



Prospective  
research

# How to improve citizens' algorithmic literacy in Brussels?

# Key messages

- 1** Monitor **digital literacy levels in Brussels** and the underlying needs for algorithmic literacy
- 2** Think about the role of **algorithms for social good** (e.g. discoverability, searchability)
- 3** Foster initiatives for **training critical thinking** (and not just technical!) around the online practices of Brussels residents
- 4** Discuss the **collaborative design and control features** of recommendation systems for public service platforms
- 5** Support innovative and responsible **research on digital public services' interfaces**

# Introduction/summary of the problem

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Teenagers and young adults between 15 and 24 years old in Brussels access news today primarily through social media sites. Recommendation algorithms play a central role in this process as they operate the interrelation between content and users on these platforms. Critical thinkers have addressed the potential negative effects of algorithmic recommendation on news distribution — under the notions of filter bubbles or echo chambers — as it would cause a decrease in divergent opinions exposition online and lead users to experience intellectual or cultural isolation. Yet, teenagers and young adult’s ability to construct themselves as informed citizens depends on the information they access online.

This situation raises major concerns for the democratic future of the Brussels-Capital Region. Indeed, it questions the impact of algorithmic recommendation on the opinion-making process of these young (or soon-to-become) electors. It questions their ability to associate with others in a context where the access to news varies from one person to the other, or from group to another one. It questions their capacity to make a critical use of recommendation systems and to have an accurate understanding of invisible technologies they use on an everyday basis.

# Methods, approaches and results/body

The Alg-Opinion research project aimed to study the existing relationship that teenagers and young adults in Brussels (15-24 years old) have with recommendation algorithms on social media platforms. The goal was to better grasp how they perceive these technologies, how algorithms intervene in their information uses and to what extent automated content recommendation on social media platforms play a role in the opinion-making process of young people in Brussels. In order to do so, a triple simultaneous research program was established in collaboration with partners from the civil society (the RTBF and Média Animation).

The first one consisted in a three phases qualitative data gathering and analysis:

**A.** 27 exploratory interviews with teachers, media educators and teenagers in Brussels on young people's perceptions of algorithmic recommendations;

**B.** 16 focus groups with 80 teenagers to understand their information use online and to assess their understanding of algorithmic recommendation;

**C.** 13 *in praxis* interviews with young adults to observe their strategies to interact with algorithms.

The second one consisted in a thorough critical analysis of the notion of filter bubbles in a context of news distribution in the literature and the development of an experimental website (ALVEHO) in collaboration with the RTBF. Its aim is to

enhance algorithmic literacy by allowing users to tinker with the algorithm thanks to transparency design and control functionalities. 23 persons have tested the platform during a five-week period and the results show a low use of these functionalities when the participants are not trained to use them.

The third one consisted in the development of a media literacy activity relying on the ALVEHO platform in collaboration with Média Animation. The activity aims at enhancing the participants' algorithmic literacy by using transparency design, control functionalities and tailor-made popularization videos based on the results of the Alg-Opinion research project.

# Conclusions

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The key message to take away from this policy brief is that policy makers need to promote and invest in activities and resources promoting a critical algorithmic literacy in Brussels. Young people in Brussels perceive the actions of algorithmic and tend to strategically interact with them in order to accentuate or limit their effects on content distribution.

However, this knowledge is mainly experiential and unequally distributed among them. It is therefore more than needed to formalise this knowledge during hands-on activities explaining what algorithms are, where to find them and how to interact more consciously with them.

Such activities should also be accessible to different population groups. Indeed, our research shows that educated adults (such as teachers) seem to have a poor understanding of what algorithms are and how they really operate. In parallel, specific attention should be dedicated to migrants, people with a low level of education or with a lack of digital knowledge.

# Policy recommendations

## **1. Increase and develop algorithmic literacy among the large public, with a specific focus on young people, migrants, people with a low level of education or with a lack of digital knowledge.**

The main objective is to support the development by operators in Brussels (media education and continuing education associations, media groups, etc.) of training workshops focusing on algorithmic literacy. In the vein of the Alg-Opinion project that worked on algorithmic literacy among young people in collaboration with the RTBF and Média Animation, these workshops could target young people, other fragile publics (e.g. senior citizens, migrants, etc.), as well as intermediary publics (such as specialized educators).

At the same time, it is needed to support research initiatives on digital practices and media uses among these publics to identify what are the consequences for them and the society of a lack in media and algorithmic literacy. Research results on these topics could therefore be used by media education operators to create or adapt their training offer.

The Alg-Opinion project has shown that algorithmic literacy is a fundamental issue in a participatory democracy. We have highlighted that even among a public labelled as “digital native”, there are huge disparities in the capacities to deliberately act in the informational environment created by major online platforms and their recommendation systems. It is therefore needed to train

at-risk publics to gain more control on their informational ecosystem so that they can access to diversified information and different points of view.

## **2. Create productive environments where recommendation systems designers, media education operators, media groups and official education representatives can discuss the design and control features of recommendation systems.**

It is crucial to foster discussion between designers, citizens and actors in charge of educational missions on the issues raised by the actions of recommendation systems so that answers or even solutions can be found in response to it. The Alg-Opinion project and its primal interest on the notion of “filter bubbles” showed that the phenomenon is linked to the design of recommendation systems, to repetitive media practices and to a lack of understanding of how recommendation systems work. The filter bubbles phenomenon can only be diminished with appropriate awareness activities and the modification of specific recommendation systems features. However, awareness activities (training workshops, etc.) are only targeting users and not designers.

# Policy recommendations

Policy makers should promote physical spaces and moments when such a discussion can occur. For instance, a new institution or existing cultural/digital organizations could host and organise recurring events on that matter. Operators such as *Bruxelles Formation*, *Digital City* or the *EPN* should be involved in these initiatives. Online events could also be organized to foster discussion on the design of recommendation systems.

### **3. Support local research and initiatives for the development of a citizen algorithmic (Vs market algorithmic) that is connected to participatory democracy issues (e.g. recommendation features submitted to users' vote, etc.).**

The Alg-Opinion project has opened the way for research on the inclusion of citizens in the development of online recommendation systems. However, there is still a lot to reflect about especially in terms of methodologies for co-designing technical systems that include citizens' opinions about what these systems should be or could do.

These citizen contributions could be gathered via voting tools, experience sharing procedures or other forms of validation. Moreover, this recommendation goes beyond the strict framework of recommendation systems and could be applied to other democratic projects such as e-governance applications. The early involvement of citizens technical systems design would help to fight the digital divide phenomenon in Brussels.

### **4. Initiate regular surveys about information practices and media use among various population groups in Brussels (see for instance the Generation2020 survey). Survey results allow to anticipate news habits and help media education operators to choose relevant strategies in order to develop an active and critical citizenship.**

For some years now, several digital barometers have existed in Belgium (e.g. Digital Wallonia's citizen barometer, King Baudouin Foundation's digital inclusion barometer, iMec digital/eHealth/AI/smartcity techmeters in Flanders...). These tools are necessary to make structural and stratified diagnoses of the digital situation in its region (e.g., maturity, divides, inclusion, environment). Following the example of what is done elsewhere in Belgium, the Brussels-Capital Region must adopt a strategy for developing these barometers (thematic barometers, annual rapid barometers, biannual structural barometers, etc.). These research tools will enable calls for research projects in Brussels to be directed more effectively towards actual innovation needs for the common good. In the ALG-OPINION project, and in the absence of such a tool, a large part of the work was devoted to making the right diagnosis to better focus the research problem. The existence of statistical barometers would allow qualitative research to go even further in its analyses and the development of ad hoc solutions.

# List of publications

**Claes, A., Wiard, V., Mercenier, H., Philippette, T., Dufrasne, M., Browet, A. & Jungers, R. (2021).**

*Algorithmes de recommandation et culture technique : penser le dialogue entre éducation et design*, Tic&Société, 15(1), 127-157.

[DIAL](#)

**Claes, A. & Philippette, T. (2020).**

*Defining a critical data literacy for recommender systems: a media-grounded approach*, Journal of Media Literacy Education, 12(3), 17-29.

[DIAL](#)

**Wiard, V., Lits, B., & Dufrasne, M. (2022).**

*“The Spy Who Loved Me”: A Qualitative Exploratory Analysis of the Relationship Between Youth and Algorithms*. Frontiers in Communication, (7), 1-33.

[DIAL](#)

**Mercenier, H., Wiard, V. & Dufrasne M. (2021).**

*Teens, social media and fake news: A user’s perspective*. Dans López-García, G. et al. (dir.), Politics of disinformation: the influence of fake news on public sphere (159-172). John Wiley & Sons.

[DIAL](#)

**Malcorps, S., Claes, A., Dufrasne, M., Philippette, T.**

(article submitted, under evaluation).

*L’expérience des algorithmes par les jeunes bruxellois et les enjeux citoyens d’une littérature algorithmique*. Brussels Studies.

**Alg-opinion**

*Algorithmes et bulles de filtres : état des lieux, popularised report*

**Alg-opinion**

*Les jeunes et les réseaux sociaux, popularised report*

**Alg-opinion**

website with the various research outputs



# The author & project

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This research was conducted with funding from Innoviris.

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Through the Prospective Research programme, the Brussels-Capital Region is hoping to fund research projects from a dual perspective: to provide a solid regional prospective vision; to build solutions to the specific challenges it will face in the years to come. The solutions proposed by the funded projects must take into account Brussels' urban complexity as well as the Region's environmental, social and economic transition objectives. The programme targets researchers in human science as much as researchers in exact or applied science.

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