact any other member. In other cases, members can contact anyone they have a connection to, and subsequently anyone that contact has a connection to, and so on.

There is a possibility to categorize social-network services into four types:

- socializing social network services used primarily for socializing with existing friends (e.g., Facebook)
- online social networks are decentralized and distributed computer networks where users communicate with each other through internet services.
- networking social network services used primarily for non-social interpersonal communication (e.g., LinkedIn, a career- and employment-oriented site)
- social navigation social network services used primarily for helping users to find specific information or resources (e.g., Goodreads for books)

***Exercise 6.***

*Select one social network site (one in the list in e-learning module) and add your own ideas in Like and Dislike categories.*

The world's most popular social networking sites certainly have changed over the years, and they'll undoubtedly continue to change as time moves forward. Old social networks will die, popular ones will stick around and evolve. There are made new social network cites every other day. Trendsetters for social network cites are young people and usually older people follow.

**Exercise 7.**

*Use search engines to find out, what social network website is gaining their popularity right now and answer these questions:*

- *What is the purpose of this website?*
- *How many people (approximately) use it?*
- *Would you use it? Why?*

Since the first desktop computers began reporting widespread sales in the early 1990s, personal communication has changed. We no longer interact with each other, or the outside world, in the same way. Technology is a game-changer, no doubt. It has spurred ground-breaking developments in areas like research, healthcare and education.

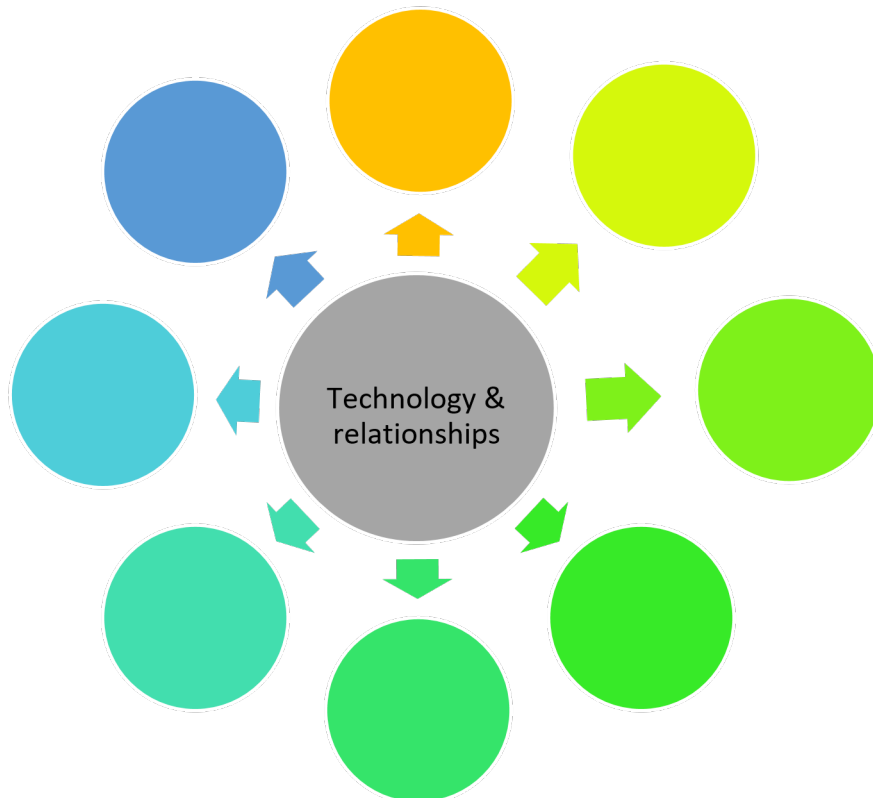
Sociologists analyse how different technologies have seismically impacted the way we relate to our jobs, our friends, even our families, how technology continues to affect various cultures, and social organizations, including the ways that people have learned to modify advancements to suit their own purposes.

Technology has changed the way single people meet, with the advent of dating apps that allow for intense scrutiny and quick decisions based solely on the information and photos another party provides about themselves. Even rejection no longer has the same emotional impact, when an online algorithm can show you 50 or more possible compatible matches living less than 10 miles away. In many cases, people now choose to communicate almost exclusively through technology to avoid dealing with the reality of meeting in person.



**Exercise 8.**

*Make a mind map about technology and relationships. Think about what positive and negative sides there are when you think about technology and relationships, think about how to improve it.*



In conclusion, to keep your career, educational prospects and personal life from becoming another social media site casualty, you should be very aware what you share online. The classic piece of advice on online posting is *“not to share anything you wouldn’t want your grandmother to see”*. More than that, though, you should consider what you want a potential employer or college admissions officer to glean about you from your online presence. Before sharing anything online ask yourself if the contents or comments contain any sensitive information and if it is necessary to share this information. Make your online presence work for you, not against you.

### 1.3. SELF-ASSESSMENT

Each participant will complete a personal SWOT analysis of their knowledge of managing information and communication through technology. What are your Strengths, Weaknesses, Opportunities and Threats based on your personal experiences and knowledge?

Complete the table below:

	STRENGTHS	WEAKNESSES
I N T E R N A L		
	OPPORTUNITIES	THREATS

E X T E R N A L		
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#### **1.4. LEARNING OUTCOMES**

After accomplishing this learning unit, the trainee is expected to be able to:

- ✓ Understand what a digital footprint is and how to manage it;
- ✓ Use basic skills and knowledge on how to use search engines;
- ✓ Apply techniques to assess information's and websites credibility and trustworthiness;
- ✓ Follow essential rules in order to avoid plagiarism;
- ✓ Understand different types of communication and use them;
- ✓ Analyse social network sites;
- ✓ Understand how interacting with technology affects relationships.

## **2. BASIC MAINTENANCE ON THE COMPUTER AND OTHER DEVICES. PHYSICAL AND DIGITAL IDENTITIES. DIGITAL IDENTITY MANAGEMENT AND CONTROL. RISKS ON THE INTERNET. PRIVACY SETTINGS. PROBLEM-SOLVING.**

### **2.1. INTRODUCTION**

Whether it is through growing use of smartphones, social media, e-commerce or other means, we are all putting our personal information on internet more and more. We are living in a time of unprecedented connectivity, and it is easy to forget that there are dangers out there, on the internet, on social media, in the apps we use every day.

As the internet evolves, it is becoming ever more interconnected sometimes in ways we don't know or think of. In the push to make things easier online, sometimes we make things more dangerous. More and more websites use your email address as your username to sign-in, making it a lot easier for hackers to gain access. They only need to guess your password, because they know your username is your email address. So what if someone gets access for example to your Facebook account? Many websites now offer a "sign-in with Facebook" option. With access to your Facebook profile, someone could also access all sorts of other services.

This learning unit will approach the subject from internet security to basic maintenance on the computer and other devices. Along this learning unit we will introduce basic concepts of online security, privacy settings and digital identity.

### **2.2. THEORETICAL APPROACH TO LEARNING UNIT**

#### **2.2.1. Basic maintenance on the computer and other devices**

Computer and other devices maintenance are the practice of keeping them in a good state of repair, both physically and non-physical. Any abnormality in the integrated components of your computer or devices can become harmful to its performance. However, there are some common computer issues that can be addressed at personal level. There are a lot of effective procedures for computer repair and maintenance that should be applied to prevent and even fix them for good.

There are two different types of maintenance, the physical maintenance, the part of the computer we can touch, referred as Hardware maintenance (*e.g.* monitor, mouse) and the non-physical maintenance called Software maintenance (*e.g.* *Windows 10, iOS 13*).

#### **2.2.1.1. Hardware maintenance**

Deals with repairing and replacing broken and failing hardware. Computer hardware is generally reliable, and most computer problems are related to software issues. However, hardware can become damaged over time, and hardware maintenance is necessary for keeping all kind of devices up and running.

Keeping computers away from dust and dirt, keeping them clean and avoiding extreme temperature changes all help to maintain hardware. You can minimize dust accumulation by keeping your computer elevated from the floor, especially away from pets and cigarette smoke. Keep liquids away from the computer. From *time-to-time* change the battery of your device and don't use solvents to clean a computer or a smartphone; rather, you should wipe the monitor and keyboard regularly with a soft cloth.

#### **2.2.1.2. Software maintenance**

Software maintenance sustains the software product throughout its life cycle. Maintenance must be performed in order to correct faults, implement enhancements, interface with other software, adapt programs so that different hardware, software, system features, and telecommunications facilities can be used, and most important, keep the software running sharp and without major problems. When it comes to basic maintenance, there are several things you can do to ensure that your computer is performing at its optimal level, like, running operating system updates at least once a week, allow your system to shut down completely, run virus and malware scans regularly and perform regular backups of personal files.

There are several other procedures to maintain your device at its optimal performance that you can do by yourself, but if you don't feel comfortable to go deeper on the subject you should contact a professional on this field, otherwise you can damage your equipment/device.

### **Exercise 1**

Identify and compare the two types of the computer maintenance using at least 3 examples.

### **Exercise 2**

What are the differences between Hardware and for Software and explain how to do the Software maintenance?

#### **2.2.2. Physical and digital identities**

What's the difference between physical identity and digital identity?

Before the rise of digital, your ID was a physical document. It was a card or a piece of paper that we physically carried. ID verification was carried out face to face, and still is in some circumstances.

Physical identity checks can involve using infrared lights to assess security features on documents, feeling the texture, and checking the photo isn't stuck on. But now more than ever, we're living in a digital society and we need to verify identities remotely. This often means using a 2D image of an original document. You might also have to manage this on a global scale, and on top of this, much of our personal information will be stored online.

In a world where the rise in the use of the Internet is increasing exponentially, the ability to prove your identity is crucial for the economic, financial and social development. Individuals and companies need identity solutions valid across different services, markets, standards and technologies.

Identity is defined in different ways and contexts over the years. Whether physical or digital in nature, identity is a collection of individual information or attributes that describe an entity and is used to determine the transactions in which the entity can rightfully participate.

Identities can be assigned to three main kinds of entities:

- **Individuals**: the entity we most associate with identity;
- **Legal entities**: like corporations, partnerships, and trusts;
- **Assets**: which can be tangible, e.g., cars, buildings, smartphones; or intangible, e.g., patents, software, data sets

The identity for each of these entities is based on all its individual attributes, which fall into three main categories:

- **Inherent:** “Attributes that are intrinsic to an entity and are not defined by relationships to external entities.” Inherent attributes for individuals include age, height, date of birth, and fingerprints; for a legal entity it includes business status (e.g., C Corporation, S Corporation)
- **Accumulated:** “Attributes that are gathered or developed over time. These attributes may change multiple times or evolve throughout an entity’s lifespan.” For individuals these include health records, job history, Facebook friends lists, and sports preferences.
- **Assigned:** “Attributes that are attached to the entity, but are not related to its intrinsic nature. These attributes can change and generally are reflective of relationships that the entity holds with other bodies.” For individuals these include e-mail address, login IDs and passwords, telephone number, social security ID, and passport number.

	For individuals	For legal entities	For assets
<b>INHERENT ATTRIBUTES</b> Attributes that are intrinsic to an entity and are not defined by relationship to external entities	<ul style="list-style-type: none"> <li>• Age</li> <li>• Height</li> <li>• Date of birth</li> <li>• Fingerprints</li> </ul>	<ul style="list-style-type: none"> <li>• Industry</li> <li>• Business status</li> </ul>	<ul style="list-style-type: none"> <li>• Nature of the asset</li> <li>• Asset issuer</li> </ul>
<b>ACCUMULATED ATTRIBUTES</b> Attributes that are gathered or developed over time. These attributes may change multiple times or evolve throughout an entity’s lifespan	<ul style="list-style-type: none"> <li>• Health records</li> <li>• Preferences and behaviours (e.g., telephone metadata)</li> </ul>	<ul style="list-style-type: none"> <li>• Business record</li> <li>• Legal record</li> </ul>	<ul style="list-style-type: none"> <li>• Ownership history</li> <li>• Transaction history</li> </ul>
<b>ASSIGNED ATTRIBUTES</b> Attributes that are attached to the entity, but are not related to its intrinsic nature. These attributes can change and generally are reflective of relationships that entity holds with other bodies	<ul style="list-style-type: none"> <li>• National identifier number</li> <li>• Telephone number</li> <li>• Email address</li> </ul>	<ul style="list-style-type: none"> <li>• Identifying numbers</li> <li>• Legal jurisdiction</li> <li>• Directors</li> </ul>	<ul style="list-style-type: none"> <li>• Identifying numbers</li> <li>• Custodianship</li> </ul>

Source: World Economic Forum (2016)

These attributes enable entities to participate in transactions, by proving that they have the specific attributes required for that particular transaction. For example, to buy alcohol, individuals must prove that they’re over the legal drinking age; to vote, they must prove that they’re over the legal voting age, are citizens, and reside in that jurisdiction.

Most of us probably think about identity as reflected in our passport or driver’s license. In fact, there are four facets of identity that have different components and “value” when considering individual identity: my physical attributes (e.g., DNA, biometrics), my legal representation (e.g., passport, driver’s license), my electronic presence (e.g., email, social media) and my behavioural components (e.g., places visited, spending patterns).

### **Exercise 3**

Identify the difference between physical identity and digital identity. What are the main concepts related with digital identity?

#### **2.2.3. Digital identity management and control**

The management of digital identity enables trusted remote interactions between an organisation and an individual. Managing the digital identity lifecycle generally involves several processes:

- 1) In order to be known by the system, the individual must first register with it and the conditions related to his/her identity or identity attributes must be checked so he/she can be provided with a set of credentials; this is the so-called **registration** or **enrolment process**.
- 2) Appropriate permissions and privileges to access the organisation's resources must be assigned to the individual, a process often called **authorization**.
- 3) To access resources, the individual makes an identity claim that can be verified: he/she logs into the system with the credentials provided during the registration process. This authentication process establishes confidence in the user's identity.
- 4) The result of the authentication process is used in a process called **access control**, whereby the system checks that the individual has the appropriate authorisation to access the resource.
- 5) When the individual is not associated anymore with the system, a revocation process must take place whereby his/her credentials are rescinded.

Therefore, we can conclude that the management of digital identity is the discipline provide the means and that enables the right individuals to access the right resources at the right times for the right reasons.

### **Exercise 4**

What are the main processes related with the digital identity? Identify them.



#### **2.2.4. Risks on the internet**

We are living in an era of digital treats, every day we use internet, for personal use and professional, as more of our lives and business is conducted online, the risk of having our information compromised or used against us increases proportionately. From hackers and extortionists to identity thieves and child predators, the internet is a haven for criminals of many kinds. Likewise, the dangers they pose come in many forms: financial, social, psychological, professional and so on.

Strengthening online security doesn't mean lowering your risk to zero, but you can reduce the largest potential issues. Below is some recommendation to strengthening our online security.

- **Change social media settings**

Posting photos on Facebook while out of town may seem harmless, but it's a big sign that your house or your family is alone while you are away. Make sure you change your privacy settings so that not everyone can see your posts. Ideally, restrict it so only your friends or direct connections can see. Even better, don't post those photos until you return from the trip.

- **Use a VPN**

VPN stands for "virtual private network," which is just a fancy way of saying "protect my profile when I'm online." With free wi-fi in coffee shops, hotels and airports, more and more hackers are using simple "man in the middle" attacks to trick people into logging onto their fake networks. From there, it's easy for them to steal your information.

- **Smart password practices**

Online passwords should never be "password," "abc123," "admin" or anything easily guessed. If you use one password for all your online services, should a hacker breach one of your accounts, he could easily take down all of your accounts. That means your email, online bank accounts. Minimize this risk by using different passwords for different services and changing them, at least, every six months.

- **Use secured websites**

Web browsers such as Google Chrome will show a green icon in the URL address bar whenever you are on a website that is secured. Another indicator of security is if the website address starts with "https" vs "http." That little addition of the "s" means the site you are on is secured

and safe to use. If you are shopping online or doing anything that requires you to provide sensitive data, make sure the website address starts with https.

- **Bypass phishing attacks**

Scammers often will use emails that look like legitimate companies in the hopes of tricking you into clicking on links and providing them your password, social security number and more. These are called “*phishing*” attacks. The best way to avoid this is to simply bypass the email and go directly to the website by opening a browser. For example, if a bank sent you an email, don’t click on the link in the email. Instead, open a web browser and go to the bank’s website directly.

## **2.2.5. Privacy Settings**

### **2.2.5.1. Online Tracking**

Almost every major website you visit tracks your online activity. Tracking technology can follow you from site to site, track and compile your activity, and compile all of this into a database. Generally, tracking uses a numerical identifier, rather than your real name. This information is used to personalize the content that you see online. Almost every major website you visit tracks your online activity.

Despite all this, there are some ways to avoid being exposed that much, restricting some information given. Almost all browsers give you some control over how much information is revealed, kept and stored. Generally, you can change the settings to restrict cookies and enhance your privacy. Most major browsers now offer a “*Private Browsing*” tool to increase your privacy. However, researchers have found that “Private Browsing” may fail to purge all traces of online activity.

Most browsers also provide a *Do Not Track* (DNT) setting. DNT is a way to keep your online activity from being followed across the Internet by advertisers, analytics companies and social media sites. When you turn on the DNT setting in your browser, your browser sends a special header to websites requesting that don’t want your activity tracked. Unfortunately, honouring the DNT setting is voluntary. Individual websites are not required to respect it. While a few websites will honour DNT, the majority of the websites will ignore your preference.

Some of the tools that are used to track you online are cookies, flash cookies, and fingerprinting. Below will be a quick explanation of each one.

## **Cookies**

When we visit different websites, many of the sites deposit data about our visit, called "cookies," on our hard drive. Cookies are pieces of information sent by a web server to a user's browser.

For example, if you use the internet to complete the registration card for a product, such as a computer or television, you generally provide your name and address, which then may be stored in a cookie. Legitimate websites use cookies to make special offers to returning users and to track the results of their advertising. These cookies are called *first-party cookies*. However, there are some cookies, called *third-party cookies*, which communicate data about you to an advertising clearinghouse which in turn shares that data with other online marketers. These third-party cookies include "tracking cookies" which use your online history to deliver other ads. Your browser and some software products enable you to detect and delete cookies, including third-party cookies.

Good news is that there is browser's extension's, like Disconnect, that stops major third parties from tracking the webpages you go to. Every time you visit a site, Disconnect automatically detects when your browser tries to make a connection to anything other than the site you are visiting.

## **Flash Cookies**

Many websites utilize a type of cookie called a "*flash cookie*" (sometimes also called a "supercookie") that is more persistent than a regular cookie. Normal procedures for erasing standard cookies, clearing history, erasing the cache, or choosing a delete private data option within the browser will not affect flash cookies. Flash cookies thus may persist despite user efforts to delete all cookies. They cannot be deleted by any commercially available anti-spyware or adware removal program.

## **Fingerprinting**

A device fingerprint (or machine fingerprint) is a summary of the software and hardware settings collected from a computer or other device. Each device has a different clock setting, fonts, software and other characteristics that make it unique. When we go online, our device broadcasts these details, which can be collected and pieced together to form a unique "fingerprint" for that particular device. That fingerprint can then be assigned an identifying number, and used for similar purposes as a cookie. Fingerprinting is rapidly replacing cookies as a means of tracking.

Unlike cookies and flash cookies, fingerprints leave no evidence on a user's computer. Therefore, it is impossible for you to know when you are being tracked by fingerprinting.

### **Exercise 6**

This example of exercise is for Chrome browser:

1. On your computer, open your browser
2. At the top right, click the dots and then select Settings
3. At the bottom, click Advanced.
4. Under "*Privacy and security*," click Site settings.
5. Click Cookies and then See all cookies and site data and then Remove all.
6. Confirm by clicking Clear all.

#### **2.2.5.2. Mobile Apps**

If we use a smartphone or other mobile device to access the Internet, chances are that we may be using mobile applications (apps) rather than an Internet browser for many online activities. An app is a program we can download and access directly using our mobile device. There are hundreds of thousands of apps available, including numerous free or low-priced choices. Unfortunately, apps can collect all sorts of data and transmit it to the app-maker and/or third-party advertisers. This data may then be shared or sold.

Some of the data points that an app may access from your smartphone or mobile device include:

- your phone and email contacts; ○ call logs; ○ internet data; ○ calendar data;
- data about the device's location; ○ the device's unique IDs; ○ information about how you use the app itself.

Smartphones and other mobile devices may ask you for specific permissions when you install an app. Read these and think about what the app is asking for permission to access. Ask yourself, "Is this app requesting access to only the data it needs to function?" If the answer is no, don't download it. Learn where to go on your particular phone to determine what you will allow the app to access, and if you are at all suspicious do more research on the app before you download.

## Low-tech tips to protect your privacy online

1. Don't post identifying details on public sites (such as tagging photos online)



2. Use search engines that don't track or store personal info (like DuckDuckGo)

3. Turn location services off on your phone when not needed



4. Organize against surveillance

5. Place a sticker over your computer's camera to prevent a hacker from taking pictures of you



6. Don't use cloud backup, Google Calendar or Webmail



7. Configure your browser to delete cookies

Source: Data and Goliath, The Hidden Battles to Collect Your Data and Control Your World by Bruce Schneier

### Exercise 7

Go to the list of apps by opening the Settings screen and tapping Apps. From the list of all your installed apps, tap the gear icon in the top-right corner of the screen and tap "App permissions."> You'll see a list of different categories of permissions along with the number of apps installed that have access to that permission. Categories include Body Sensors, Calendar, Camera, Contacts, Location, Microphone, Phone, SMS, Storage, and some "additional permissions."> Open the categories and check if there is any app with suspicious permissions.

### 2.2.6. Problem-Solving

Problem-solving is a mental process that involves discovering, analysing and solving problems. The ultimate goal of problem-solving is to overcome obstacles and find a solution that best resolves the issue. The best strategy for solving a problem depends largely on the unique situation. In some cases, people are better off learning everything they can about the issue and then using factual knowledge to come up with a solution.

Like us, the computers have the same basis of problem solving. A computer, at heart, is not intelligent. It can only really know about a few things... numbers, characters, booleans, and lists (called arrays) of these items. Everything else must be "approximated" by combinations of these data types. A good programmer will "encode" all the "facts" necessary to represent a problem in variables.

Further, there are "good ways" and "bad ways" to encode information. Good ways allow the computer to easily "compute" new information.

In Computer Science we can define Problem Solving as the sequential process of analysing information related to a given situation and generating appropriate response options.



There are 6 steps in Computer Science that you should follow in order to solve a problem:

1. Understand the Problem
2. Formulate a Model
3. Develop an Algorithm
4. Write the Program
5. Test the Program
6. Evaluate the Solution

### **Exercise 8**

Gather a small team and choose a problematic topic, after having the topic, discuss in group about it and follow every steps of problem solving.

## **2.3. SELF-ASSESSMENT**

Each participant will complete the following questionnaire, in order to measure the level of their knowledge, skills and competences related to Digital Skill's, Digital Identity, Internet Risks and Privacy.

1 - Are you able to distinguish hardware and software?

Yes ☐ No ☐

2 - Can you describe the concept of Physical identity and digital identity?

Yes ☐ No ☐

3 - Do you understand the process of the digital identity management and control?

Yes ☐ No ☐

4 - Do you know the difference between http and https?

Yes ☐ No ☐

5 - Do you know how to configure your privacy settings?

Yes ☐ No ☐

6 - Can you identify and use the steps of the problem solving?

Yes ☐ No ☐



## **2.4. LEARNING OUTCOMES**

After accomplishing this learning unit, the trainee is expected to be able to:

- ✓ Knowing the difference between Hardware and Software;
- ✓ Maintaining the good health of your computer;
- ✓ Understanding the concept of Online Safety;
- ✓ Being aware of the dangers online and protect your digital identity;
- ✓ Understand the differences between physical and digital identities

## **3. CREATING AND SHARING ONLINE DOCUMENTS AND PRESENTATIONS. ADVANCED PRESENTATION TOOLS, ONLINE VERSIONS OF INTERACTIVE GAMES AND WEBSITES.**

### **3.1. INTRODUCTION**

We live in a digital world and technologies are a big part of our daily and professional life. Digital skills became important for a variety of jobs but digital literacy remains low, especially among adult. The presented module tackles essential topics such as digital environment, digital communication, digital literacy, and digital competences. Digital literacy includes operational skills; Information skills, Strategic skills, Digital culture and identity.

It is quite important to empower adult workers and learners and volunteers to fully exploit all the potentials of digital education and digital skills, and giving the possibility to NGOs to count on volunteers/adult ICT experts, is increasingly important for organizations digital work. Both can benefit by acquiring new key skills necessary to find economic and professional integration.

The handbook has two units and is giving practical directions on how to use certain digital tools to create online documents and presentations, practical self-assessment tools on how to evaluate your personal level of knowledge, skills and competences before and after. The handbook also gives simple exercises to ensure the basic skills necessary for creating presentations and online documents.



### **3.2. THEORETICAL APPROACH TO LEARNING UNIT**

We focus on defining the meaning of digital skills and literacy. Nowadays it became so important as we can observe digital crisis-most of the jobs today require certain level of digital skills thus big percentage of adult learners are lacking them. The fast pace of technological change and the ubiquity of digital technologies in all aspects of work and life places new demands on everyone. For many years universities have been using group tasks to help students develop interpersonal and organisational skills that are invaluable for life, irrespective of which career path they choose. Today, the use of digital tools for sharing resources and collaborating online is an important part of that.

Which tools work for you will depend on the nature of the task and personal preference. Apps and services evolve and change over time. However, adults learners have access to unprecedented amounts of information online and need to move beyond consumption to more critical, organised and productive use of digital materials, tools and platforms. Knowing how to search effectively online and evaluate digital resources are crucial skills for study and for life. Thus, the module is giving many tips and tricks but also require some searching to boost your critical skills. For example when creating a presentation you do not only need the tool itself, but also require research on the content. The first step in preparing your presentation is gathering your ideas and materials. It is likely that at least some of your research will be done online and there are many tools for collecting digital content, thus you will need some critical thinking. So digital skills also combine some soft skills as well. Sometimes presentations are not individual but collaborative work which also requires using of other tools and skills. If your presentation is to be a collaborative effort, then as well as sharing resources with one of the above tools you may want to divide work between the group and keep track of progress. Several online task management tools allow you to allocate work to individuals and keep track of who has done what, such as Trello that is well described in the module.

Another quite essential element of the module is work management digital tools-nowadays they are quite common in various fields of work thus are quite essential for adult learner's realization in labour market. Work management software is a relatively new type of digital tool that is still being confused with project management software. Some don't notice any difference between them, others regard project management tools as just another type of work management software. To handle work in general, you commonly need all of the essential features mentioned above. Work management software helps you tackle both your project and non-project duties at the same time. It offers more

flexibility, allowing you as a manager and your team members to handle both project and non-project activities through your own workflows. A work management tool reunites all the functionalities you need to execute and monitor your work from start to finish and keep your resources, costs, and time frames balanced.

### **3.2.1. Creating online documents**

Creating online documents is one of adult people favourite solutions and generally for most users. The reasons we like it are because it's free, easy to access, supports collaborative editing, can open other document files, and may be accessed from many devices. Nowadays it's already very easy to work on common document, project, idea, etc... from distance. You don't have to be sitting anymore to each other and working on one device or take all notes in paper and then transferring it to the online tools. As the world in the digital era is growing and growing rapidly.

#### ***Exercise 1***

Gather small team and choose a project/ topic/ idea that you would like to work on. Set up a scale for the content and then type in Google - Google docs which will lead you to the page in which you will be able to create the document. Than share this document with the other team members and give them full rights (to be able to edit) through the advanced options of sharing the document. Then add the scale and start working on the content together.

### **3.2.2. Sharing online documents**

Back in 2001-2005, if you tried to share large file, you had couple options:

- 1) Use file-sharing service
- 2) Copy the file to a disc and hand or mail it to the recipient which seem to be not so practical but for the time was the only option. Today, as far as file sharing goes, we have nearly endless opportunities with several tools - Dropbox, Box, Google Drive, Microsoft, One Drive and much more - these are among the services that enable you to share big files easily as well as store them in the cloud and have access across multiple devices and collaborate on them with colleagues.

### ***Exercise 2***

Create several video interviews or take photos during the day with your team or colleagues. Then download the files to your device and let's upload and share it. Open any of the tools described above and log in if required with your email -> create a folder and slide the files from your device to the uploading box / browse it through the search button on the tool on to your device. As a last step click on share button and send it to as much recipients using their email.

### **3.2.3. Tools for team work and assigning tasks**

There are a lot of collaboration tools that organizes your projects into boards. Imagine a white board, filled with lists of sticky notes, with each note as a task for you and your team. Now imagine that each of those sticky notes has photos, attachments from other data sources like BitBucket or Salesforce, documents, and a place to comment and collaborate with your teammates. Now imagine that you can take that whiteboard anywhere you go on your smartphone, and can access it from any computer through the web. That would make team management as well as keeping deadlines and getting in touch for educational or working purposes. With the following exercise we will present and teach you how to do it.

### ***Exercise 3***

Open any of the platforms/tools that are presented in the part of digital tools for team work, management and assigning tasks in the learning module. Sign up with your email and create a Board (name the board as you like- your project, institution, personal, etc...). Then Invite your adult learners, educators, friends, colleagues or people you will be working with through the INVITE button. Then start creating tasks by adding different "notes" in the form of cards -> include full description in the card on what is the aim, objectives, activities -> assign deadline and reminder frequency, which will allow you and your team members to get reminders -> assign the relevant people you invited already to the specific card you created. Then keep on working and using the tool.

### **3.2.4. Online presentation tools**

The prevalence of PowerPoint has made presentations all too routine. It can be hard to get and hold your audience's attention with mundane slides full of bullet points. It may be an effective tool in some scenarios, but there are many other presentation solutions out there that can help you engage with your audience and communicate key ideas.

With the following two exercises we would like to present you both - traditional tools such as PowerPoint, Google Slides and Keynote can all be used to create presentations, as well as If you're looking to shake things up and connect with your audience in a fun and engaging way, it may be time to try one of the other digital solutions.

#### ***Exercise 4***

Log in through your email to Google Slides. Click on add new/create new and complete presentation on topic you like by starting with front page including image -> add several other slides with information in form of a text or with bullet points. Then once you complete it present it to your audience.

#### ***Exercise 5***

Here we will present you a little interactive way to create your presentation and be able to access it anywhere just you will need Wi-Fi connection or you can even download it and store it to your device or USB stick. Create an account and log it to Prezi which is quite interactive platform. Then from the menu you will be able either to choose converting PowerPoint presentation or create from template (choose the relevant for you) and start- > Choose a template that you like ( according to the presentation you will be creating) ->If you would like to create more slides, just click on add new and you will be able to get as much slides and you would like. - > Insert the text, images, videos you would like to be included in the presentation and change the colors as you like -> Once you completed it - click on present and you are ready to share it.

### 3.2.5. Interactive games

Creating fun and interactive learning game is already very easy and fast – you can do it within in minutes. The format and number of questions is up to you as well as the description you will add as explanation to it. With the following exercise we will ask you to create quite interactive game for adults.

#### ***Exercise 6***

Sign up and log in with your email to Kahoot. Than create as much questions as you need and give proper right and wrong answers. ->Add videos, images and diagrams to your questions to amplify engagement. -> Once completed as your friends, colleagues, students to join you and play with you-> Start the game (As a host and for that you also need a big screen, as everyone will be looking at it to see the questions and answers) and on the screen you will see PIN -> this pin number has to be typed by each player to their device ( laptop, computer, tablet, smartphone or etc).-> Once the game starts you will be able to see on the big screen the question, time for answer and the answers and on the participants device – they will see only the figure of the answers and they need quickly to select the answer. After each question and answer you can stop and give more input to the game with content.

As technology becomes increasingly essential in our daily lives, adult educators and learners need to develop new skills in order to succeed. Within the classroom, students may be required to use tablets, complete online research, and take digitized assessments. In day-to-day life outside the classroom, educators and learners are inundated with information and opportunities available online—but many lacks the access or skills to use these resources.

Experts have coined a term for this tech-savvy knowledge: Digital literacy. Digital literacy may become the new buzzword in education as educators alike work to help students prepare for a world that is increasingly online.

### 3.3. SELF-ASSESSMENT



Self-assessment is an essential part of learning process. There are several methods that can help the learners to measure the level of their knowledge, skills and competences related to creating and sharing online documents and presentation. It is recommended that those

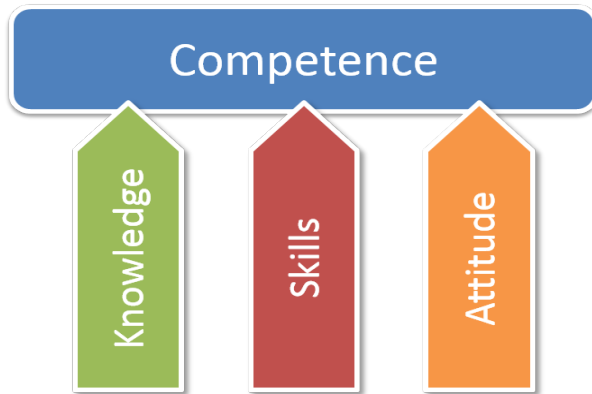
methods are used, both before and after the course, to measure the level of progress and achievements. There are many things that can be said and written in relation to the evaluation of the training results and the effect from the learning module. Here we would like to underline the importance of evaluation of the learning results and to stress on the fact that the evaluation process is an inseparable part of the preparation process, the conduction and all activities that follow in a learning module.

There are set theories and objectives for evaluation in the formal system of education. Though NFE is said to be supplementary to formal education, at the primary stage its aims, objectives and structure differ. It cannot adopt the same evaluation system like formal education; it has to be done according to different criteria. There is greater flexibility in NFE regarding attendance, curricula and learning experiences. Evaluation leads to an assessment of what was covered or achieved. It helps to identify shortcomings (faults or weakness) and helps to plan better for the future. If things are not properly evaluated, the programmes are likely to fail.

What are the advantages:

- Can be a very useful way to build rapport with audience/participants;
- Can ask sensitive questions that require confidentiality;
- Open-ended questions and a reduced amount of structure allow for new (unplanned for) information to be gathered;
- Interviewer can ask for more information than people would want to write in a survey; ■ Respondents can use their own words to answer questions.

### 3.3.1. Method- Knowledge, Skills and Competences Pyramid

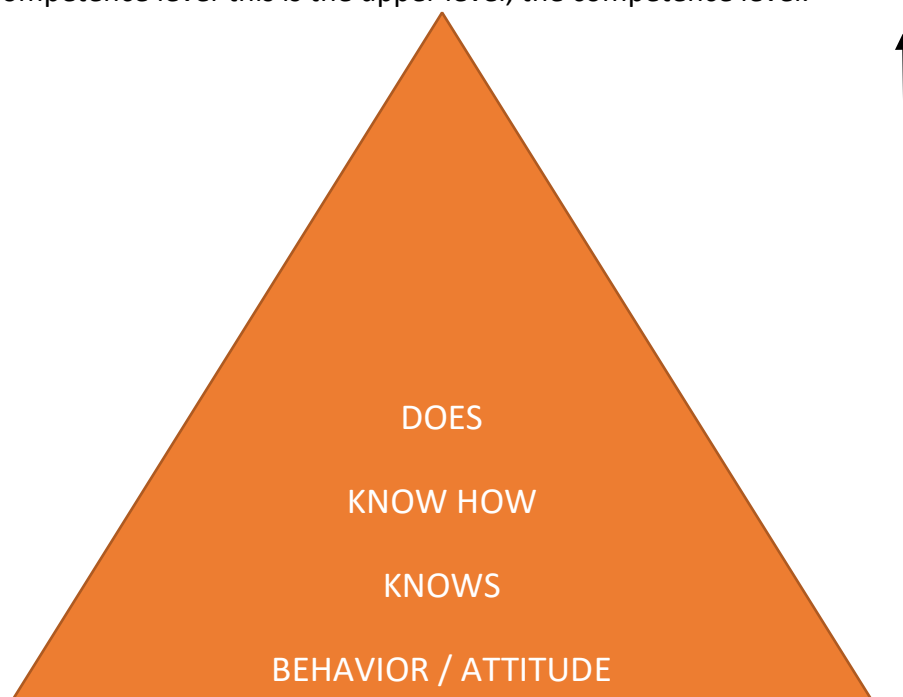


The method is quite simple to be used, thus effective. The pyramid below is divided into few levels, each one represents different stage of learning:

➤ **Attitude/Behaviour** - it is the bottom of the pyramid as a lot of times what stop us from

learning is exactly the attitude towards a subject/especially when tackling digital education for adults, a lot of times the attitude is the one stopping the from learning/. It answers the question What.

- **KNOWS** - The next upper level is the knowledge level/information we have on the subject. This level represents the KNOWS.
- **KNOW HOW** - the next level represents the knows how, or concrete skills we have on the subject.
- **DOES** - competence level-this is the upper level, the competence level.



### **3.4. LEARNING OUTCOMES**

After accomplishing this learning unit, the trainee is expected to be able to:

- ✓ Understand the digitalization more and digital literacy.
- ✓ Use online documents for creating and sharing documents
- ✓ Use online tools to create interactive presentation
- ✓ Use online tools for creative interactive games

Also, they will understand the importance of creation in knowledge dissemination, learn about effective tools of creating and sharing online presentations and documents, learn how to incorporate advanced tools into one's presentations, get acquainted with some online versions of interactive games and websites for digital learning.



## 4. DIFFERENT WAYS OF LEARNING. DIGITAL AND TRADITIONAL LEARNING

### 4.1. INTRODUCTION

Institutions that provide essential functions in a state often become extraordinary so fixed in the original structures that fail to adapt and adjust to changes in the external environment. Therefore, the need to examine, in particular, the roots of our modern educational systems, because teaching and learning today is still strongly influenced by institutional structures have developed many years ago. So, we need to examine the extent to which our traditional campus based teaching models remain fit for a digital age.

The traditional approach to learning that was designed 150 years ago includes model in the classroom where students are organized into classes that meet on a regular basis in the same place at certain times of the day for a given period of time in a given period. Although there are many changes incorporated into classroom learning with time. Teachers for many years have used a variety of teaching approaches in this overall institutional framework.

A major study of lectures was conducted by Samuel Johnson. The most authoritative analysis of research on the effectiveness of the lessons remains Bligh. He summarized a wide range of Metaanalyses and studies of the effectiveness of the lessons than other teaching methods and found consistent results:

- the conference is as effective as other methods of transmitting information (the corollary, of course, is that other methods - such as video, reading, independent study, or Wikipedia -are effective as lessons for the provision of information);
- most of the lessons are not as effective as the discussion to promote the thought; ○ classes are generally ineffective to change attitudes or values or to inspire interest in a subject; the lessons are relatively ineffective to teach behavioral skills.

*'We see evidence ... once again to assume that lessons should be no more than twenty to thirty minutes-at least no techniques to vary the stimulation'*

These studies have shown that, in order to understand, analyze, apply, and commit the information in long-term memory, the student must actively engage with the material. These studies have shown

that, in order to understand, analyze, apply, and commit the information in long-term memory, the student must actively engage with the material. You Tube videos now last about eight minutes and people talk about 20 minutes maximum, teaching in many educational institutions is still organized around a standard conference session of 50 minutes or longer, with, if students are lucky, a few minutes at the end for questions or discussion. There are two important conclusions from the research:

- even for the sole purpose for which lessons can be effective - the transmission of information - a 50-minute lesson needs to be well organized, with frequent opportunities for questions and discussion of the students;
- For all other important learning activities, such as the development of critical thinking, deep understanding, and application of knowledge - the kind of skills needed in the digital age - the lessons are ineffective. Other forms of teaching and learning - as an opportunity for discussion and activities of the students - are needed.

## **4.2. THEORETICAL APPROACH TEACHING UNIT**

To make the most important lessons, it is best to use new technology. The essence of a lesson is the transmission of information, each of which is now ready, and, in most cases, freely available in other media and more learner-friendly formats. If lessons are to be offered, the goal should be to make the lesson engaging in its own right, so students are not distracted from their online activities.

### **4.2.1. Classes will take no part in the digital age?**

The lessons even if they still have their uses. There are cases in which the teacher needs to convince his idea of a topic for the public that does not have a similar background. Sometimes the lessons are important to draw analogies that help you easily understand the subject. An example is an inaugural lecture by a professor of newly appointed research. In this lecture, the professor summed up all the research he and his team had done, resulting in treatments for different types of cancer and other diseases. This was a public meeting, so he had to meet not only other leading researchers in the field, but also a lay public often with no scientific background. He did it by using excellent images and analogies.

McKeachie Svinicki and believe that teaching is best used for: ○ providing up-to-date material that cannot be found in one source; ○ summarizing material found in a variety of sources; ○ by adapting the material to the interests of a particular group; ○ initially help students discover the key concepts, principles or ideas; ○ Model the expert thought.

The major point of the lesson is not the transmission of content, which students could get from just reading, but a way of thinking on the subject expert.

**Exercise 1:**

Go online and search the most used methods of teaching. Locate those methods are used in schools across Europe and beyond, highlighting the advantages and disadvantages of each method.

Teaching type	How does it work	Advantages	Disadvantages

Given all the above, you need some explanation to offer for the persistence of the conference in the 21st century. Here are some tips:

- In fact, in many areas of education, the conference has been replaced, in particular in many elementary or primary schools;
- In North America, the unity of teaching Carnegie, which is based on a notion of one hour per week of classroom time per credit for a period of 13 weeks. It 'so easy to split a credit in 39 one-hour lessons during three of which must be covered the curriculum for the course. E 'on this basis that the load and teaching resources are determined;
- teachers in the field of post-secondary education have no other model for teaching, because they lack the knowledge of how students learn or the confidence or experience in other teaching methods;
- Many experts prefer the oral tradition of teaching and learning, because it increases their status as an expert and source of knowledge; to indulge in an hour of time for other people to listen to your ideas without major interruptions it is very satisfying on a personal level.

#### **4.2.2. The methods with the lessons will have a future in the digital age?**

Different teaching methods were identified, however, the method is likely the predominant classes for another ten years. There are several reasons for this:

- All content can easily be digitized and made available at very low cost; Institutions will make greater use of dynamic video for demonstration, simulations and animations. Thus, most of the content will be multimedia modules;
- of open textbooks including multimedia components and student activities will provide the content, organization and interpretation that are the reasons for most of the lessons;
- Finally, and most significantly, the priority for the teaching will be changed by the transmission of information and the organization for the management of knowledge, where students have the responsibility to find;
- Analysis, evaluation, sharing and application of knowledge, under the direction of a person qualified expert.

**Exercise 2:**

Identify a topic that you like particularly (for example: the Second World War, the English irregular verbs, etc. ...). Set a lesson, where you are the teacher and you have to explain to the students the lesson, using the traditional method.

**Exercise 3:**

Set a lecture on the same topic chosen in exercise 2, where you are the teacher and you have to explain to the students the lesson, but using a method chosen at will among those identified in the exercise 1.

**4.2.3. Digital Skills and competences**

An emerging in Europe classification identifies three main categories of DSC for students/citizens.

- Digital competence: also referred to as digital literacy includes a set of basic digital skills, covering information and data literacy, communication and online collaboration, digital content creation, security, and problem solving. Digital competence is about the ability to apply these digital skills in a safe, critical and responsible in a defined context.
- Specific digital skills relevant to the job: a set of specific digital skills for those involved in works including the use and maintenance of digital tools like 3D printers, CAD software and robots.
- digital skills for ICT professionals: a highly specialized, digital skills of advanced facilities for those involved in ICT occupations, programmers and security experts that provides not only the use, but also to challenge and innovate the technology of ' existing solutions and create new information and communication.

**6.1.1.1. Digital and online learning**

The research and practice show a widespread and fundamental lack of clarity about the use of ICT in education - in terms of concept, definition, purpose, construction and prerequisites. There is uncertainty about the extent to which student engagement with the technology could damage their

involvement with the school or feelings of belonging. The research and literature often use the term e-learning when referring to the use of ICT in education.

In 2014, under ET 2020, the European Commission introduced 'Digital learning and on-line' the broader term (DOL) to emphasize the two main components of today's e-learning':

**Digital learning:** A form of teaching and learning supported by ICT. It includes a variety of formats and hybrid methods, including the use of software installed locally;

**Online learning:** Form prevalent today distance learning, imparted primarily via the Internet, incorporating social media and web 2.0 services for collaborative and personalized learning experience, anywhere and anytime via desktop and mobile computing devices. You can also involve the use of Open Educational Resources. This 'digital work and learning on-line' (DOL), 'e-learning' and 'digital learning' are considered synonyms.

#### **4.2.4. The Importance of Open Educational Resources**

A research on the use of social media in education courses and vocational training in Australia highlights, for example, students seem more willing to make online questions than face-to-face. In many partner countries teachers, trainers or even groups of students have set up ad hoc groups on Facebook to share experiences and make connections, linking these with the teaching resources. For example, in Montenegro, a piece of research on vocational training in DOL revealed that more vocational schools have created Facebook profiles, as this is the most convenient way to communicate with students is a typical digital innovative pedagogy.

YouTube, a video-sharing platform, can be used to share webinars, recorded lectures and presentations by industry experts. It can also be used by students to demonstrate, for example, the completion of an assignment.

Twitter can be a valuable source worldwide for information and intelligence. Students can use Twitter to improve their practice in the promotion of services or products related to their study or follow high-level experts.

Less use of Facebook and YouTube, blogs can be used when, for example, students need to reflect the personal views and share lessons and experiences in the workplace. A limit to its use is the need for higher levels of writing ability.

In conclusion, although the honeymoon between social media and education is over, social media continues to offer a number of advantages for teaching and learning.

**Exercise 4:**

*Go to Google and search major online education sites. That locate platforms that can be used for education through their own technological devices (such as PC, tablet, smartphone ...), then evaluate the various platforms identified and the method used.*

As mobile technology becomes more affordable and available in many countries, educational organizations are considering increasing the creation of 'bring your own' schemes device (BYOD), which encourage students to bring their mobile device or tablet to school to be used as a digital learning tool. Many EU countries are also experiencing a BYOD policy. For example, in Germany, a pilot project of "Start in the next generation" has recently taken place. The pilot was carried out in six schools for the last two years. Given the good preliminary results, the pilot has been extended and scaled up to 50 schools. An evaluation of the project by the University of Hamburg is being completed.

In many countries in the developing world, including the ETF partner countries, despite chronic problems related to hardware quickly becoming obsolete and in need of costly maintenance, so far it is rare to find any positive reference to BYOD policy.

#### **4.2.5. Learning by doing**

The teaching apprenticeship model can work both face to face and online environments, but if there is an online component, usually works best in a hybrid format. One reason why some institutions are moving more online material in apprenticeship programs is that the cognitive element of learning in many trades and professions is rapidly increased. This 'academic' training component usually can be managed online as well, and allows you to study this component apprentices when they are not working, saving time for employers as well.

## Strengths and Weaknesses

The main advantages of a teaching apprenticeship model can be summarized as follows:

- ☑ The teaching and learning are deeply rooted in complex and highly variable, which allows a quick adaptation to the conditions of the real world;
- ☑ It makes efficient use of the expert time, which can supplement teaching in their normal work routine;
- ☑ It provides students with clear patterns or goals to aspire to;
- ☑ We acculturate students to the values and norms of professional activity.

On the other hand, there are some serious limitations with an apprenticeship approach, particularly in university teaching preparation:

- ☒ Experts often have difficulty consciously or verbally express the pattern and 'deep' knowledge that they have built and taken almost for granted, leaving students often have to guess or approximate what is required of them to become experts themselves;
- ☒ Experts often rely solely on modeling with the hope that the students will gather knowledge and skills by just watching the expert in action, and not follow through the other phases that make an especially successful apprenticeship model;
- ☒ There is clearly a limited number of students that an expert can handle, given that the experts themselves are fully committed to apply their expertise in often difficult working conditions that can leave little time to pay attention to the needs of learners in the early weapons in the trade or profession;
- ☒ Traditional apprenticeship programs have a high dropout rate: for example, in British Columbia, over 60 percent of those who enter a formal apprenticeship program professional campus-based retreat before the successful completion of the program. As a result, there are a large number of experienced traders in the business world without the full recognition.

There are a number of different approaches or terms within this large item, such as experiential learning, cooperative learning, learning, adventure and learning. It will use 'experiential learning' the term as a generic term abroad to cover the wide variety of approaches to learning by doing.



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