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ACTIVATING LESSON SCENARIO
developed as part of the project

‘INNOVATIONS IN SCHOOL EDUCATION’

TOPIC

Algorithms, Information Bubbles, and the Digital Echo – How the Internet Shows Only What We Want to See?
(Personalisation of content and its impact on opinions)

1. Lesson objectives

The student:

- understands what internet algorithms are and how they select content in social media,
- can explain the phenomenon of the information bubble and the digital echo effect,
- recognises how content personalisation can influence their views and decisions,
- knows basic ways of broadening their information perspective online,
- develops critical thinking skills and responsible use of digital media.

2. Target group

Primary school students

3. Teaching methods

- Brainstorming
- Moderated discussion
- Group work (case analysis)
- Mini-lecture with visual elements
- Exercises with cards and tables

4. Teaching aids / sources

- Projector or interactive whiteboard
- Infographic *"How do algorithms work?"*
- Exercise cards with sample search results, social media feeds
- Table for analysing information: *"Is my feed diverse?"*
- Examples of phenomena: information bubble, echo chambers
- Educational websites:
    - **Demagog.org.pl** – materials on disinformation and algorithms
    - **EUvsDisinfo.eu** – analyses of the impact of content on public opinion
    - **EDMO.eu** – media education in the EU

5. Lesson procedure (duration: 45 minutes)

1. Introduction – Does the internet show everyone the same thing? (5 min)

Format: brainstorming, guided conversation

Questions for students:

- Have you noticed that in your social media you mainly see content that matches your interests?
- Do you feel like the internet "knows" what you like and shows you ads or posts tailored to your past searches?
- Do two people typing the same phrase in Google always see identical results?
- Does what we see online give us the full picture of world events, or just a fragment tailored especially for us?
- Have your friends ever shown you a post or video you had never seen, even though you use the same apps?

Extended substantive information:

- Internet algorithms are sets of instructions that analyse our online activity – what we click, like, how much time we spend on a site – and, based on that, decide what content to show us in the future.
- Thanks to algorithms, using the internet is faster and more convenient, but there's a downside – they create an "information bubble": we get only the news, videos, and posts that confirm our interests or previous choices, skipping other viewpoints.
- **Digital echo** (echo chamber) means that online we mainly hear repeated opinions similar to ours, because algorithms show us the same content over and over. This can lead to:
    - reinforcing false beliefs,
    - limiting contact with diverse information,

    - making it easier to influence our decisions and opinions through one-sided messaging.
- The internet does not always show the objective truth – sometimes it only shows what "gets the most clicks" or what the algorithm considers to match our user profile.

2. Definitions and examples (10 min)

Format: mini-lecture + oral quiz

Definitions:

- **Internet algorithm** – a set of rules and calculations that decide what content you will see online. It analyses your clicks, likes, video watch time, visited pages, and uses this to choose what to show you next. Algorithms don't "think", but they can predict what will catch your attention very effectively.
- **Information bubble** – a situation where the internet surrounds you with content matching what you have previously viewed or believed. This means you rarely encounter other opinions or news that contradict your views. As a result, you may start to believe that "everyone thinks like me", even though in reality that's not the case.
- **Digital echo (echo chamber)** – the phenomenon of repeating the same content and opinions online. A post or video shared in many groups appears to come from multiple independent sources, but is in fact the same piece of information circulating repeatedly. Repetition creates a sense of truth ("if everyone is talking about it, it must be true").
- **Content personalisation** – the process by which websites and apps tailor content (ads, news, videos) specifically for you. This is based on your search history, likes, followed accounts. It is meant to make you spend more time online, but can also limit your access to the full range of information.

Examples:

1. **Google search:**
   Two students type the same phrase "best movie of the year".
    - Student A previously watched trailers of horror and crime films – Google shows thrillers and horror films.
    - Student B searched for romantic comedies – their results are love stories and dramas.

      Conclusion: results are not objective – they are tailored to prior actions.
2. **Social media and politics:**
   A user who often clicks on posts from one party or social group will mostly get content that confirms its views. Other perspectives are shown less often or hidden entirely.

3. **Digital echo in practice:**
   A video with false information about an alleged "ban on traditional holidays in Europe" appears on dozens of forums, groups, and pages. People keep sharing it. Repeating the same falsehood makes some viewers believe it is fact – "if it's everywhere, it must be true".

3. Exercise – "Why do we see different versions of the same story?" (15–20 min)

Objective: Show students how algorithms can select content and influence the perception of the same event.
Format: group work (3–5 people)

Materials for the teacher:
Prepare 3 sets of "fictional screens" (printouts or slides) that look like:

- search results,
- social media feeds,
- news websites.
  All sets concern the same event.

Example event: "Youth protest in the city centre."

Each version should look different:

- **Version A – neutral, fact-based**
  - Headline: "Peaceful student protest held in the city centre."
  - Photo: crowd of young people with banners, no drama.
  - Text: short factual description (date, place, number of participants, reason for protest).
- **Version B – emotional, one-sided**
  - Headline: "Youth angry at authorities – city centre paralysed!"
  - Photo: close-up of shouting people.
  - Text: emphasis on conflict, use of emotionally charged words.
- **Version C – different narrative / missing key info**
  - Headline: "Traffic disruptions in the city centre"
  - Photo: traffic jam, no protesters.
  - Text: description of disruptions, no mention of protest reasons.

Tasks for groups:

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1. **Content analysis** – Compare the three versions:
    - Which facts are repeated in all versions?
    - Which information is only in one version and missing from the others?
    - Do titles or photos change how the same news is perceived?
2. **Role of algorithms** – Try to answer:
    - Why might different people see different versions of the same information?
    - How could previous likes, clicks, or searches have influenced these results?
3. **Impact on the audience** – Consider:
    - How could a person's opinion change if they only see one of these versions?
    - Could a false perception of the whole situation arise?
    - How does lack of access to varied sources affect the ability to judge facts independently?

Table for students to complete:

Version of information What's missing? How might this affect the audience?

A

B

C

Discussion:

- Each group presents conclusions (2–3 min).
- Teacher summarises:
  - Algorithms don't choose content "for the truth", but to keep the user engaged.
  - Lack of diverse sources can lead to an information bubble and missing the full picture.

4. Discussion – Does the internet show the truth or just our preferences? (8 min)

Format: guided conversation, exchange of opinions in class.
Objective: Make students aware that the internet is not a neutral source – content is selected by algorithms, which can shape their worldview.

Questions for students:

1. **Algorithms vs facts:**
   - Do you think algorithms help us find the truth, or just show what we want to see?
   - Have you ever seen two contradictory pieces of information about the same event online? How do you explain that?
2. **Information bubble:**
   - Why is it hard to leave your own "information bubble"?
   - Can using only one website or social media app make us stop seeing other opinions?
3. **Consequences:**
   - How can lack of contact with other viewpoints affect our decisions – e.g., in elections, public debates, or judging world events?
   - Can we trust that what the internet shows us is "the whole truth" about a situation?
4. **Ways to broaden perspective:**
   - How can we counteract algorithms and information bubbles ourselves?
   - Could using incognito search, checking multiple sources, reading portals with different viewpoints, or following international media help get a fuller picture of the world?

Teacher's conclusions:

- Algorithms don't assess truth – their goal is to keep our attention and show content we like, click, or comment on.
- This mechanism leads to a digital echo – we mostly hear opinions similar to ours, others are filtered out.

- Lack of diverse sources means we can unconsciously adopt a one-sided picture of the world.
- Conscious internet use means:
  - checking multiple sources,
  - comparing news from portals with different perspectives,
  - looking for information in credible, independent media,
  - using fact-checking tools and search settings to reduce personalisation.

5. Summary and reflection (7 min)

Format: individual work + joint class list
Objective: Make students aware that their online worldview is shaped by algorithms, and develop strategies to broaden their information perspective.

Individual work – finish the sentences:

- "I have understood that algorithms decide what I see online, and not always…"
- "The most dangerous thing about information bubbles is that I might…"
- "To have a fuller picture of the world, I will check various sources and avoid…"
- "I was surprised that…"

Class board – "5 ways to get out of the information bubble"
Students stick their ideas on a board or flipchart, then choose the 5 most important rules. Examples:

1. Check news on different portals – don't trust just one source.
2. Use fact-checking tools (Demagog, EUvsDisinfo, EDMO).
3. Read content from different points of view, including international ones.
4. Don't believe information presented as the only truth – look for confirmation elsewhere.
5. Occasionally clear browsing history, click on varied content so algorithms don't keep showing the same things.
6. Consciously choose followed profiles and groups, adding new sources and opinions.
7. Ask: who wrote this and what might their interest be?

Teacher's summary:

- The internet is not neutral – algorithms choose content to keep our attention, but not always the most reliable or diverse.
- An information bubble makes it easier to believe one-sided narratives, and the digital echo reinforces our previous beliefs.
- Conscious online use means actively seeking different sources, comparing information, and using verification tools to see a fuller picture of the world.

6. Glossary of terms

Term	Definition
Internet algorithm	A set of rules and instructions used by online platforms (e.g., Google, Facebook, YouTube) to decide what content we see in search results and timelines – based on our past online activity.
Content personalisation	Adjusting search results, ads, posts, and videos specifically to a user based on their interests, clicks, and browsing history.
Information bubble	A phenomenon where a user mainly receives information matching their prior views and interests, limiting contact with other opinions and data.
Digital echo (echo chamber)	A situation where the same opinions and news are repeatedly shared online in various places, while differing views are ignored or hidden.
Content filtering	An algorithm mechanism that hides some information and shows other – usually content that increases user engagement (clicks, likes, comments).
Recommendations	Suggested content ("recommended for you") generated automatically based on previous user choices, reinforcing their preferences.
Media bubble	Narrowing information sources to only selected portals, profiles, or groups, preventing access to facts and analyses from other perspectives.
Confirmation bias	A natural human tendency to believe information that confirms prior beliefs and to ignore information that challenges them.
Disinformation	The deliberate spreading of false, manipulated, or incomplete information online to mislead or provoke certain emotions.
Fact-checking	The process of verifying facts and sources to determine if information is true, partly true, or false, carried out by dedicated organisations and portals.

7. Methodological guide for the teacher

1. **Choosing examples**
   - Use neutral, fictional feeds (e.g., posts about music, sport, new technology) or international examples to avoid local political or ideological controversy.
   - You can prepare simulated search results (e.g., two users search "healthy diet" – one sees vegan recipes, the other supplement ads).
   - Consider introducing fictional accounts or "scenes" showing differences in algorithm suggestions (e.g., TikTok, YouTube, Google).
2. **Teaching materials**
   - Screenshots showing differences in search results or social media recommendations.

- Infographic *"How an algorithm works"* – a simple diagram showing that content is selected based on past clicks, likes, browsing history.
- Exercise table – space to write down which information repeats, what is missing, and how it may affect the viewer.
- Optional: short educational video (e.g., from EDMO or EUvsDisinfo) about information bubbles and the digital echo.

3. **Moderating group work and discussion**
   - Ask open-ended questions to encourage reflection:
     - "Why did the algorithm show exactly this content?"
     - "What might we miss if we only see one version of information?"
     - "Can different people have completely different pictures of the same situation?"
   - Don't judge answers – students may have different experiences and awareness of how algorithms work.
   - Encourage reasoning, e.g., "What makes you think this limits access to facts?"
4. **Safe atmosphere**
   - Emphasise that all internet users are subject to algorithms – it's not a user's fault, but a result of how digital platforms work.
   - Avoid personal examples ("you always see only this…") – use fictional situations.
   - Stress that information bubbles are common, but it's worth learning to spot them and try to get out.
5. **Possible lesson extensions**
   - **Class project "Information bubble experiment"** – students in pairs/groups search the same phrases in Google, YouTube, TikTok using different accounts or devices, then compare results. Present findings on a map or poster.
   - **Mini-debate** – "Do algorithms help or harm in gaining knowledge?" – develops argumentation skills.
   - **Homework** – for 2–3 days, students note what topics their social media app most often suggests, then compare observations in class.

8. Scientific and educational sources

International and EU:

- EDMO – European Digital Media Observatory – https://edmo.eu
- EUvsDisinfo – European External Action Service – https://euvsdisinfo.eu
- UNESCO – *Media and Information Literacy Curriculum for Teachers* – https://unesdoc.unesco.org/ark:/48223/pf0000192971
- OECD – *How algorithms shape our lives* – https://www.oecd.org

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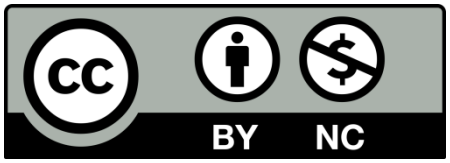
- Council of Europe – *Information Disorder Reports* – https://www.coe.int

Polish:

- Demagog.org.pl – https://demagog.org.pl
- Konkret24 (TVN24) – https://konkret24.tvn24.pl
- Niebezpiecznik.pl – https://niebezpiecznik.pl

Czech-Slovak:

- Manipulátoři.cz – https://manipulatori.cz
- Demagog.cz / Demagog.sk – https://demagog.cz / https://demagog.sk
- Infosecurity.sk – https://infosecurity.sk



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