



Guidelines for teachers and educators on tackling disinformation and promoting digital literacy through education and training

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1. Foreword

It is a pleasure to share with you these Guidelines for teachers and educators on tackling disinformation and promoting digital literacy through education and training. These Guidelines were announced in September 2020 as part of the Digital Education Action Plan (2021-2027) and their rollout marks a vital step in empowering our young people to find their voice online as they connect with others and contribute to our vibrant democracies.



With the guidance and support of educators and teachers, we collectively contribute to helping our young people to be able to think critically, make informed choices online and stay safe whilst continuously building their resilience. Teachers and educators play a vital role in shaping the digital skills and competences of young people.

It is for this reason that we set-up the Commission Expert Group which informed these Guidelines. And we brought together a wide range of experts from the world of academia,

journalism, broadcast, civil society, tech companies, as well as the wider education and training community, to tap into their vast knowledge and first-hand experience.

The commitment and passion of this Expert Group is reflected in the pages that follow. These Guidelines are intended to be used in classrooms across Europe and to inspire teaching practices.

Although these Guidelines are new, we did not start from a blank page, as both promoting digital literacy and tackling disinformation are high on the EU's political agenda. We see this with the implementation of the Action Plan Against Disinformation, the European Democracy Action Plan, the Digital Services Act and the updated Better Internet for Kids (BIK+) Strategy. Likewise, within education and training, we continue to support the expertise brought to light through the Erasmus+ programme, the European Solidarity Corps and eTwinning. Building on this work is at the heart of our ongoing efforts to achieve the European Education Area.

However, there is also a clear demand for strengthening the role of education and training when it comes to promoting digital literacy and tackling disinformation. My intention with these Guidelines is to provide teachers and educators with learning objectives, pedagogical practices and hands-on activities in one user-friendly document focusing on what has been proven to work in classrooms and offering new ideas aimed to inspire teachers and young minds.

This year, 2022 is the European Year of Youth. And it is young people's aspirations and hopes for the future that inspire me and my team to continually strive to create policies that will make a difference.

The Guidelines are complemented by the [Final Report](#) of the Expert Group, which highlights important insights revealed during the development of the Guidelines, key initiatives at EU and Member State level, and an overview of existing frameworks.

I want to express my warmest thanks to the experts in this Group who made this happen.

These Guidelines are part of a longer journey, and our work does not stop here. They are part of the process that will inform the Commission's reflection on the response to the disinformation phenomenon.

I invite you to be part of this journey.



Mariya Gabriel
**Commissioner for Innovation, Research,
Culture, Education and Youth**



2. Introduction

Promoting digital literacy and tackling disinformation in classrooms and schools has never been as important as is the case today. Both teachers/educators and students, irrespective of school level or school type, navigate an increasingly complex online environment where there is more to read, hear, and see than ever before.

This provides unprecedented opportunities to find information and communicate with others, both in and outside of the school environment. Increasingly, the digital world is moving to the centre of learning and teaching. Where there were once only textbooks and printed resources, and learning was relatively local, the world today seems to be at our fingertips.

As teachers and educators, you are in an important position to help young people gain the competences they need to become lifelong learners in an increasingly digital world. Gaining digital competences provides a passport to unparalleled learning opportunities. Digital technologies will impact all subject areas, and in a growing number of professional and private endeavours. Mastering digital skills and competences will help young people in your classrooms become empowered, active citizens in the 21st century. These are learned competences and the present Guidelines aim to help you support your students¹ on this path.

The information that comes into your classrooms and into the homes of your students stems from a large variety of authors and outlets, each with their respective points of view and in some cases, agendas. The changing media and information landscape has created the need for students to better access, manage, understand, integrate, communicate, evaluate, create

and disseminate information safely and responsibly using digital technologies. The present Guidelines refer to these abilities as digital literacy. For you as teachers/educators an important task is to facilitate this process.

While the possibilities associated with the ever-expanding digital world are extensive, these new developments also pose many challenges and risks. Inaccurate information spread deliberately or innocuously during the COVID-19 pandemic and the Russian invasion of Ukraine in February 2022 has reminded us how vulnerable democracies can be in the digital age. Healthy democracies depend on open deliberation, public participation, and on a system of checks and balances. Democracy can be undermined when sources of information are compromised by malinformation, misinformation and disinformation. In these Guidelines, we focus especially on disinformation, referring to verifiably false or misleading information that is created, presented, and disseminated for economic gain or to intentionally deceive the public, and that may cause public harm. However, many of the suggestions for helping your students understand the phenomenon of disinformation and the dynamics surrounding it are equally applicable to address misinformation.



¹We use the term 'student' throughout the Guidelines to refer to both pupils and students, in both primary and secondary level of education.

3. Using the Guidelines in education and training

These Guidelines offer concrete, hands-on guidance for teachers/educators. With this in mind, they do not offer prescriptions or axioms, but rather aim to provide practical support for teaching in classrooms and in similar educational settings.

Whether you are looking for clear explanations of technical concepts, class-exercises for fact-checking, how to encourage 'good' online habits, or for ways to assess your students, there will be something here for you.

Providing guidance for promoting digital literacy and tackling disinformation is not always an easy task, due to the fast-changing nature of technology and emerging digital communication and media possibilities. These Guidelines do not offer solutions to all the issues that you may face in your classroom but focus on contributing to the following objectives in education and training:

1. Providing insight and useful knowledge about the dynamics and manifestations of disinformation, as well as the defining characteristics of credible information.
2. Fostering an understanding of how digital literacy can be achieved.
3. Sharing information on how to use digital technologies critically and responsibly.

4. Providing insight into how students can be assessed regarding their competences in the field of digital literacy.

Towards meeting these objectives, the structure of the next sections of the Guidelines is as follows:

Section 4 *'Definitions of key terms for these Guidelines'* offers a list of definitions of key concepts relating to digital literacy and disinformation.

Section 5 *'Setting the Scene'* introduces guidance on how to make classrooms and schools more conducive to addressing disinformation and digital literacy. Such guidance, based on up-to-date research and on feedback from teachers/educators, relates to, for instance, the role of teachers/educators and students, creating a safe and engaging learning environment, etc.



Section 6 *'Building digital literacy competences in the classroom and school: becoming digital citizens'* examines specific barriers and challenges, learning objectives, and inspiring practices associated with these topics. The guidance provided here looks at how to effectively promote digital literacy.

Section 7 *'Disinformation: What are we talking about?'* looks at the various dimensions of disinformation and guidance is given on how best to address it.

Section 8 *'Assessing and evaluating digital literacy in school and the classroom: concrete guidance for teachers and educators'*, addresses questions that are certainly on the minds of all teachers/educators – how to assess students. Guidance is offered on how digital literacy among students can be assessed, and ways to evaluate the digital literacy initiatives that your school might be using.

Throughout these Guidelines you will encounter coloured boxes. These have been created for your reading convenience. There are **green** boxes with practical teaching and learning tips, **blue** boxes with activity plans for your teaching, **red** boxes with cautionary notes, and **orange** boxes that provide other useful insights. Note that the cautionary notes do not mean we suggest avoiding certain topics, but that some topics can be more challenging and require more preparation to teach.

Who are the Guidelines for?

The Guidelines are intended for a variety of teachers and educators. They are primarily meant for primary and secondary school teachers/educators. Where possible, the Guidelines make distinctions in terms of what is advised. In many cases you might need to adjust the guidance to your personal circumstances. We use the terms 'educators' and 'classroom' in a broad way. Some of the content might also be useful to parents² and/or community members as well and can apply to learning that takes place in both non-formal and informal settings.

The Guidelines were developed with the view that they might be used by you in your personal circumstances, but that also working with for instance colleagues and other school staff such as school psychologists, (school) librarians and school social workers can be rewarding and give your work more impact. Involving school leadership, parents, media professionals, civil society and the community can also enrich what takes place in the school. The Guidelines refer to such approaches in multiple places.

On a last note, we hope that these Guidelines will be useful and serve to support you in your daily work, helping to foster a new generation of informed, empowered, and engaged European digital citizens.



² The word 'parents', used throughout this document, is also intended to cover other caregivers.

4. Definitions of key terms for these Guidelines

Many terms have been used to describe what people encounter online. It can be useful to pause and look at some of these terms and what they mean. For classroom practitioners, it can be helpful in discussions you are having with colleagues, your students, and the community. The following definitions have been taken primarily from international policy documents and frameworks but have been shortened for reading purposes.

Algorithms: as related to digital platforms, algorithms are tools that select what content is displayed for users based on relevance and preferences.

Artificial Intelligence (systems): software in computers or machines that are programmed to perform tasks that usually require human intelligence, e.g., learning or reasoning.

Bot: an autonomous software program on the internet that interacts with users and engages with pre-defined tasks.

Cheapfakes: altered media that have been changed through conventional and affordable technology (e.g., face swapping).

Citizen journalism: journalism that is conducted by people who are not professional journalists but who disseminate information using web sites, blogs, and social media.

Clickbait: content whose main purpose is to attract attention and encourage visitors to click on a link to a particular web page.

Debunking: an activity that takes place after the disinformation has been created and spread. It aims to rectify already presented information and refers to the intention to clarify the primarily false information presented.

Deepfakes: images, videos or audio recordings generated by Artificial Intelligence, of people or events that did not really happen and that are often impossible to distinguish from the real ones. They are more sophisticated than cheapfakes.

Digital citizenship: the capacity to participate actively, continuously, and responsibly in digital environments (local, national, global, online) at all levels (political, economic, social, cultural, and intercultural).

Digital footprint: traces of data left by individuals using the internet, including websites visited, emails sent, and other information shared. A digital footprint can be used to track an individual's online activities and devices.

Digital literacy: the ability to access, manage, understand, integrate, communicate, evaluate, create, and disseminate information safely and appropriately through digital technologies. It includes competences that are variously referred to as information literacy and media literacy, computer, and ICT literacy. Digital Literacy involves a dimension of active and civic engagement with the digital world and promotes active citizenship.

Digital pedagogy: the use of innovative digital tools and conceptual approaches. It is intended to support adaptive and personalised learning and contribute to the design of new creative modes of learning, enrichment of learning experiences and improvement of learning outcomes. It has been noted that digital pedagogy values open education, including open educational resources.

Disinformation: verifiably false or misleading information that is created, presented, and disseminated for economic gain or to intentionally deceive the public. It can cause public harm.

Echo chambers: environments in which the opinion, political leaning, or belief of users about a topic gets reinforced due to repeated interactions with peers or sources having similar beliefs and ideologies.

Fact-checking: the process of verifying if information is true or false.

Filter bubble: a situation in which people only hear or see news and information that supports their existing beliefs and preferences. This effect can be heightened online depending on which persons or what pages users choose to follow or connect with, as well as algorithms displaying content based on past online behaviour, preferences, and settings.

Malinformation: factually correct information that is used harmfully.

Media and Information literacy: the ability to understand information for public good; the ability to critically engage with information, media, and digital communication for participation in sustainable development goals; and the ability to seek and enjoy the full benefits of fundamental human rights.

Media literacy: the ability to access the media, to understand and critically evaluate different aspects of the media and media contexts, and to create communications in a variety of contexts.

Meme: an image, video, piece of text, etc., typically humorous in nature that is copied and spread rapidly by internet users, often with slight variations.

Misinformation: verifiably false information that is spread without the intention to mislead, and often shared because the user believes it to be true.

Phishing: an attack that aims to steal a person's money or identity, by getting somebody to reveal personal information – such as credit card numbers, bank information, or passwords – on websites that pretend to be legitimate.

Prebunking: refutation of a persuasive argument before the argument has been disseminated.

Source: the starting place or the origin of a piece of information.

Troll: a person who deliberately tries to offend or directly attack people by posting derogatory comments. Troll farms or Troll factories are an institutionalised group of internet trolls that seeks to interfere in political opinions and decision-making.

Verification: the process to ascertain that a site, an address, an account, or information is authentic and real.



5. Setting the Scene

This section offers guidance on how to create a learning environment that is conducive to helping students become digitally literate and helping them develop the competences needed to become resilient to misinformation, malinformation and especially disinformation.

It is aimed at teachers and educators in general and cuts across different school levels (for example, primary and secondary schools). You will find tips and guidance on how to overcome potential challenges that you as a teacher/educator may face, as well as various activity plans that can be inspirational for your teaching. The advice offered relates to three moments in the educational cycle – **before, during and after classroom activities**.

Teaching and learning in the digital school environment

First of all, it is important to emphasise that you do not need to be a tech guru to help your students become digitally literate. Regardless of the technology available in your classroom, you can engage your students in the wider debate about the many opportunities and risks associated with the digital universe, and about the usefulness of assessing the credibility of the information they encounter.

Like any effective teaching, it is important to create a safe place for students to express their opinions and engage in active learning. Students appreciate being seen and heard, both by their peers and by their teachers, and they appreciate being empowered to become more literate in a digital world in which they might already be quite conversant. This digital world potentially allows students the opportunity to access a great deal of information, hear multiple opinions on a topic and to communicate across geographical, linguistic, cultural, and religious barriers. Yet, they mostly lack the competences and the wisdom to take full advantage of what is being offered and to identify potential threats.

You undoubtedly have a repertoire of approaches that you use when working with your students on challenging and sometimes controversial issues. **Box 1** presents some educational approaches that you might or might not be familiar with. They have shown to be useful in the digital literacy field.

Box 1: Teaching and learning in the digital school environment – some useful approaches

The following teaching and learning approaches are well established and can serve as an inspiration for your work.

Spiral Curriculum. Any subject, including digital literacy, can be taught at any school age provided the appropriate teaching approach is adopted each time. It is an approach in which key concepts are presented repeatedly throughout the learning process, but with deepening layers of complexity, or in different applications. Such an approach allows the earlier introduction of concepts traditionally reserved for later.

Flipped Classroom. Peer-led, blended learning strategy that increases students' engagement and learning through the use of media, in and outside the classroom. Students often complete readings at home and do problem-solving work in the classroom.

Blended teaching. The Covid-19 pandemic was a watershed moment for switching to more remote learning in education. Blended learning has the potential to effectively combine face-to-face and online teaching into one cohesive experience.

Learning by doing. In education this is an approach based on the idea that we learn more when we actually “do” the activity.

Game-based learning and gamification. Such approaches are about applying gaming strategies (gamification) or using online and offline games (game-based learning) to improve learning and make it more engaging for individuals. Educational games to raise awareness of media bias are an example of this.



Digital tools typically offer students a relatively large degree of freedom when, for example, they use digital devices to access apps, communicate on social media or browse the internet. Given this freedom, it is also possible for students to access an immense amount of information, which benefits their education. It can also lead to them engaging in irrelevant, inappropriate, and potentially dangerous digital behaviours. A key challenge for you as teachers/educators is to therefore help students steer away from harmful behaviour online and help them acquire the self-knowledge and skills to do this independently.

Particular attention needs to be paid to the diversity present in the classroom, in terms of student's backgrounds, opinions and worldviews. This means providing students in advance with some insights into the subject of digital opportunities and threats and setting ground rules for discussion (for instance no personal attacks and 'owning opinions' by using the 'I' form)³. It is helpful to have an idea where your students (and their peer group) stand on certain issues before addressing those in the classroom, keeping in mind that opinions may vary and be diverse in nature. It is also useful if you can gain an understanding of the sources of news and information they access and what social media they use. What media and online platforms do students access and what do they think of them? It can take some coaxing to get this information and sometimes the responses need to be anonymous. It is further useful to assess to what extent students already understand issues such as privacy settings, digital community rules and regulations, what is legal and illegal, etc. (see also Section 8).

Given the potential for students to encounter false and potentially harmful information online, it is best to be prepared to engage in a conversation with them about information that might be potentially controversial for them, their peers, or their community. This implies being prepared to deal with emotions and irrational behaviour. It can also be a good idea to first have a more general discussion with students about what they have seen in the media recently that might be controversial.

Consider...

- Having students regularly use digital tools as part of their learning for a variety of purposes.
- Limiting your lecturing time and using more interactive methods such as the Socratic method of learning, inquiry and problem-based learning and various collaborative and cooperative learning methodologies.
- Taking the concerns and claims of all students seriously, making sure to respect their views.
- The special needs, concerns, strengths, and weaknesses of a group of students you are planning to work with and use these as a starting point for learning.

- Building on the diversity in the group, both in terms of background and opinions. This will be enriching. Select working methods that bring out this diversity.
- Discussing privacy with students and make sure they understand what it is and how to protect it. Privacy issues play a prominent role in discussions about digital literacy.
- That students will need your help to find credible information online, but also need to gain such skills themselves.
- That young people learn extensively from each other. Peer learning strategies can be effective across the entire educational spectrum, also when using digital technologies. This implies you as a teacher taking on a more facilitation role. Peer learning does require your guidance as a teacher.
- That young people learn many of their online habits at an early age and in the home environment.
- Using local or world current events as a trigger for activities. Usually, the more immediate the information, the more interesting and the more motivated students will be.
- How to choose the right context, framing and approach for your classroom and framing of the topic. How motivated are your students in advance? Some adolescents are reluctant to engage in discussions about controversial social and political issues.
- The most appropriate rules for each classroom. What works for one group does not work for another. Develop the rules together with the students if you can. It gives them ownership.
- Sharing and discussing your ideas with other teachers/educators.



³Examples include: 'I think that...', 'I believe that...', 'I feel that...', 'I agree that...'

Guidance and tips – before, during and after the school and classroom activities

To promote positive learning experiences and to safeguard against unintended outcomes such as conflict and polarisation when teaching digital literacy and resilience against disinformation, it can be useful to consider the following before, during and after the lessons.

Tip 1: Engaging students

If there are some students that could be challenging to manage, consider involving them in the preparation of the activities and give them some tasks or responsibilities. They might surprise you in a positive way.

Tip 2: Engaging Parents

Engagement among parents varies greatly. A good moment to communicate with them can be the first teacher/educator-parent meeting of the year where attendance is often high. If there is parental resistance it is important to have allies in the school, such as the school director.



Before the Activities

Engaging with school stakeholders

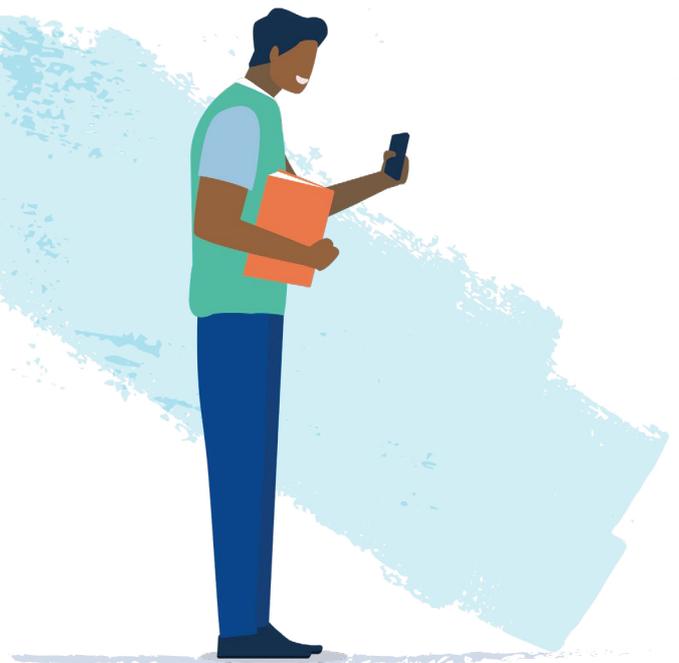
Consider...

- Discussing your plans with school management before teaching about a sensitive or controversial topic.
- Communicating with parents through established school-parent channels, and where possible coordinating efforts, before discussing political or sensitive issues related to the online world, which may inevitably lead to discussions in students' homes (see Tip 2).
- Coordinating with the school psychologist or school social worker in case specialist support is needed (e.g., in case students offend each other or students feel emotionally disturbed by a topic).

Cautionary Note: Controversial Issues

Controversial Issues are often very useful to discuss with students, especially when referring to disinformation, but might need extra time and caution. Some examples include:

- COVID-19 and vaccines
- The Russian invasion of Ukraine
- Past and present histories of injustice
- Crime and punishment
- Gender-related and sexual diversity issues
- Migration, minorities, racism, and religion
- Climate change and global warming
- Colonialism, slavery, antisemitism, Holocaust denial
- Sensitive national topics



Get to know the digital literacy playing field

A good starting point is to gain insight into the media habits of the community in which the school operates. This can provide opportunities to build on already existing patterns. This can be done by attending and communicating at school-community events, monitoring the local media and other popular media, and through discussions with colleagues, parents, and students. Certain sub-sections of communities might have radical (in-group) opinions that can unexpectedly be expressed in the classroom. It is useful to be aware of these sensitivities.

Although the field of digital literacy is fairly new, there are many initiatives that have taken place in recent years that can benefit your teaching and that can enrich student learning. For example:

- There are international networks of teachers and educators that are interested and experienced in teaching about digital literacy and addressing disinformation. They tend to be free and a 'click' away.
- International organisations like the European Commission, UNESCO, the OECD, the Council of Europe, the International Telecommunications Union (ITU), UNICEF, and Media Unions have developed resources, networks and guidelines that can enrich your work.
- Various national and local initiatives involve professional journalists and journalist organisations. Some local journalists might already be involved. Reference to many of these can be found in the [report](#) – especially in the annexes - that was developed to complement the present Guidelines.
- You might benefit from looking at how your local or national government might support student digital literacy, as well as efforts and programmes by civil society organisations.
- Local libraries have become active in this field and can help bring activities into the community.

Box 2: Involving external actors, such as professional journalists, NGOs, academics and platforms – potential benefits and disadvantages/risks for schools and teachers/educators

You do not have to teach digital literacy alone and can integrate virtual and/or physical third-party programmes (e.g., from civil society) into teaching.

Potential Benefits

- Externals are able to bring additional knowledge and expertise
- Externals offer opportunities for teachers and educators to build networks with experts
- Externals have often gained wide experience working with schools
- Externals bring evidence-based and hands-on experience from the field
- Academics/Universities have experience evaluating 'what works' and 'why'
- Bringing in externals can be exciting for students

Potential Disadvantages or Risks

- Additional administration, e.g., concerning logistics and consent needed from school management and others
- Might limit flexibility in planning
- Might induce economic costs
- Third parties may be trying to promote commercial, data gathering or political interests

You can also go online and find out what kinds of organisations have developed resources for schools and teaching.



Consider:

Connecting school activities to key international and national networks and events. At the international level this can include Safer Internet Day (every February), International Fact-checking Day (April 2nd) or awareness campaigns (European Media Literacy Week, UNESCO Global Media & Information Literacy Week). The European-wide eTwinning network also allows teachers/educators and schools to connect to others around Europe. The annual theme in 2021 was 'Media Literacy and Disinformation', which resulted in a flagship conference and an eTwinning book with good practices on the topic.

Seeking local, national and/or international funding for your initiatives. At the European level this includes the Erasmus + Programme and the European Solidarity Corps.

Tip 3: Addressing controversial issues

Addressing controversial issues can enrich learning and promote critical thinking. Which topics do you find most controversial to teach in your classroom? What about your colleagues? What are their experiences teaching about controversial issues? Can you share useful resources with each other? Can activities be broadened in collaborative manner across school subjects? Can 'experts' be invited to present in the classroom or in assemblies (either in person or remotely)?

You can best judge whether you keep discussions in the classroom light or engage your students at a deeper, more profound level. This will also depend on the students' age and your previous experience tackling controversial issues.

When discussing controversial issues, it can be useful to start with less controversial ones and gradually move towards ones that might be more controversial. This will allow you to see how students respond, and whether they are ready and comfortable to discuss more sensitive issues (see also Activity Plan 12 on Conspiracy theories).

Interactive methodologies can help create the kind of atmosphere that will benefit the class when discussing controversial issues. Such methodologies include silent discussion, opinion lines, active listening activities, fishbowl discussions, complex instruction, role plays, and cooperative learning. Such methodologies also help to engage students who might otherwise be bored or disinterested.

**Cultivating a rich learning classroom atmosphere****Consider...**

- Becoming aware of the following: potential psychosocial student motivations for dissent, student-specific sensitivities, community sensitivities and societal polarisation; also, your own stance, emotions, and sensitivities.
- Collecting initial ideas and opinions from students before discussing a topic. This can be done anonymously if needed.
- If there are some students that could potentially be challenging to manage, involving them in the preparation of the session and giving them specific tasks can be helpful.
- Building trust in the classroom. Trust can be a crucial factor which will allow students (and the teacher) to be more comfortable when discussing sensitive and controversial topics. Some students might consider topics suitable only for in-group (student) discussions and prefer not to share. Mutual trust can alleviate this.
- Having more sensitive discussions after developing a classroom community. Controversial topics are best discussed in an open environment where students feel safe, seen and heard.
- Starting with more scripted interactions and then move towards less scripted interactions, based on classroom flow and dynamics.
- Starting with one-on-one interactions (teacher-student; student-student), then move on to interaction within smaller groups, and only then move towards whole class interactions.
- Using student-centred learning, providing students with autonomy and ownership of what they learn.

Activity Plan 1: Working with disinformation

The following is an activity that can take place in a 45-minute lesson.

Check in (approx. 5 min).

Ask all students individually at the start of the lesson how they feel today. Listen to their answers carefully. React to the answers neutrally and just say: 'thank you.' The other students are to listen silently. Establish the order in which the students are asked randomly.

Introduction (approx. 5 min)

Provide a thought or a personal experience related to disinformation, or link to a disinformation news item. Follow your short introduction with a question about the disinformation, such as 'how serious do you think this disinformation is?' or 'what do you think the aim of this disinformation is?'

Modelled discussion (approx. 25 min)

Hand out small pieces of paper. Give students 90 seconds to formulate a short answer to your question. Inform them that they will read their answers aloud. Then randomly select pairs. Let the first student of the pair ask the question to the second student. The second student reads his/her answer. They then switch roles. Continue forming pairs until all students have been heard. If the number of students is odd, include yourself in a pair. If there is extra time, ask for reflections.

Check-out (approx. 8 min)

Ask all students individually at the end of the lesson if they learned anything in the lesson. Use the check-in principles.



Activity Plan 2: Learning about multiperspectivity through multiple sources

Note: this activity will take about 3x45 minutes

Lesson 1: Find an event in history that can be interpreted in different ways, depending on the two (or more) sides involved. Examples include various wars of independence, the US Civil War, World War One, the conflict in Northern Ireland, the war in the Balkans in the 1990s.

Present the students with two separate short narratives (or alternatively have them find two separate narratives online) regarding the conflict. Have each group find 5-10 sources online that provide information regarding the conflict – if possible, from different sides (they might need assistance). Have them briefly present these sources to the class. Compare and contrast them.

Present a statement such as: 'The main cause of the conflict was a failure on the part of X to grant full human rights to the people living in Y'.

Lesson 2: Two groups are created: those that agree with the statement and those that disagree. It is easiest to assign group membership – half become the 'Agree' group and half the 'Disagree' group.

Each student now uses the 5-10 online sources their group has identified to develop two strong arguments either in favour or against the statement. The students gather and write out their evidence. They initially do this as individuals – first half of lesson. They then work in smaller like-minded subgroups (approx. 4-6 persons per group) and share their arguments. Each subgroup creates a digital poster with their five main arguments.

Lesson 3: The groups refine their posters and present them to the larger class. All students rate each of the various arguments (from 1 to 10) and discuss why they scored the arguments this way, especially based on the evidence they found in the sources. The scoring can also be done using online tools. Discuss in new small groups both sides of the story and try to determine how to best understand the controversial issue. Reflect on whether there a way to integrate the arguments and counter-arguments? Is there an in-between solution? Can they reach consensus?

Alternatively, a variety of methodologies can be used to get students to discuss the issue - e.g. (virtual) gallery walk, Socratic method, traditional debate, fishbowl, cross-examination debate, and academic debate.

Note: this approach needs significant steering from you, as the teacher/educator.

During the activities

Consider...

- Activating and maintaining an open, supportive atmosphere in the classroom.
- How you frame issues. This can happen in different ways to make them relevant to students.
- Keeping a personal diary of how students are responding to your teaching about challenging and controversial issues. They can also keep such diaries for their reflections.
- Monitoring emotional reactions in the classroom and possibly discovering student-specific sensitivities. Some students may have radical opinions that are unexpectedly expressed in the classroom.
- Watching for ingroup-outgroup tendencies. Young people and adults sometimes see each other's digital media usage as 'inappropriate' and can use this as a basis for negative stereotyping of the other group.
- Monitoring to what extent your activities might further strengthen in-group versus outgroup dynamics, between you and the students, and among students.
- Checking in with individual students as much as possible, especially when discussions about controversial issues take place and when students exhibit non-appropriate behaviour.
- Setting an example. If you are comfortable with this, sharing some personal examples of how you as a person (or teacher/educator) develop your digital literacy and/or have been exposed to disinformation can invite students to share their own experiences.
- Striking a balance between an open classroom climate and a safe space. In an open classroom climate, students can say what is on their mind and freely share their views and opinions. However, an individual or a group of students may get offended or disturbed by remarks made by others.
- Monitoring risk factors. The risk of alienating students when confronting preconceptions, myths, and biases. Disagreements can be handled by dialogue, separating opinions from the person who holds them, and by introducing multiple fact-based perspectives into the discussion.

After the activities

Consider...

- Having a discussion with the students regarding what they learned, what they enjoyed and perhaps enjoyed less.
- Designing new activities that build on the previous ones, actively involving students in this process.
- If you have kept a diary of how students responded to the lessons that touch on controversial issues, discussing this with the school psychologist, mentor teachers or school pedagogue.
- Making presentations to other classes or schools (can be virtual).
- Conducting a more formal assessment of the knowledge and skills gained by the students and/or an evaluation of the learning and teaching methods used (see section on assessment in the Guidelines).

Tip 4: Showing empathy

In view of fostering a safe learning space, it is useful to not ridicule or isolate students who admit they believe in certain types of disinformation, such as a prevailing conspiracy theory. Empathy can be a good starting point. They are taking a risk if they admit to believing in certain types of disinformation. You can also choose to admit to certain vulnerabilities you have yourself if you feel inclined.

It sometimes helps to have students first talk about 'somebody I know.....' to make admissions less personal and make the student less vulnerable to peer criticism.

Tip 5: Debriefing

Debrief with the students about their thoughts, experiences, and emotions. Ask what they have learned and how they would like to build on what they have just done.



6. Building digital literacy competences in the classroom and school: becoming digital citizens

What is digital citizenship, and why is it important?

Digital citizens...

- Possess the skills, attributes, and behaviours to participate safely, effectively, critically, and responsibly in the online world.
- Are able to harness the benefits and opportunities of the online world while being resilient to harm.
- Use digital technologies to support their active citizenship and social inclusion, collaboration with others, and creativity towards personal, social, or commercial goals.
- Are aware of key human rights values and how these values are similar online and offline (freedom of opinion and expression, right to privacy, participation, dignity, etc.).

Digital citizenship is a learned skill set. In digital society, like in “offline” society, there are some core concepts, tools, and competences that your students need become aware of to promote their learning. Students also need to gain access to the tools they will need to develop their digital literacy competences. You play an important role in that process.

Being digitally literate means knowing how to use digital technologies to *access, manage, understand, integrate, communicate, evaluate, create, and disseminate* information – in safe and appropriate ways. Also, digital literacy can help students actively participate, learn, build fulfilling careers, and interact socially in today’s society. As such, digital literacy is a prerequisite for the development of active and empowered digital citizenship.

As you may have noticed, students are already digitally literate to various degrees. For example, some may struggle to read and write, but are very adept at engaging in consuming and producing digital content, such as sending voice notes or taking pictures. Others may struggle with accessing or using technologies, making them harder to reach and communicate with when teaching remotely.

Tip 6: Gamification and game-based learning

Gamification and game-based learning can improve educational outcomes, if properly designed.

These are some of the benefits:

1. They tend to offer learning that matches the digital lifestyle of today’s youth
2. They can provide additional motivation and makes teaching and learning fun, creative and inspirational.
3. Gamification and game-based learning tend to be flexible, transferable to any context, and can fairly easily be adapted to any school subject. They can also be used for complex issues that are easier “grasped” through a game.



Consider...

- Inviting your students to share how technology and social media can create positive change and positive spaces in the community and society that they live in.
- Discussing with your students the skills they will need when entering the future labour market. This may include a digital skill set (such as understanding digital economies, coding, understanding algorithms, computational thinking, and other digital skills) and soft skills (e.g., interpersonal) in a world where human-to-human interaction is valuable.
- Asking students to find accurate online information about citizenship issues (e.g., democracy, local elections, human rights, and climate change) and what appropriate spaces for online participation there are.
- If the classroom atmosphere allows (especially if students are used to discussing political issues), asking

your students whether they think political disinformation could be spread through the media and the impact it might have. Can it impact democratic election outcomes? In what way? Can they give examples?

- Providing students with links to credible sources of information, for instance about social issues and citizenship related issues. Better yet, have them research this and give feedback.
- Paying attention to digital wellbeing, namely how digital tools benefit or negatively impact the health (mental or physical) of your students, and the relationships they have with their peers and family.

Getting started with teaching digital literacy

Teaching and learning digital literacy are important in contemporary society. Nevertheless, some of you might be reluctant to take steps to move your students towards developing digital literacy competences because you do not feel comfortable teaching a topic that you may not know much about, or because your students might be quite technologically savvy already. It can be important to remember that you do not have to be a tech expert to teach digital literacy as digital literacy goes far beyond knowing how to use a device.

Box 3: Tech savvy or not?

Do not assume all students are tech-savvy. Not all young people know a great deal about technology or have the confidence to use digital technologies. While some have well developed digital skills and competences, others have low digital skills and struggle to carry out even basic digital tasks. Even to young people – the digital world is often difficult to understand. They might enter into echo chambers but rarely would know how they get ‘stuck there’. They may have technologies as part of their daily lives, but not understand how they work or why algorithms show them certain content. Students do not always need technical support, and may seem to reject it, but they often need someone who can help them navigate through the abundance of information they encounter on a regular basis, and also help them distinguish factoids from knowledge, and truth claims from evidence.



Consider...

- Being open about the fact that as a teacher or educator you do not and cannot know everything. As a teacher or educator, however, you are well placed to offer necessary context, prompt critical reflection, and offer support.
- Including digital topics that truly matter to your students. Allow students to open up and talk about their interests, co-create the lesson plan, while using the devices and digital spaces they are most familiar with.
- Discussing online behaviour with your students, and how to become a responsible citizen, a positive social actor inside and outside their classrooms.

Tip 7: Taking cues from the students

Take your cues for digital literacy activities from the students and their experiences. Children and youth are faced by online challenges every day (a mean message; a privacy conundrum; an access issue; hate speech; etc.). Let students' concerns and every day experiences guide the topics of lessons, and make them relevant and hands-on, without embarrassing or judging them. This can create (if well handled) an atmosphere of authenticity and trust in the classroom



Learning objectives of digital literacy

Below are some specific learning objectives for digital literacy, relevant to primary and secondary levels. This overview can

be helpful for your teaching. They are based on established frameworks such as the European Digital Competence Framework (DigComp 2.2⁴) and the Finnish New Literacies learning outcomes⁵:

In primary school, the student...

- | | |
|---|---|
| <ul style="list-style-type: none"> ● Can independently search for information on issues and phenomena they are interested in. | <ul style="list-style-type: none"> ● Can search for media content that can be used freely and with permission. |
| <ul style="list-style-type: none"> ● Can, with guidance, evaluate the credibility and usefulness of information. | <ul style="list-style-type: none"> ● Can describe his or her media use habits and can reflect on the importance of media in his or her own life. |
| <ul style="list-style-type: none"> ● Is aware that online environments contain all types of information and content including misinformation and disinformation. | <ul style="list-style-type: none"> ● Can use digital tools appropriately and safely to create outputs for specific audiences. |
| <ul style="list-style-type: none"> ● Understands the difference between disinformation, misinformation, and malinformation. | <ul style="list-style-type: none"> ● Knows how to create and share media content. |
| <ul style="list-style-type: none"> ● Is familiar with basic principles of privacy protection. | <ul style="list-style-type: none"> ● Can use digital tools appropriately and safely to create outputs for specific audiences. |
| <ul style="list-style-type: none"> ● Knows what kind of methods of protecting one's privacy exist in media environments. | <ul style="list-style-type: none"> ● Knows how to engage respectfully online and knows how to access accurate information. |
| <ul style="list-style-type: none"> ● Reflects on his or her consumption of media content and the services he or she uses from the point of view of copyrights. | |

By secondary school, the student...

- | | |
|---|---|
| <ul style="list-style-type: none"> ● Knows that digital content, goods, and services might be protected by copyrights. | <ul style="list-style-type: none"> ● and display content that are adapted to or defined by the individual user's preferences. |
| <ul style="list-style-type: none"> ● Can critically assess the credibility and reliability of the source of information and digital content. | <ul style="list-style-type: none"> ● Can analyse his or her own media consumption patterns. |
| <ul style="list-style-type: none"> ● Can evaluate, with guidance, different kinds of media content as sources of information and can reflect on their usefulness and reliability. | <ul style="list-style-type: none"> ● Can obtain, process and present information based on research using appropriate methods and tools. |
| <ul style="list-style-type: none"> ● Understands the nature of social media as an information source and why it is important to be critical about information that is spread socially. | <ul style="list-style-type: none"> ● Is aware that many applications on the internet and on mobile phones collect and process data (i.e., personal data, behavioural data, and contextual data) that the user accesses or retrieves. This is done, for example, to monitor people's activities online (e.g., clicks in social media, searches on Google) and offline (e.g., daily steps, bus rides on public transport). |
| <ul style="list-style-type: none"> ● Is aware that search engines, social media and content platforms often use AI algorithms to generate responses | |

⁴ <https://publications.jrc.ec.europa.eu/repository/handle/JRC128415>

⁵ <https://okm.fi/en/new-literacies-programme>

- Can use digital tools to verify the authenticity of online photos and videos.

- Knows what strategies to use to control, manage or delete data that are collected/curated by online systems.

- Knows that AI systems can be used to automatically create digital content (e.g. texts, news, essays, tweets, music, images) using existing digital content as its source. Such content may be difficult to distinguish from human creations.

- Is aware of confirmation bias and develops a critical approach towards his or her own thinking.

- Is aware of the meaning of non-verbal messages (e.g., smiley faces, emojis) used in digital environments (e.g., social media, instant messaging) and knows that their use can culturally differ between countries and communities.

Activity Plan 3: Working with the Declaration on European Digital Rights and Principles

As a fundamental part of being a digital citizen, it is important to be aware of and exercise your digital rights. In January 2022, the European Commission proposed the '*Declaration on European digital rights and principles*'. Among other rights proposed, the declaration stipulates that:

- Children and young people should be empowered to make safe and informed choices and express their creativity in the online environment.
- Children have the right to be protected from all crimes, committed via or facilitated through digital technologies.
- Everyone has the right to the protection of their personal data online. That right includes the control on how the data are used and with whom they are shared.
- Everyone should have access to digital technologies, products and services that are safe, secure, and privacy-protective by design.
- Everyone has the right to freedom of expression in the online environment, without fear of being censored or intimidated.
- Ask your students to first come up with their own rights and what is important to them – then compare their ideas with the digital rights proposed at European level.

Activity Plan 4: Tracing digital footprints

Do some research together with your students about digital footprints (see definition in section 4) and discuss to what extent your footprints are actively or passively created. Try to find out to what extent your data travel to third parties across or beyond the education landscape. Reflect together with your class on the benefits (e.g., optimisation, personalisation) and the disadvantages (violation of privacy?) this may have, and how students can best manage their e-presence.



7. Disinformation: What are we talking about?

Misinformation

Verifiably false information that is spread without the intention to mislead, and often shared because the user believes it to be true.



Disinformation

Verifiably false or misleading information that is created, presented and disseminated for economic gain or to intentionally deceive the public. It can cause public harm.



Malinformation

Factually correct information that is used harmfully

These Guidelines look primarily at disinformation. As mentioned in section 4, disinformation is created, presented, and disseminated for economic gain or to intentionally deceive.

To further clarify the concept of disinformation it can be useful to look at some examples. The following are examples that give an idea of the kinds of disinformation that students are confronted with both in and outside the classroom. In each of these scenarios⁶, there is an intention to deceive and to manipulate people's opinions, emotions, and actions.

1. In a deliberate attempt to attack governments and their health programmes, false information has been spread on various blogs that COVID-19 vaccines are not meant to protect us from the coronavirus disease but are a form of mass population control. It is claimed, without evidence, that the vaccines are a government tool to fight climate change by decreasing the population and these vaccines are designed to cause infertility.
2. In an attempt to cast the LGBTIQ community in a bad light, many users on social media were spreading information in May 2022 that a Texas school shooter was transgender. The inaccurate claims were also amplified by various US politicians and political influencers, some of whom also more broadly linked transgenderism to violence.
3. A story spread in February 2017 by a well-known French politician claimed that the campaign of President Emmanuel Macron was financially supported by Saudi Arabia. A major newspaper website had been cloned to make the story look legitimate and a false story was published.

4. In March 2022, a video emerged of the Ukrainian President Volodymyr Zelensky appearing behind a podium, telling Ukrainians to put down their weapons and surrender. Although this so-called 'deepfake' was not sophisticated, for the untrained eye it seemed real.

5. In February 2022, a bogus tweet from an account masquerading as CNN falsely announced the 'first American casualty of the Ukraine crisis.' Though the information was verifiably false, it led to social media attacks on the legitimacy of CNN as a news source.

Addressing disinformation

As students develop their social identities and construct their worldviews, they engage with a plethora of information, some of it helpful and enlightening, and some of it false, deceptive, and manipulative. In the 21st century much of this information is online or communicated through social media.

In today's world, disinformation can spread significantly farther, faster, deeper, and more broadly than real information. The most effective communicators in our digital world are not necessarily trained professionals, like journalists, but often the first, fastest, and most prevalent online, using personalised messages to connect to their audiences. Disinformation can potentially cause harm to individuals, groups, and society. It can also take many forms (see **Box 4** below for a few examples). However, a key characteristic of all disinformation is that fiction, false information, and opinions are promoted as fact and 'the truth'.

Activity Plan 5: Deciding whether a fact or opinion?

Play the 'fact or opinion game' with your students. This is a very easy, gamified way to gain insight into facts versus opinions and is appropriate for students in both primary and secondary schools. Present students with 10 pre-selected statements that are either fact or opinion (for instance: 'it is zero degrees outside' versus 'it is too cold outside'). Such statements can easily be found online (handy for future reference). Students need to decide which statements are facts and which are opinions. Students should also provide arguments why they think this is the case. This activity can be expanded by asking how students determine what is a fact and what is an opinion?

A similar exercise can be done with science versus pseudo-science. This would be more appropriate for slightly older students.



Tip 8: Verifying sources

How often do the students verify the source when reading articles in their news feeds? Do they ever check if facts that are presented are really accurate? If so, how do they do this?

Discuss with your students what the difference between media professional and citizen journalists is.



- Doing a brainstorm with students. Have them list all the characteristics that come to mind when they see the word 'fact' and what comes to mind when they hear the word 'opinion'. What do they perceive as the similarities and differences?

Cautionary Note: (Young) people need to watch out for these types of deceptive content!

False attribution: Authentic images, videos or quotes are taken from other events

Fabricated content: Content that is fabricated, sometimes combined with real content

Imposter sources: For instance, websites, blogs, or twitter accounts that pose as a well-known brand or person, or as a (school) friend

False connection: The content does not match the headline/captions

False context: The information conveyed is basically accurate but in an inaccurate context

Doctored content: Content, such as statistics, graphs, photos, and video have been modified or doctored. This includes cheap fakes and deepfakes

Weaponised malinformation: Exaggerated, blown out of proportion facts

Conclusions based on rumours: Hard conclusions based on Information presented as 'rumours'



Alternative activity plans to consider:

- Having students, in small groups, go to several online media outlets and read about a social issue (for instance climate change). Have them read one or more pre-selected articles and distinguish what is opinion and what is fact in these articles. Are the facts consistent across articles? What about the opinions?
- Having students write an (argumentative) essay about a social issue that interests them and give them the assignment to include both facts and opinions in their essay.

⁶ These scenarios were taken from various media bias websites. The European Commission takes no official position on the veracity of these examples.

Box 4: Some specific forms of disinformation – opportunities for teachers and educators in particular school subjects

Cheapfakes are increasingly being generated by young people themselves. For instance, to (cyber) bully somebody a student or group of students can take the face of one student (their target) and add it to a compromising photo of somebody else and then spread the fake image through social media channels. This can have severe consequences, especially for the person being bullied. In view of demonstrating how easily cheapfakes can be produced, art teachers (siding on the air of caution) can cover this in the classroom. For more details, see the 'Learning by Doing' cautionary note.

Pseudo-science consists of statements, beliefs, or practices that are claimed to be both scientific and factual but are incompatible with the scientific method. Since such disinformation is commonplace, science teachers have an opportunity to explain to students what distinguishes science from pseudo-science.

Especially teachers of history and citizenship can address how conspiracy theories or hoaxes come into existence and how they have been used as a political weapon in history. Teachers / educators can also point to the many contemporary conspiracy theories. It is important to point out to students that conspiracies do exist, but that many that are spread on the media are fabricated and often push a political agenda. See cautionary note below.



Characteristics of Disinformation

Disinformation can appear in many contexts and on many different platforms. Some of it is specifically aimed at and designed to influence young people. Some common characteristics of disinformation are that it (see accompanying **Activity Plan 6**):

1. Speaks to the emotions of the targeted person. This makes it harder for the person to think logically and critically.
2. Attacks the opponent – promoting 'Us versus Them' views of reality.
3. Simplifies facts and excludes the context.

4. Repeats an idea over and over again.
5. Ignores the nuances of facts by presenting only one side of something.
6. Manipulates images in various ways, such as retouching and cropping.
7. Takes pictures from their original contexts and combines them with other pictures, music / sounds, and texts to create new meanings.
8. Makes use of famous people and celebrities that the target group admires.
9. Increasingly makes use of cheapfakes and deepfakes.
10. Is resistant to evidence that attempts to refute it.

Activity Plan 6: Judging information

Select one or more texts that clearly contain disinformation and for which counterevidence is available and easy to access. Going to fact-checking sites can help you in your search. Have students examine the text(s) and ask them if they can identify the characteristics described above. Have them first do this as individuals and then in small groups to maximise learning.



Why is disinformation created and spread?

Once students can grasp the definition of disinformation, questions that often come up are 'Why do people create disinformation? What motivates them?' You can help steer them in answering these questions.

It is important for students to know that there are several reasons disinformation is created and spread. Ideally, students can research this issue themselves (see **Activity Plan 7**) but as a teacher it is pivotal to give feedback after such an assignment and to explain that certain individuals or groups create disinformation to influence others. This can be done for ideological reasons, to convince people that a certain political opinion is right, and to make financial profit. With respect to some milder cases of disinformation, you might mention that it can be created to entertain (e.g., certain forms of satire) and in those cases deception is meant to gain followers. This is why it is important for students to know the various motivations to create disinformation, the forms it can take and the potential harm it can cause.

Consider...

- Talking to students (first abstractly, then more personally if the group atmosphere allows) about what kinds of online information arouses emotions such as anger, sadness, pride, anxiety.
- Discussing with students what could trigger them to share content without thinking. Ask if they can give examples from personal experience. Remind them that strong emotions, such as joy or anger, make it harder to think rationally and critically.
- Discussing the importance of source evaluation. A good rule of thumb for credible sources is that they are transparent about where their information came from.

Activity Plan 7: Researching why disinformation is created

Rather than explain to students why disinformation is created, have them research this online. This can be done as a more general assignment or assigning small groups to each research the reasons people (or organisations) might want to spread disinformation about for instance COVID, climate change, refugees and migrants, religious minorities, sexual minorities, women, etc. Have the small groups present to each other what they have found. What are the commonalities and differences?

For younger students you can choose lighter and less complex topics that are easier to engage with.

! Before having students do this, however, it would be good preparation to first research this yourself to be better able to steer the conversation in class.



It is useful for students to know that spreading disinformation can, in some instances, lead to economic gain for some people. This includes social media 'influencers' and 'creators' that they might be following, and who earn money through providing content online.

The more spectacular and controversial the information presented on the internet and in social media, the more likely it is that people will read and share it, which means that the creators of the news get more advertising revenue. Those spreading false and/or misleading information will try to get as many people as possible to share it. False 'news' sites, created to copy a genuine news site, are one effective tool for spreading disinformation for financial gain.

Tip 9: Making a difference

Ideally, recognising the problem – that disinformation is pervasive, spreads quickly, and causes harm - should lead to reflection on how to prevent and challenge disinformation. This reflection and subsequent discussion often elicit general statements of responsibility among students, also because they do not always see a role for themselves. Convincing them that 'they can make a difference' can lead to further concrete classroom and school activities to develop strategies that aim to counter disinformation (see other examples in this section).

**Consider...**

Asking students, once they have established that disinformation poses various threats, the following questions about responsibility:

- What is the role and responsibility of the media in spreading disinformation? What is the role and responsibility of technology users themselves? What about (social) media companies?
- Are they aware of various societal efforts to curtail disinformation? Do they agree with these efforts (e.g., various human rights concerns like censorship – they will need to be introduced to societal efforts first)?
- What is the role and responsibility of social media and other platforms in curtailing disinformation?
- What is the role of the government in curtailing disinformation? Review the actions that the local or national governments take: can more be done? Are students aware of government efforts?
- What can/do fact-checkers do to address disinformation?
- What is the role and responsibility of technology users like the students themselves and the community? Can they play a role?

Disinformation can also be spread for ideological purposes. For instance, extremist organisations try to win people for their cause through disinformation and try to recruit new members. Another concerning form of disinformation for ideological purposes is government disinformation. Such disinformation may be created to promote the interests of the state and is meant to influence public opinion (in that state or in another). Such disinformation can deepen divisions in society, demonize certain minorities, and also have an impact in other countries. In its more extremist form, it can be a pretext for war and the justification of war

Activity Plan 8: Discussing media freedom

Discuss with students whether a free media is less likely to have disinformation than government censored media. You can also go to the World Press Freedom Index and show your students how your country ranks in terms of media freedom: <https://rsf.org/en/index>. The site is in 6 languages, is quite visual and has very little text.

Cautionary Note: Learning by doing

Learning by doing is an excellent experiential method for deep learning to take place, and some teachers/educators might be inclined to have students create their own disinformation. For instance, an art teacher might have students create cheapfakes with the use of digital technologies to show how they are created. This might lead to a better understanding of how cheapfakes are created, but there are risks involved. There is the risk that students will use such new skills in inappropriate ways (such as to cyberbully other students). Cheapfakes allow students to, for instance, attach another person's face to a compromising photo and spread it as a 'real' photo. The same concerns apply to having students manipulate images to show how this can be done. It is essential to focus on steps that students can take to address disinformation (solution orientation).

**What is fact-checking?**

As mentioned in the definition section of these Guidelines, fact-checking is the process of verifying if information is true or false. It can take place with any type of media (and for instance for both text and visual images). To determine if information is trustworthy the following questions can be asked: *Who is the author? What is the evidence and what do other credible sources say – also what are credible sources?* Text searches and reverse image searches are often useful when fact-checking. Such searches can help determine if a text is accurate or an image is manipulated and/or taken out of context. Fact-checking is useful both before and after information is published.

Interrogating truth statements in online information

- ? Who is the author/source?
- ? What kind of evidence is presented?
- ? What do other sources say?

Feel free to share your findings with others.

Consider...

- Introducing students to the websites of relevant local fact checkers or international ones if available in your language.
- Inviting guest speakers to the classroom/school to talk about disinformation and fact-checking.
- Showing students (age appropriate) online videos that explain disinformation and fact-checking. Have them compare and contrast the videos.
- Finding out which local, national, or international NGOs can offer help with fact-checking and reach out to them. More and more NGOs are specialised in this and many work with schools.
- Participating with your school or class in national and international events, such as International Fact-checking Day (usually in early April). This link will lead you to information in your language.

Activity Plan 9: Engaging in Fact-checking

Have students fact check media statements from that day or that week to make it relevant. You will need to guide them to some sources you have identified in advance. When conducting this work, the students can ask themselves – whether done individually or in small groups – the following questions:

- WHAT sources can I/we trust?
- WHERE can I/we find these sources?
- WHAT emotions does the information attempt to evoke, if any?
- HOW does this information impact my/our feelings and opinions (so does it succeed in my/our case, and why or why not)?
- HOW can I/we share this information for other users in a responsible way?
- WHY was this article written, what was its purpose?
- WHAT kind of reader was this article written for (target group)?
- HOW can I/we cross-check whether this information is true or false?
- If a news article, HOW does it catch people's attention (for instance bold colours, stark images, big headlines, exclamation marks)?

**What is debunking?**

Debunking happens after the fact, so after false information has appeared. The aim is to correct false information and to prevent others from believing what is verifiably false information. Those reading or seeing the information 'see through' what is being presented as fact and/or truth. Fact-checking strategies can be used to debunk misinformation and disinformation.

What is pre-bunking?

Pre-bunking is a process where people are warned in advance that they are about to be the target of false information. It builds on the reasoning that 'an ounce of prevention is worth a pound of cure'. Pre-bunking can be taught to students by providing them with factual and some in-depth information on a particular subject beforehand, and then introducing the existing disinformation about the same subject. They can also be told in advance what kinds of disinformation they can expect.

Consider...

- Asking students what kinds of rumours and gossip they are familiar with (and are willing to share without pointing fingers). Ask why it is so difficult to debunk these.
- Talking with colleagues about the kinds of disinformation campaigns they anticipate will take place around key social issues in the coming period. What kinds of disinformation do they expect? Devise some cross-subject activities that involve debunking.

Tip 10: Working with your students on pre-bunking and debunking

As a teacher/educator, working with debunking and pre-bunking demands good classroom management skills, since students might believe some of the false information being spread. To prevent resistance and disengagement among the students, as mentioned in the section 'Setting the Scene', you might want to start with relatively non-controversial issues for the students. These might initially include false information, rumours or gossip that was spread long before they were born (for instance moral panic about witches in the Middle Ages) or false information far away from their own reality (In some countries the myth that eating crab will make your baby mischievous). Debunking this false information – with all the knowledge of hindsight and science – is relatively easy and non-threatening to the students. A useful activity is for students to debunk such information using evidence and science.

Once students grasp the essence of how to debunk, they can also be asked to pre-bunk the same information if it were to be appear again. They can also be asked if the kind of approach they arrived at for debunking and pre-bunking is similar or different.



Assessing the credibility of information, and how to identify and use legitimate sources

What it means and why is it important?

Fact-checking, debunking, and pre-bunking all connect to the ability (of students) to judge the accuracy of information, use legitimate sources, and think about information in a critical way. Students are presented with millions of answers to every question imaginable, and it might feel challenging for you to help them distinguish between facts, opinions, and disinformation (and misinformation). Working with students on how to navigate the digital world is certainly challenging but also an opportunity to emphasise the benefits of being able to find accurate and educationally enriching information online. Giving students the tools to identify credible information means giving them the keys to a valuable informational world. It also means they need a basic understanding of how disinformation is created and spread.

Understanding the various dimensions of disinformation

Technical aspects of disinformation

Most students know how to use digital devices but not how to use them responsibly or how modern technology makes it easy to spread disinformation. For instance, Artificial Intelligence (AI), while being a powerful tool to address disinformation and misinformation, can also be misused to create deep fakes. Networks of bots can spread inaccurate information online. Understanding the technical aspects of disinformation gives insight into how disinformation really works.

Activity Plan 10: Discussing the technological aspects of disinformation with students



You can start by simply asking in the classroom whether students think that the technology associated with digital devices can effectively spread disinformation and why they think that is the case. This can create a baseline that you can work with. It can also help you dispel myths and false understandings. This kind of activity can already take place in primary school.

Consider...

- Asking students if they know how algorithms, clickbait, and bots work (in terms of technology).
- Having students conduct research (instead of providing answers to the above). Have them, for instance, go online and identify 1-2 short videos that they think explain this well. Select one or two to show to the class.
- Looking into the increasingly common on-line educational games that give students and others insight into how disinformation works.

Ethical aspects of disinformation

In addition to the technological aspects of disinformation, discussing the ethical aspects of disinformation with students can provide a fuller picture not only of how disinformation works but also how disinformation can be harmful, what kinds of harm it can create for individuals and society and their own responsibilities in the digital realm, especially their responsibility to not share disinformation and to warn others about it.

Tip 11: Connecting to Human Rights

Discussing human rights issues such as freedom of the press, freedom of speech and freedom of information, as well as how and why social media platforms curate content, can give students further insight regarding disinformation and the challenges associated with spreading it.

You can use a variety of discussion, dialogue and reflection methodologies to get students to actively engage with the subject matter. For instance, have students discuss the pros and cons of banning certain people from social media or blocking certain content. Where do they stand on this? What arguments do they use? You can give feedback on the legality of certain measures to stop disinformation. It does mean brushing up on what the law is.



Consider...

- Looking at recent EU policy initiatives to restrict the spread of disinformation (e.g., the [EU's 2022 Code of Practice on Disinformation](#)⁷, the [Digital Services Act](#)⁸ and the [Digital Markets Act](#)⁹)
- Asking students to give their opinions about the initiative above (especially for secondary students), either through small group work or with the class as a whole.
- Having students first look at advertisements and ask what the advertisers want to accomplish and why? Does this differ from disinformation? How?
- Asking students where they draw the line when it comes to free speech? Should all free speech be allowed, even if it is verifiably false and causes harm?
- Devising a campaign with students to warn other members of the school community against the most prevalent expressions of disinformation at that moment.

The economics of disinformation

As mentioned at the outset of the section, spreading disinformation can lead to economic gain. You can start by asking students which companies might want to target their age group with that information?

Activity Plan 11: Discussing the economics of disinformation

You can start with a reflective exercise in which you ask students about their own hobbies, interests and opinions. Given their likes and dislikes, ask them who might be interested in marketing to them. What do these companies or organisations hope to accomplish? How do they do this? How do social media algorithms help them achieve this? Such work can be done for instance as a brainstorm or first in small groups.

**Consider....**

- Asking students if they use e-commerce. Have they seen any kind of deception when they use it? What kinds of deception? Why would companies use deception?
- Asking students which companies might want to target their cohort through marketing? If they are willing, they can also talk about their own experiences.
- Asking students if they know what phishing is. Explain if they do not know. What is the harm that phishing causes?
- Asking students if they know how social media platforms make money. Explain if they do not know. Asking students if they know what an algorithm is. Explain if they do not know. Can they think of the implications of using algorithms to personalise an online experience, including with personalised advertising, for individuals and society? What about for them and their peers?



⁷ <https://digital-strategy.ec.europa.eu/en/policies/code-practice-disinformation>

⁸ <https://digital-strategy.ec.europa.eu/en/policies/digital-services-act-package#:~:text=The%20Digital%20Services%20Act%20and,level%20playing%20field%20for%20businesses>

⁹ https://competition-policy.ec.europa.eu/sectors/ict/dma_en

Some cognitive and emotional dimensions of disinformation

Part of the reason that it can be challenging to convince people that certain information is false relates to common cognitive and emotional, yet very human, mechanisms that can make us resistant to corrective information. Presenting facts and truths often fails to convince people that their views are erroneous. Many of us also do not think we are particularly susceptible to disinformation. That is why it is critical that young people develop an open mindset, accept that reality has many layers and that there are no easy answers to complex issues.

Box 5: Key cognitive and emotional mechanisms that can prevent (young) people from accepting evidence that runs counter to their opinions

Need for belonging and social identity: we are all individuals with our individual beliefs and values, but we are also social beings who have a strong need to belong to social groups. We derive many rewards from this belonging to social groups and are usually willing to make sacrifices (including ignoring evidence that challenges our views) to maintain our group identity.

Confirmation and disconfirmation biases: confirmation bias: human beings of all ages have the unconscious psychological desire to seek confirmation of their existing beliefs rather than information that might contradict or complicate their beliefs. Disconfirmation bias: the human tendency to ignore or reject information and assertions that challenge one's beliefs, even when they are demonstrably true.

False consensus effect: (young) people tend to overestimate how many others share their (erroneous) beliefs.

Bandwagon effect: an idea or belief is followed because everyone seems to be doing so.

Naïve realism: the human tendency to believe that we are rational, objective, and unbiased when we interpret what we see around us, and that others are either irrational, biased or misinformed.

Continued Influence Effect: the phenomenon that discredited (dis) information continues to affect our behaviour and beliefs. People continue to rely on the false information when interpreting information, reasoning, and making judgments. This has been found to be especially true when addressing conspiracy theories (See Box on conspiracy theories).



Activity Plan 12: Discussing Conspiracy Theories

Have students first research online what conspiracy theories are and steer them (requires teacher preparation work) to old conspiracy theories that are somewhat non-controversial in today's world. Who spreads these theories? How were they spread? Why were they spread – for what aims? What were the consequences? What role did rumour, gossip, and prejudice play? This self-discovery process can lead to deeper insights.

Ask students to identify what all these conspiracy theories have in common. What kinds of emotions did they appeal to?

Subsequently ask students how these conspiracy theories differ from most other disinformation.

Ask students how to distinguish between true conspiracies (they do exist) and those that have no basis in reality.

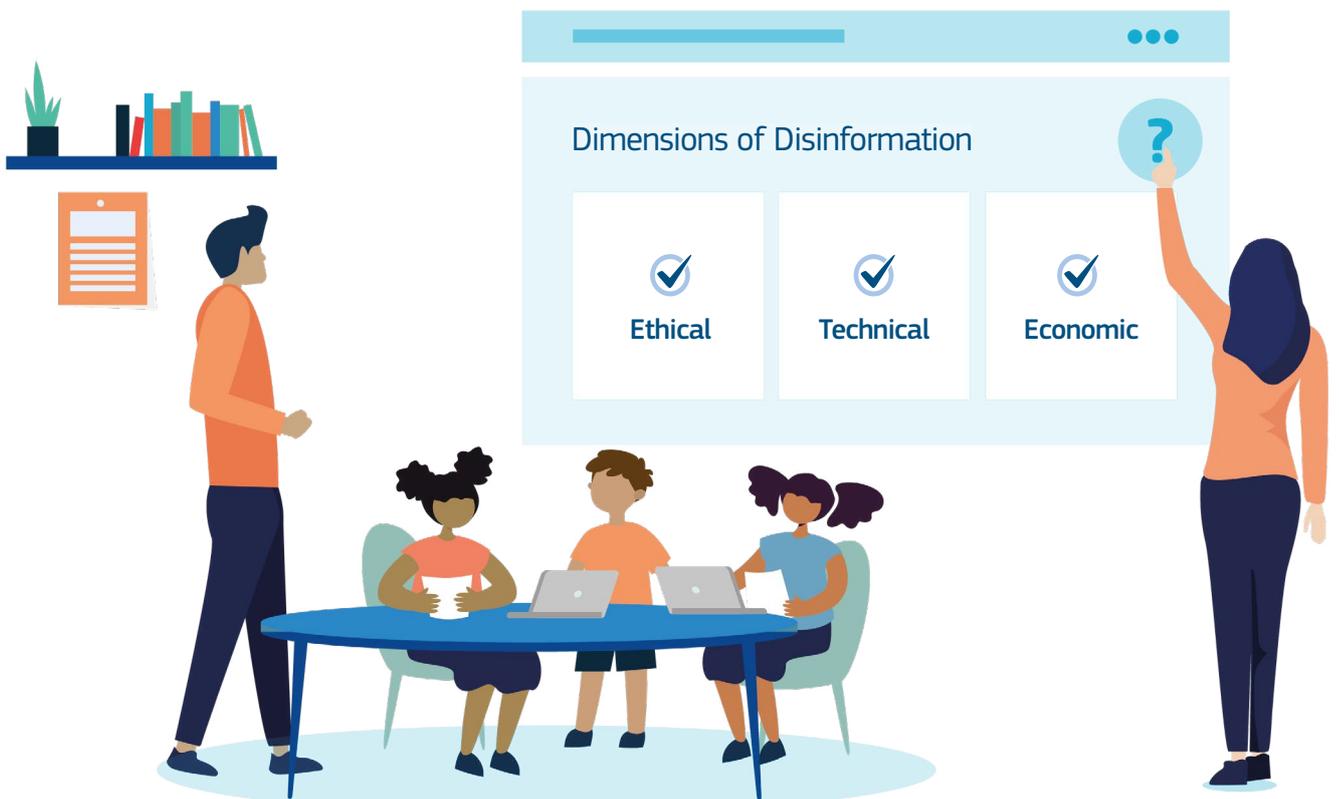


Cautionary Note: Discussing conspiracy theories

Conspiracy theories are a special kind of disinformation and can be especially resistant to challenges using facts and evidence. Because of their nature they are hard to disprove. They are also especially prone to what we have referred to as the continued influence effect. Therefore, addressing conspiracy theories with students can often require more careful attention.

Key aspects of conspiracy theories tend to be that they:

- Attempt to manipulate opinions and beliefs.
- Are not simply loose pieces of false information but connect to a broader societal view of what is good and bad in the world.
- Identify victims (often one's own social group) and perpetrators (others)
- Often seek to strengthen one's sense of group belonging (Us versus Them) and imply a call to action.
- Place blame for negative events on elusive, hidden and secret 'realities', and organisations.
- Assume that powerful groups of people are keeping things hidden from us and are trying to cause harm.
- Often mix facts with falsehoods to be more effective.
- Appeal to emotions and are resistant to any type of evidence.
- Can lead to economic or political profit for those spreading false conspiracy theories.



8. Assessing and evaluating digital literacy in school and the classroom: concrete guidance for teachers and educators

Assessing student progress in education is a basic and necessary part of school reality in Europe and one of the important tasks that you as a teacher/educator have. This also applies to the assessment of students' levels of digital literacy.

Since digital literacy is a relatively new area of education this can be a challenging task. The competences associated with digital literacy are composed of knowledge, attitudes, and skills. Therefore, any comprehensive assessment of students should be multifaceted and attempt to measure all three. Mastery and progress relating to digital literacy are best connected to both the (final) product and the process. Furthermore, it will make a difference in how to assess mastery and progress if digital literacy is taught across subject areas (transversal) versus as a separate subject.

What can we and what should we assess?

A core element of digital literacy is critical thinking, since this is what allows students to become resilient in a digital environment, where distorted and false news circulates alongside reliable information. A key question for any teacher to ask is whether students have the knowledge, skills, and attitudes to effectively navigate their digital worlds.

Young people can be assessed in terms of their digital literacy along dimensions such as: (1) their ability to separate facts from opinions, (2) their ability to identify manipulative strategies, (3) their ability to fact-check online information, (4) their ability to find use and create information in critical, constructive, and creative ways, and (5) their ability to use digital devices effectively.

Tip 12: Communicating with colleagues

Gain insight into how your colleagues, if at all, are assessing digital literacy and the kinds of instruments they are using. Some instruments are probably more reliable and accurate than others.



Types of assessment practices

There are many ways to assess students when promoting digital literacy in education. Common ways to assess mastery and progress are tests of knowledge and skills, evaluations you make and student self-evaluations, as well as reflection on the outcomes of tests or learning experiences. You might want to use a mix of tests and other types of evaluations to gain a true picture of how students are doing. There are already many existing resources and reliable assessment instruments to assess students' digital competence. Some of them are presented in **Boxes 6-8**. Such tools assess, for instance, adults and students' knowledge and skills to critically analyse, compare, and evaluate the credibility and reliability of online information.

¹⁰ Lateral reading is basically the act of verifying what you're reading as you're reading it.

¹¹ Source: Wineburg, S., Breakstone, J., McGrew, S., Smith, M. D., & Ortega, T. (2022). Lateral reading on the open Internet: A district-wide field study in high school government classes. *Journal of Educational Psychology*. Advance online publication. <https://doi.org/10.1037/edu0000740>

Tip 13: Assessing students' competences

When assessing students' competences related to digital literacy use a mixture of closed ended questions, open-ended questions, and short essays.

Assessing students' **knowledge** may include test questions asking students to list credible online sources on different topics, to describe the difference between an opinion piece and hard news, to distinguish between **media professionals and citizen journalism**, and to describe how algorithms may influence searches.

Students' digital literacy **skills** can be tested in assessments asking them to identify information meant to deceive and manipulate versus information that is neutral or balanced, or to identify what constitutes evidence for a particular claim, analysis, or judgment. This may include assessment questions asking students to rate how reliable they perceive different articles, headlines or posts on social media are (see example in **Box 6**), their 'scores' can then be used to discuss how to improve their skills.

Box 6: An example of an assessment examining students' ability to identify manipulative headlines

True or fake? Underscore True or Fake after the headlines below.

- a. The Government is Manipulating the Public's Perception of Genetic Engineering in Order to Make People More Accepting of Such Techniques (True or Fake)
 - b. Attitudes Toward EU Are Largely Positive, both Within Europe and Outside It (True or Fake)
 - c. Certain Vaccines are Loaded with Dangerous Chemicals and Toxins (True or Fake)
4. Please justify your responses in question 1 – why do you consider the headlines to be true or false? How can you find out if the headlines are correct or misleading?

Note: Headline 1a and 1c are fake headlines and 1b is a real news headline. Examples 1a and 1c are examples of conspiracy theories. 1c is emotionally manipulative. Asking an expert or fact-checking the information in other credible sources are good ways to find out what is correct.



Students' fact-checking **skills** can be assessed by tasks getting them to engage in lateral reading,¹⁰ their ability to conduct reverse image searches and text searches with multiple search engines and their ability to debunk disinformation (e.g., the level of complexity). Their skills to identify manipulated images and deep fakes can be assessed by examining to what extent they are skilled at using digital resources to debunk misleading information.

You can also assess student skills to problem solving in various ways. You can give them 'disinformation scenarios' and ask them to find solutions. This can include asking them how they would fact check, pre-bunk or debunk disinformation and assess this work (whether an essay, a strategy, or even something more creative).

Box 7: An example of an assessment questions examining students' skills to conduct online searches using lateral reading¹¹

Please take about 8 minutes to complete this task.

You are researching global warming and you come across this website: <https://friendsofscience.org>. Please decide if this website is a trustworthy source of information global warming. You can also open a new tab and do an internet search if that helps.

1. Is this website a trustworthy source for learning about global warming?
 - Yes
 - No
2. Explain your answer, citing evidence from the webpages you used. Be sure to provide the URLs to the webpages you cite.

[open field for answer]



Students' digital literacy **skills** can also be assessed by:

- examining their abilities to separate ads from news or their ability to identify credible sources when researching a particular social issue. Even if students use digital tools daily, they may lack the skills to fact check. Therefore, part of an assessment can be to test students' ability to use digital devices when, for instance, researching alternative views, debunking falsehoods, and doing online searches for information (see example in **Box 7** above).
- using portfolios. Students' awareness of how so-called fake news is created can take place by asking students to create a fake tweet or a fake news article themselves, and subsequently discuss how they would manipulate the readers (this needs to be carefully guided for reasons mentioned earlier).

Students' **attitudes** towards online information can also be assessed. It is important that students are not 'naïve' when using online information. Many people feel they are 'immune' to disinformation and trust sources they are familiar with. Therefore, it is important to assess to what extent they consider online information as credible. They also need to recognise the importance of accessing reliable information. Such issues can be assessed by asking students to rate how trustworthy they consider online information, on a scale from 'all' to 'none', as well as a question asking them to rate how important it is for them to have access to reliable news (see **Box 8**). Productive **attitudes** linked to digital literacy are **attitudes** that question the veracity of online information and positive **attitudes** towards access to reliable news.

Box 8: Examples of assessments examining students' attitudes towards information.¹²

1. How much of the information on internet do you perceive as trustworthy?

All ----- None

2. How important is it for you to consume reliable news?

Not at all important----- Very important

3. I think there are many wrong ways, but only one right way, to almost anything.

Strongly agree ----- Strongly disagree

4. One should disregard evidence that conflicts with your established beliefs.

Strongly agree ----- Strongly disagree

5. I believe that the different ideas of right and wrong that people in other societies have may be valid for them.

Strongly agree ----- Strongly disagree

6. People should always take into consideration evidence that goes against their beliefs.

Strongly agree ----- Strongly disagree

Note: Question 1 measures if students are naïve or skeptical to online information, Question 2 measures student attitudes towards reliable news, Question 3 measures dogmatism, Question 4 measures fact-resistance, Question 5 measures flexible thinking and Question 6 measures open-mindedness.



¹² Examples from Nygren, T., & Guath, M. (2022). Students Evaluating and Corroborating Digital News. *Scandinavian Journal of Educational Research*, 66(4), 549-565. doi:10.1080/00313831.2021.1897876; Roozenbeek, J., Maertens, R., Herzog, S. M., Geers, M., Kurvers, R. H., Sultan, M., & van der Linden, S. (2021). Susceptibility to misinformation is consistent across question framings and response modes and better explained by open-mindedness and partisanship than analytical thinking. *Judgment and Decision Making*. In press.

¹³ DigCompSAT <https://publications.jrc.ec.europa.eu/repository/handle/JRC123226>

Students' active open-mindedness is also an **attitude** that is important to assess since having a positive attitude towards accepting new evidence and multiple perspectives goes hand in hand with peoples' abilities to navigate disinformation. This can be assessed by observing, through various activities, the extent to which students are willing to change their position on issues when they learn that solid evidence goes against their own opinions. Students' **attitudes** online and their social media etiquette are also important to assess. This entails looking at students' communication styles when for instance collaborating with others online or debating them. Such assessment can include observing whether they launch personal attacks, insults, disrespect and/or show insensitivity to the misfortunes of others.

Tip 14: Reflecting on the nature of assessment



Assessment goes beyond student knowledge of facts or what is true and not true, what is biased or not. It is also about measuring to what extent students have a critical mindset, are open minded, open to counter-evidence and are active listeners. Such attitudes are critical for them to become responsible, active citizens.

Consider...

- Assessing students' knowledge, attitudes, and skills both before and after teaching takes place.
- Combining multiple measurement instruments, especially those that have been found to be reliable.
- Using assessment instruments that measure knowledge, attitudes, and skills.
- Staying up to date on new and better assessment instruments which can give a better picture of student mastery and progress, especially since the field of digital literacy is evolving fast.
- Giving feedback to students on where improvement is needed, based on the assessment of their competences
- Using more open questions and assignments, prompting students to search online, before and after lessons.
- Making an effort to assess to what extent students are critical of information that is dogmatic in character and resistant to counterevidence (the opposite of open-mindedness)
- Asking your colleagues how they assess attitudes such as open-mindedness and flexible thinking. If they do not do this already, have a discussion how to such assessment could be implemented.

Cautionary Note

When using disinformation items during assessment, make sure that students understand which information is accurate versus false. Some might otherwise leave believing the wrong thing. This is all the more important because of the 'continued influence effect', discussed in Box 5.



Self-reported measures of digital literacy may be used for discussion, reflection, and observations. Bearing in mind that students may be over-confident and not be very good at rating their own knowledge, skills and attitudes, self-reflection may still be used to provide some important insights in their view of themselves and how they can improve. An example of self-assessment statements is given below in **Box 9**. These statements come from the European Commission's DigCompSAT (a self-reflection tool mentioned in [DigComp update 2.2](#)).¹³ This international resource can be helpful in your work.

Box 9: Examples of statements for self-reflection about digital literacy (DigComp 2.1; DigCompSAT).

- I know that different search engines may give different search results because they are influenced by commercial factors (knowledge/intermediate level)
- When I use a search engine, I can take advantage of its advanced features (skill, intermediate)
- I know how to find a website I have visited before (skill, basic)
- I know how to differentiate promoted content from other content I find or receive online (e.g., recognising an advert on social media or search engines) (skill, intermediate)
- I know how to identify the purpose of an online information source (e.g., to inform, influence, entertain or sell) (skill, intermediate)
- I critically check if the information I find online is reliable (attitude, intermediate)
- I know that some information on the internet is false (e.g., fake news) (knowledge, basic)



Digcomp 2.2¹⁴ also offers ways to assess students' proficiency through observing and guiding students' learning processes through specific tasks linked to digital literacy. The assessment of student learning can take place by observing students' ability to solve (complex) tasks, their level of autonomy,

and their cognitive level. The observation of competences requires the development of rubrics. In your assessment you may consider task complexity, level of autonomy, cognitive domain (See Figure 1) or develop detailed rubrics considering the proposed activity and the specific tasks assigned.

Level	Complexity of tasks	Autonomy	Cognitive domain
Basic	Simple tasks	With guidance/autonomy and with guidance where needed	Remembering
Intermediate	Well-defined and routine tasks, and straightforward problems/tasks, and well-defined and non-routine problems	On my own/independent and according to my needs.	Understanding
Advanced	Different tasks and problems/most appropriate tasks	Guiding others/able to adapt to others in a complex context	Applying/evaluating/creating

You can better identify what students need to develop and support the learning process by looking at, for instance, if students have developed effective search methods for personal purposes (e.g., to browse a list of most popular films), for education purposes (e.g., to research various interpretations of historical events) and professional purposes (e.g., to find appropriate job advertisements). You can also see if they know how to handle information overload (e.g., the increase of false or misleading information during a disease outbreak) by adapting their personal search methods and strategies.

Tip 15: Assessing student research skills

Assess students' ability to conduct research into key digital issues. For instance, give students an online research assignment to identify the types of technologies used to make cheap fakes and deepfakes. Such research skills will benefit students across all subject areas.



Consider...

- Having students self-assess their level of mastery and progress. Have them also set their own goals relating to their level of digital competence.
- Using internationally developed frameworks such as DigComp 2.2.¹⁵ There are plans to make this available in all EU languages.
- Using peer evaluations and portfolios.
- That assessing small group work usually involves both a level of group and individual assessment.
- Having students develop counter-narratives to disinformation campaigns that target certain vulnerable communities. Assess, together with the other students, the 'strength' (how persuasive are they and why) of the counternarratives.

¹⁴ Ibid

¹⁵ <https://publications.jrc.ec.europa.eu/repository/handle/JRC128415>

¹⁶ <https://education.ec.europa.eu/selfie>

Evaluation of effective educational approaches relating to digital literacy

In addition to assessing student competences, it is always good to know whether your teaching approaches are having the impact you hope for. In essence, improvement is always possible. If the lesson, unit, or programme has had any effect, then students should be better at some of the assessment questions listed above; for instance, identifying misleading headlines or fact-checking online when the activities are finished. A measurement before you get started and then after you are finished will provide important insights into this. If you use the test questions assessing students' knowledge, skills and attitudes found in Boxes 6 and 7 then you can see what they have learned and what they still struggle with after the teaching.

The question then arises: how do I best evaluate my own and/or the school's digital literacy program (e.g., what tools to use for what purpose? What aspects can and should be evaluated? How to access useful, reliable existing tools? Who to involve in the evaluation)? There are many ways to measure impact but using valid and reliable measurements of student learning are probably the most effective. Asking students to evaluate how they have been taught and what they have learned can provide useful information but often lacks accuracy, especially if their responses are not anonymous. They might also feel that there is normative pressure to respond in a certain way (social desirability). Thus, evaluating the impact of education to support digital literacy is very important yet also complex.

If you have the opportunity, you and your colleagues may benefit from more detailed evaluation in collaboration with researchers interested in learning more about digital literacy in practice.

Tip 16: Connecting with universities

Although perhaps time consuming for teachers/educators, universities are often looking for opportunities to have their faculty or graduate students assess (digital literacy) programs. It can benefit you and the school to reach out to a local university (e.g., Communications Dept) and seek collaboration. The ultimate aim is to improve the way digital literacy is taught in the school and also how it is assessed. NGO's also sometimes have this expertise.



Consider...

- Talking with the school director about collaborating with a local university or NGO to conduct an evaluation of how digital literacy is taught in the school.
- Researching on-line what kinds of evaluation tools might be available for the school free of charge or for a very low cost.
- Looking into the EU's SELFIE tool¹⁶ to help your school improve how it uses technology for teaching and learning?

In sum, there are many ways to assess the digital literacy of your students and evaluate the kinds of programmes and approaches that you and your colleagues are using. There are already many reliable (mostly free) instruments at your disposal.

Note on resources

If you are interested in further educational resources, the [Final Report](#) that accompanies these Guidelines contains an extensive list of resources.



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