MIL competence framework in Algo-AI literacy
From age 13 and more!
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With the urgent need to support the transformations brought about by AI in the fields of information and disinformation, Media Information Literacy (MIL) educators and trainers find themselves relatively powerless in terms of competence frameworks.

It is in response to this need that the **Algowatch** project wishes to share this first competence framework for 13-16 year olds created by Savoir Devenir, with its European partners, for the MIL community. We welcome your feedback and comments!

Context and issues

Since the public release and success of Chat GPT and other generative AI systems, algorithms and generative AI have become part of the public debate. In the wake of deepfakes, the quality of information and the risks associated with new forms of disinformation are causes for concern. What if robots were to use increasingly sophisticated forms of generative AI to mass-produce fake news that would be hard to spot on all types of media, including 'synthetic' media (i.e. created entirely by AI)?

The **Algowatch** project was launched to respond to this concern without giving in to panic or waiting for complex public policies to be implemented, and to give citizens the means to control their information. More than ever, MIL seems to be crucial in providing people with the relevant knowledge, aptitudes, attitudes and values, not only to protect themselves against risks, but also to take advantage of the possibilities offered by algorithms and generative AI in the fields of media, culture and education.

A definition of algorithm-literacy

Literacy is a specific mode of learning that considers not only the acquisition of knowledge but also, and above all, its anchoring in practices, experiences and values.

In MIL, Algorithm-literacy, which looks at the role of algorithms and AI in the production, consumption and dissemination of information, has become a priority field for all those working to promote a digital culture that is chosen rather than imposed.

MIL competences in algorithm-literacy

Algorithm-literacy broadly covers the following areas of competence around the 3 pillars of education, Knowledge, Know-how and Know-how-to-be, and in alignment with the definition of MIL:

- Knowing and understanding how algorithms and AI work, what drives them and what motivates them, as this has an impact on information and can lead to disinformation.
- Being able to analyse and criticise them
- Knowing how to use them
- Developing strategies to control them
- Taking a stand as a citizen when it comes to their use and regulation

But these areas must then be broken down into micro-competences, clearly linked to MIL, and usable in a concrete, flexible way based on examples drawn from everyday life. Savoir Devenir has therefore created an adapted competency framework, based on the European Digital Competences Framework (DigComp 2.2), and its AI addendum where relevant, and by adding the missing MIL competences, particularly in terms of know-how and values. These were identified during a previous European project (Crossover) and tested during pilot training courses and workshops.

This Algorithm-literacy competence framework within MIL is aimed at young people in lower and upper secondary schools, as well as all educators and stakeholders in cultural and educational institutions, including NGOs and actors in popular education and university networks. It can be used as a basis for creating workshops and classroom activities, using the resources produced by Algowatch (4 interactive quizzes, 1 online board game). Examples can be found at algowatch.eu.

KNOWING > knowledge *to know, to understand, to be aware of...*	
DIGCOMP 2.2 competences	MIL competences
157. Knowing that algorithms, and therefore programs, are designed to help solve real-life problems; the input data models known information about the problem, while the output data provides information relevant to solving the problem. There are different algorithms, and therefore different programs, for solving the same problem. **156.** Knowing that a programme plan is based on an algorithm, i.e. a progressive method for producing an output from an input.	**1.** Knowing what an algorithm is
4. Being aware that search engines, social media and content platforms often use AI algorithms to generate responses tailored to the individual user (e.g. users continue to see similar results or content). This is often referred to as 'personalisation'. (AI)	**2.** Understanding how search engine ranking algorithms work
21. Being aware that AI algorithms may not be configured to provide only the information desired by the user; they may also convey a commercial or political message (for example, to encourage users to stay on the site, to look at or buy something, to share specific opinions). This can also have negative consequences (reproduction of stereotypes, sharing of incorrect information). (AI)	**3.** Knowing what recommendation algorithms can and cannot do
105. Be aware that AI systems collect and process several types of user data (e.g. personal data, behavioural data and contextual data) to create user profiles which are then used, for example, to predict what the user might want, see or do next (e.g. offer advertisements, recommendations, services). (AI)	**4.** Understanding how predictive algorithms work
NA	**5.** Understanding the definition and functions of artificial intelligence (AI)
NA	**6.** Understanding generative artificial intelligence (GAI)
NA	**7.** Understanding GAI: How LLMs generate answers
NA	**8.** Do you speak AI? Knowing how to translate specific keywords (for non-English speakers): Machine Learning, big data...
NA	**9.** Having a basic understanding of the history of algorithms
NA	**10.** Understanding the algorithmic mechanisms that can encourage disinformation campaigns on social media

KNOWING-HOW *Be able to, know how to...*	
DIGCOMP 2.2 competences	MIL competences
119. Being aware that AI systems can be used to automatically create digital content (e.g. text, news, essays, tweets, music, images) using existing digital content as a source. This content can be difficult to distinguish from human creation.	**11.** Being able to recognise the information produced by AI
27. Being able to recognise that some AI algorithms can reinforce existing opinions in digital environments by creating 'echo chambers' or 'filter bubbles' (for example, if a social media stream favours a particular political ideology, additional recommendations may reinforce that ideology without exposing it to opposing arguments).	**12.** Knowing how to combat filter bubbles and echo chambers
22. Being aware that the data on which AI depends may contain biases. If this is the case, these biases can be automated and worsen the use of AI. For example, occupational research results may include stereotypes about male or female jobs.	**13.** Being able to judge the quality of the databases (and possible biases) on which the AI and algorithms are working
113. Knowing how to modify user configurations (e.g. in applications, software, digital platforms to allow, prevent or moderate the AI system from tracking, collecting or analysing data (e.g. not allowing the mobile phone to track the user's location).	**14.** Developing strategies to combat algorithmic disinformation and hate speech
113. Knowing how to modify user configurations (e.g. in applications, software, digital platforms to allow, prevent or moderate the AI system from tracking, collecting or analysing data (e.g. not allowing the mobile phone to track the user's location).	**15.** Limiting the influence of recommendation algorithms on social media
NA	**16.** Assessing the reliability of the sources provided by AI
NA	**17.** Limiting the influence of recommendation algorithms on websites
8. Knowing how to formulate search queries to get the desired result when interacting with conversational agents or smart speakers (e.g. Siri, Alexa, Cortana, Google Assistant), for example by recognising that the query must be unambiguous and clearly worded for the system to respond appropriately. (AI)	**18.** Being able to "converse" with the Generative AI knowing that it is not a human and without anthropomorphising it.

KNOWING HOW TO BE *Behave in a way that ... ("soft skills" and values)*	
DIGCOMP 2.2 competences	MIL competences
216. Considering the ethical consequences of AI systems throughout their lifecycle: these include both the environmental impact (environmental consequences of the production of digital devices and services) and the societal impact, e.g. the platformisation of work and algorithmic management, which may infringe workers' privacy or rights; the use of cheap labour to label images to train AI systems. (AI)	**19.** Being sensitive to the ethical issues associated with informational algorithms
2. Being aware that online content made available to users free of charge is often funded by advertising or the sale of user data.	**20.** Having a well-informed and critical attitude towards the economic models underlying the systems offers, particularly free offers
56. Knowing that all EU citizens have the right not to be subject to fully automated decision-making (for example, if an automated system refuses a credit application, the customer has the right to request that the decision be reviewed by a person).	**21.** Showing a willingness to fight against manipulation
NA	**22.** Being prepared to work with others to obtain better and more reliable information
NA	**23.** Being able to consider the different levels of AI risk in information in accordance with the AI Act
NA	**24.** Using AI to project into everyday life and the jobs of the future

The Algowatch project

The European project Algowatch was granted as part of the *CREA-MIL* 2023 call for proposals. It began in October 2023 and will run for 2 years. It focuses on the education of young people and the general public about the challenges of algorithms and Artificial Intelligence (Algo- and AI-literacy) in the field of information and digital citizenship.

Key objectives

- Producing easy-to-use, shareable resources for adult educators and educational mediators in and out of school (interactive quizzes, online board games).
- Reaching young people in schools (with their teachers) and a mixed population of adults (including the elderly and migrants) with low digital literacy competencies, with the resources produced and promoted in an exhibition-workshop that can be downloaded and shown in public spaces such as libraries, museums, festivals, cultural centres or associations.

Partners

- Savoir Devenir, coordinator, in France
- Association for Communication and Media culture (DKMK), in Croatia
- National University of Ireland, Maynooth (NUIM), in Ireland
- University Institute of Lisbon (ISCTE), in Portugal

Learn more about the project: www.algowatch.eu

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