CENTRUM NAUKI KOPERNIK

Views on Science and Scientists Among Polish Youths

Report on a qualitative study

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Summary

This document summarizes a research project carried out in Poland in 2024 as part of the "Science for You" programme[1]. The aim of the project was to explore the attitudes of Polish secondary school students toward science. The first part of the study involved a review of the existing research literature on young people' perceptions of science (particularly among Generation Z, to which today's secondary school students belong). It then proceeded with a qualitative study carried out among Polish teens aged 15–17, using the elicitation workshop method, focusing on their attitudes toward science and scientists.

Participants were asked questions on three key issues:

- their perceptions of science,
- what emotions science evokes in them,
- what kinds of scientific activities they engage in (or would like to engage in).

The study was commissioned by the Copernicus Science Centre in Warsaw and conducted by the company Hearts & Heads. The participants in the elicitation workshops were aged 15–17 and lived in Warsaw and surrounding areas, as well as in the towns of Płock, Zgierz, Konin, and Opole.

The study found that the Polish youths surveyed most often associate "science" with the physical sciences and technology. While they do recognize the presence of science in their everyday lives, they are less likely to associate it with school. At the same time, they express a degree of scepticism toward science, particularly in relation to the negative aspects of technology.

The image of "a scientist" among the Polish youth surveyed remains stereotypical: as a person in a white lab coat working in a laboratory. (However, previous research has shown that younger Polish generations are more likely than older ones to recognize the importance of collaboration in science). Polish teen participants also expressed curiosity about scientists and their work.

Participants were enthusiastic about participating in science-related events, especially those that offer direct interaction with scientists. They value opportunities where they can actively shape the course of an event and become engaged in ways that highlight their role and sense of agency.

Based on the results of the elicitation workshops, this report concludes with a set of recommendations for designing science-related initiatives that meaningfully engage young people: emphasizing authenticity, voluntary participation, personal relevance, and opportunities for agency and dialogue.

[1] The "Science for You" programme is a joint initiative of the Polish Ministry of Science and the Copernicus Science Centre. It is funded through a grant from the Polish Ministry of Science based on Agreement No. MEiN/2023/DPI/3079, dated 23 October 2023. In 2024, the programme includes the following initiatives: ScienceBus, PlanetBus, "Oh, for Math's Sake!", and the 27th Science Picnic of Polish Radio and the Copernicus Science Centre

Introduction

This document summarizes a research project carried out in 2024 as part of the "Science for You" programme[2], exploring the attitudes of Polish secondary school students toward science. As one of our main points of reference, we looked at relevant results from the Eurobarometer surveys.

Findings from the 2021 Eurobarometer on Europeans' attitudes toward science and technology indicate that interest in science and technology tends to decline with age. In that study, Poles aged 15–24 and 25–39 reported higher levels of interest in these topics than older respondents. The percentage of those who declared being "very interested in new scientific discoveries and technological developments" was 19% in the 15–24 and 25–39 age groups, 13% among those aged 40–54, and just 9% among those aged 55 and older. Note that in the two youngest age groups, interest was higher than the average for the overall population (which was 14%) (Eurobarometer 2021).

As age increases, so does the proportion of respondents who say that "science and technology are too specialized for me to understand them": from 39% in the 15–24 age group, to 40% among 25–34-year-olds, 42% among 35–54-year-olds, and 55% among those aged 55 and above. Similarly, belief in the importance of scientific knowledge in everyday life declines with age. When asked whether they agreed with the statement, "scientific knowledge is not important in my daily life," 25% of 15–24-year-olds agreed, compared to 31% of those aged 25–39 and 40–54, and 40% of those aged 55 and over. Retirees were significantly more likely to perceive science as too complicated to understand (57%) than active managers (26%) or students (35%).

According to the 2024 Eurobarometer on attitudes toward science and technology, Europeans reported a greater interest in scientific achievements than in 2021 (58% – a 4 percentage point increase). At the same time, a growing number of respondents said science is too specialized for them to understand (53% – a 7-point increase). There was also a rise in the percentage of Europeans who said that scientific knowledge is not important in their daily lives (36% – up 3 points) (Eurobarometer 2024: 8).

One of the main reasons why we turned our attention to this particular group in our research is because teenagers aged 15–19 represent one of the least numerous age groups among visitors to the Copernicus Science Centre[3] – and this is especially true among those visiting independently, rather than as part of a school group or other organized activity. We are well aware that this is not a challenge unique to our institution. Insights gathered through discussions and professional exchange with other institutions – for

[2] This is, to date, the largest Eurobarometer survey on science and technology in terms of both the number of participants (37,103 respondents) and the number of countries covered (38 countries, including EU member states, candidate countries, EFTA countries, and the United Kingdom). The primary research method was face-to-face interviews conducted between 13 April and 10 May 2021 (Eurobarometer 2021: 6). The 2024 Eurobarometer results cited here refer to EU-wide data; Polish-specific breakdowns were not yet available at the time of writing.

[3] According to attendance data regularly collected by the Copernicus Science Centre, in 2023 individuals aged 15–19 accounted for just over 4% of all individual exhibition visitors.

example within the SPiN Association, a network of Polish science centres – suggest that young people in this age group are, more broadly, very hard for cultural and scientific institutions, including libraries, to reach out to. At the 2024 Congress of Polish Libraries, one participant noted: "Teenagers are never really 'at home' anywhere; they're always something of an afterthought. We have libraries for children and teens, or for teens and adults – but not really for teenagers specifically." This statement reflects well how there is a lack of spaces that are dedicated to meeting the needs of youths in this age group, places where they feel comfortable, welcome, and secure. In the case of libraries, teens are often expected to fit into spaces designed either for children or for adults, and the same holds true for other public spaces.

Science centres and museums (at least those focused on science) are therefore not places that teenagers typically frequent. Perhaps young people simply do not perceive them as spaces intended for them? And if not there, then where do they engage with science, or where could they engage with it?

Through this study, we wanted to look at science through the eyes of 15–17-year-olds: to understand how they perceive it, what scientific activities interest them, and which types of scientific activities they would be willing and eager to participate in.

The aim of the study was to understand the attitudes of secondary school students toward scientific activity. We sought to answer to the following questions:

What do young people perceive as science?

(the cognitive dimension of attitude)

What emotions does scientific activity evoke in young people?

(the affective dimension of attitude)

What scientific practices do young people engage in?

(the behavioural dimension of attitude)

Based on the findings of the study, we developed a set of guidelines for designing science-related events that effectively engage teenagers: emphasizing authenticity, voluntary participation, personal relevance, and opportunities for agency and dialogue.

The report begins with a review of the existing literature (mainly in Polish) summarizing research on Generation Z – to which the study participants, Polish secondary school students, born between 2005 and 2009, belong – and on their perceptions of science and scientists. These issues provide an essential context for the study. The report also outlines the study's conceptual and methodological framework, describes the research process and analytical procedures, and presents key findings. It then concludes with a set of recommendations for planning science engagement events aimed at youth.

Key Findings

Polish secondary school students' attitudes toward science are closely linked to their broader system of values and are consistent with how they see the world and their place in it. The values they consider important in life – authenticity, a sense of safety, engagement, and agency – are also important to them in the context of science. The Polish teens who participated in the study want to take on a different role than the one they are usually assigned: they want to be treated as partners, rather than the way school students are traditionally treated. While they acknowledge the authority of adults (teachers, scientists, experts), they do not want to simply have the world explained to them – rather, they want to co-create scientific events together with them.

What does "science" mean to young people?

Based on the findings of the study, it is not easy to formulate a clear, unified definition of "science" from the perspective of Polish youth. **They tend to focus more on the material outcomes of scientific work – products that contribute to progress and improve quality of life.**

The Polish teenagers who participated do associate "science" with progress. They refer to the tangible outputs of scientists' work, perhaps placing science itself within a broader anthropological or sociological context – as a social and cultural institution. However, in their understanding, these young people do not include the epistemological dimension – that is, science as a way of gaining knowledge about the world (cf. Ossowska & Ossowski, 1967). For this reason, it is worth placing greater emphasis in science outreach activities on the scientific method and how science is practiced.

Survey participants associate science with progress and see it all around them: in everyday objects (glasses, bicycles, the BLIK payment system – a widely used in Poland for instant digital payments), but also in the context of medical and military technologies. Despite seeing science everywhere, they point out that – with few exceptions – science is absent from their school experience.

Polish teens primarily associate science with the natural and physical sciences, and only secondarily with the humanities and social sciences. They emphasize the ethical dimension of science and often question the scientific value of commissioned research. This idealized (and somewhat naïve) image of science reflects a stereotypical view of science and scientists. Survey participants perceive the humanities and social sciences as less useful than the natural and exact sciences. They do not connect the findings of researchers in the humanities and social sciences to their own everyday experience – such work is thought to rarely result in tangible outcomes.

People who work professionally in science are viewed by Polish young people through a stereotypical lens. A typical representative of the profession is imagined as a balding, antisocial man in a white lab coat and glasses. However, Polish youths are aware that science is changing, with younger scientists entering the field, bringing new ideas.

They are also beginning to recognize the importance of research teams and other individuals who support scientists in their work.

The study found that young people are particularly interested in topics related to the body, outer space, the planet, animals, technology, and artificial intelligence. They are drawn to the tangible, material manifestations of science in their everyday and personal experiences.

What emotions does science evoke in teenagers?

Polish young people express scepticism and mistrust toward science. They note negative associations between science and military technologies (warfare), health threats (pandemics), business interests (Big Pharma, Big Tech), and politics. They are aware of the challenges related to the funding of scientific research – they understand that doing science requires significant financial resources. However, they do not clearly identify who should be responsible for securing funding: the state, research institutions, individual research teams, or scientists themselves.

At the same time, young people are curious about scientists – about their lives and how they cope with challenges in their work. The fact that their perception of scientific work is largely stereotypical suggests a lack of direct personal contact with scientists.

What scientific practices do Polish teenagers engage in?

Although the Polish youths surveyed say they are aware that science is all around them, they generally do not perceive it as present in their school environment. There are occasional lessons or events where they do feel a connection to science – for example, when dissecting a pig's heart, performing Buffon's needle experiment, or examining sausages under a microscope. Much also depends on how open teachers are to incorporating student suggestions.

Polish teens also feel they are engaging with science when they take part in events that introduce them to other cultures (such as international fairs) or when they travel. In this sense, they recognize science in their out-of-school experiences, though not necessarily those related to the natural or exact sciences. They also value opportunities to gain knowledge during visits to museums, zoos, and science centres.

Survey participants especially appreciate activities that allow them to not only carry out a task, but also help shape its design.

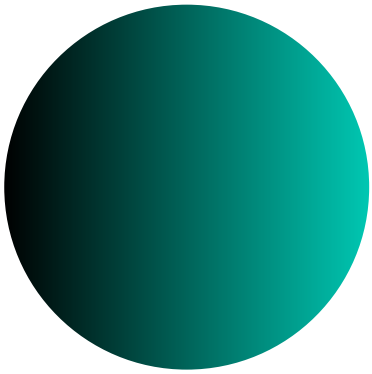
What kind of scientific events would teenagers like to participate in?

Based on our findings, we can conclude that Polish teens would like to take part in scientific events where they have an influence – they want to have a sense of agency, to shape both the planning and the course of the event. They want to be able to decide for themselves how involved they will be. They seek to step outside of the traditional student role, which positions them primarily as passive recipients of knowledge transmitted by teachers.

It also matters who participates in these events – teenagers want them to include other participants who are genuinely interested in the topic. Based on their experience, mandatory participation by entire classes of students often leads to failure. Having the ability to decide for themselves whether and how to participate is, for them, a key expression of agency.

Polish teens would like to be able to meet with a real, authentic scientist – someone with whom they can talk not only about their field of expertise, but also about what it's like to be a scientist.

They are especially curious about the rhythm of the scientist's daily work, how they spend their free time, and how they came to choose this path. The recommendations formulated on the basis of this study specifically address how to design this kind of personal experience – an encounter with science that feels genuine and meaningful.



Literature Review: Gen Z's Attitudes in Poland

"Oh, teenagers nowadays!"

Older generations often view the attitudes of younger people with a certain lack of understanding (cf. Sobierajski & Kuszewska, 2023). With nostalgic memories of their own youth, Baby Boomers, Gen Xers, and Millennials tend to describe Gen Z as "feeling entitled." They often look upon this generation, frequently labelled "snowflakes" – a term taken from Chuck Palahniuk's novel Fight Club – with thinly veiled condescension. In that novel, one of the characters declares: "You are not special. You are not a beautiful and unique snowflake." The term came to describe people "convinced of their own uniqueness, with high expectations disproportionate to their skills and work ethic, and excessively sensitive" (Suchecka, 2023: 257).

[4] W Polsce powieść ta ukazywała się wielokrotnie (zwłaszcza na fali popularności filmu *Fight Club* Davida Finchera z 1999 roku), najpierw pod tytułem *Podziemny krąg*, a następnie *Fight Club. Podziemny krąg*.

This condescending view of Generation Z is, of course, the next version of structural sentimentalism, echoing in the familiar generational refrain: "Oh, teenagers nowadays..." What we are observing today, however, is that generational differences are emerging earlier and earlier, leading to a greater lack of mutual understanding and communication between age groups.

> ***References to generational divides – usually complaints from older people about younger ones – have appeared in literature for centuries. But it wasn't until after World War II that the phenomenon began to be studied more systematically. Today, the topic of intergenerational relationships has garnered significant attention, though the sheer number of competing generational theories can be overwhelming. The discussion is also driven by conflict and a tendency to frame generations in black-and-white, presentist terms. For example, the Baby Boomer generation is often uncritically compared to Generation Z, with claims that Boomers are "more curious about the world." To support this claim, people point to how many members of each generation travel. Yet this comparison ignores the fact that Baby Boomers are now in a financial position to afford travel, while many members of Gen Z have not reached such a point YET. Or take the claim that the postwar generation was "more romantic" than Generation Y. How is that measured? Older respondents are asked about their romantic attitudes as they remember them from their youth, while Generation Y is observed in real time. This means we are comparing two very different things: older generations' recollections of how they used to be – filtered and reshaped over time – with direct observations of how today's youth behave (Sobierajski & Kuszewska, 2023: 18–19).***

Generational differences become especially important when older people are designing scientific, educational – or more broadly, cultural – experiences for young audiences. An insufficient grasp of the needs, expectations, and interests of these younger participants often results either in a lack of engagement on their part or in reluctant, passive participation driven by external obligation.

Generation Z

The term Generation Z (or Gen Z) refers to people born between 1995, on the one hand, and 2009, 2010, or 2012, on the other (depending on the source). According to generational researchers (e.g., Tomasz Sobierajski), Gen Z is the first generation that can be meaningfully compared across equally developed countries – thanks to globalization, growing up with the internet, and the rapid advancement of technology. As Suchecka (2023: 256) writes: "Around the world, Generation Z faces many of the same problems". These problems often concern well-being and mental health.

The need for well-being

Well-being and mental health are among the most important values for Generation Z. Gen Z is aware of the need to care for mental health, speaks openly about related challenges, and shares strategies for coping with them. As a result, they pay close attention to whether potential employers prioritize the well-being of their employees. For example, 94% of respondents aged 15–25 say that mental health support in the workplace is very important to them (*Poland's Gen Z on Themselves*, 2024: 26; Suchecka, 2023). The authors of the 2024 *Trend Impact Youth* study write: "Young people want to avoid burnout and being overworked.

[5] Przyjmowane w badaniach granice czasowe pokolenia Z różnią się ze względu na kontekst kulturowy, społeczny czy technologiczny. W większości opracowań za datę rozpoczynającą pokolenie Z uznaje się 1995 rok, kiedy internet zaczął stawać się coraz bardziej powszechny w społeczeństwie. Badacz pokoleń Mark McCrindle (https://mccrindle.com.au/about/) uznaje z kolei lata 2009–2010 za moment przełomu między pokoleniem Z a pokoleniem Alpha (por. np. Ławińska, Korombel 2023).

They emphasize effective time management and the balance between work and rest" (Gębarowska et al., 2024: 26).

Well-being and mental health are among Generation Z's most important values. Gen Z is highly aware of the need to care for their mental health, speaking openly about related challenges and sharing coping strategies. As a result, they pay close attention to whether potential employers prioritize employee well-being. For example, 94% of respondents aged 15–25 said that mental health support in the workplace is very important to them (*Poland's Gen Z on Themselves*, 2024: 26; Suchecka, 2023). The authors of the 2024 Trend Impact Youth study observe: "Young people want to avoid burnout and being overworked. They emphasize effective time management and balancing work with rest" (Gębarowska et al., 2024: 26). Likewise, according to the report *Youth Engagement in the European Year of Youth* 2022, 40% of young people in Poland identified improving both their mental and physical health and their well-being as one of their top priorities (KPRM, 2023: 46).

The specific birth years used to define Generation Z vary depending on cultural, social, or technological context. Most studies place the start of Gen Z around 1995, when internet access began spreading more widely, but generational researcher Mark McCrindle (https://mccrindle.com.au/about/), for instance, identifies 2009–2010 as the transition point from Generation Z to Generation Alpha (cf. Ławińska & Korombel, 2023).

The need for agency and engagement

Young people today are sometimes described by older generations as passive, uninterested in public affairs, reluctant to study, or unwilling to pursue serious careers. It is also often said that they are strongly influenced by social media personalities – particularly when it comes to shopping habits, lifestyle choices, and fashion. However, the current, third decade of the 21st century has challenged this view. In Poland, young people demonstrated significant civic engagement during the 2023 parliamentary elections, through their support for refugees from Ukraine, and by participating in social initiatives such as fundraising for children or supporting animal welfare organizations (Motyka, 2024: 59). As one report puts it, they are "fighting for what's right: for human rights, for environmental protection, and for social equality" (*Poland's Gen Z on Themselves*, 2024: 39).
What's more, young people are more likely than older generations to say they feel they have an impact on what happens in their country or local communities. A record increase in youth protest participation was observed in Poland in 2020, following the Constitutional Tribunal's ruling that restricted access to abortion in certain cases. More than one in four Polish respondents aged 18–24 reported that they had taken part in those protests (Feliksiak & Roguska, 2020: 11; Chys, 2021: 6).

A sense of security and stability

For members of Generation Z, **security** – understood as a sense of calm, confidence, and stability – is especially important. This need is clearly linked to the strong emphasis they place on mental health. It is reflected in their desire for a stable income. "Rather than chasing promotions or climbing the career ladder, young people choose stable roles that provide a sense of security and help reduce stress" (Gębarowska et al., 2024: 26). More than half of Gen Z respondents say that job insecurity is a significant source of stress (*Poland's Gen Z on Themselves*, 2024: 24).

For Gen Z, work is not a goal in itself. In addition to providing a sense of security and stability, a job should offer opportunities for self-development and fit with their current lifestyle (Gębarowska et al., 2024).

Young people from Gen Z want their work to feel meaningful – so they are eager to take part in original, self-directed, and unconventional projects where they can grow and demonstrate creativity. This generation is also highly open to change and willing to be mobile in their careers (Kaczmarczyk, 2023). Nearly one in five Polish Gen Z respondents say they would like to work in a socially meaningful profession, such as teaching or medicine (Gębarowska et al., 2024).

The need for authenticity and prestige

Members of Generation Z also have a strong need for belonging, acceptance, and respect (Matuszak et al., 2024: 4), which is closely linked to their desire to be treated as equals. At the same time, they emphasize the importance of authenticity, often intertwined with a need to stand out. One way to stand out is through an unusual passion or hobby – something that serves as the "ultimate flex" (Matuszak et al., 2024: 18). The more niche the interest, the greater the prestige. In the eyes of Gen Z, travel is also considered prestigious, as it offers unique experiences, impressions, and personal stories – along with rare souvenirs that can be shown off afterward.

Preserving one's own authenticity – being oneself and being accepted for it – poses a challenge for many Gen Zers. Still, it's a challenge they very often take on: alongside niche (expert-level) hobbies, tech gadgets, and branded clothing, authenticity is seen as a marker of social status. This value is also central to how they relate to others: pretending to be someone you are not likely to be considered "cringe" or embarrassing: "Having prestige means having unfaked self-confidence" (Matuszak et al., 2024: 25).

Attitudes toward climate challenges

According to the report *Youth Engagement in the European Year of Youth* 2022, the second most important issue for young people – after mental health – is environmental protection and the fight against climate change, cited by 30% of respondents (KPRM, 2023: 46).

More than half of 15-year-old respondents disagree with the claim that environmental threats are not their concern. Young people see climate issues as something they have inherited, something they encounter daily – in school, the media, and peer discussions. Most are aware that the issue does indeed concern them (Łukianow, 2020: 45). Moreover, they do not feel that solving the climate crisis should be left only to experts or scientists – 62% of 15-year-olds agree that society as a whole should take responsibility for protecting the environment (Łukianow, 2020: 46). It is therefore not surprising that nearly half of respondents say they are willing to sacrifice many personal comforts to help solve environmental problems.

And yet, more than half of the Polish young people surveyed in a 2024 study said they don't know what they personally could do to help the planet. More than three-quarters say they are worried about the future of the Earth (*Poland's Gen Z on Themselves*, 2024: 49). Over a third (37%) of the Polish young people surveyed in a previous study, carried out in 2020 by the Copernicus Science Centre (Łukianow, 2020: 46), said that science and technology can lead to solutions for environmental challenges. Interestingly, the latter study found that Polish young people "primarily view the climate crisis through the lens of lifestyle and personal emotional engagement, and show less interest in acquiring broader knowledge on the subject" (Łukianow, 2020: 49).

School and young people's interests

The third most important challenge for Polish youths, according to the report *Youth Engagement in the European Year of Youth* 2022, is "improving education and training, including the free movement of students, interns/trainees, and pupils" (cited by 33% of respondents) (KPRM, 2023: 46).

According to the "2022 Polish Schools" survey conducted by the Public Opinion Research Center (CBOS), nearly half of respondents (48%) believe that schools support the development of their students' interests, while 36% take the opposite view (Feliksiak, 2023: 4). In contrast, a 2020 study conducted by the Copernicus Science Centre among eighth-grade students (Łukianow, 2020) showed that what fascinates young people most are unsolved problems and unknown or unexplained phenomena – topics that rarely appear in the primary school curriculum. These include questions such as: "why do we dream, and what might dreams mean?", "the possibility of life beyond Earth", "life, death, and the human soul", "phenomena that scientists cannot yet explain", "telepathy, reading thoughts, the sixth sense, intuition" (Łukianow, 2020: 21–22). Unlike standard curriculum topics, these unexplored questions tend to spark intellectual curiosity. Young people often do not see a connection between what they learn in school and their personal interests or everyday experiences: "It's possible that this disconnect between students' own interests and the school curriculum – resulting in a lack of cognitive engagement – is what leads young people to perceive science and STEM subjects as failing to stimulate critical thinking" (Łukianow, 2020: 33).
According to nearly half of the eighth-grade students surveyed, science and STEM subjects are interesting or very interesting. At the same time, a similar proportion of 15-year-olds consider them difficult. This perceived difficulty may explain why – even though these subjects are seen as engaging – they remain less popular than others (Łukianow, 2020: 30–31).

About half of the surveyed Polish eighth-graders agree that science and STEM subjects are useful in their everyday life. For example, 22% said "these subjects taught them how to take better care of their health, and 18% said they were relevant to their lifestyle choices" (Łukianow, 2020: 32). Young people want to learn when they see a clear purpose, when they can be actively involved, and when learning is experiential and connected to their real-world concerns (Suchecka, 2023: 44).

Among older students (aged 15–18), interest in science and STEM subjects breaks down as follows: 59% say they enjoy computer science and 42% enjoy mathematics, while on the other hand, 55% say they dislike physics, and 52% dislike chemistry. In other words, subjects like physics, chemistry, and biology are more often disliked than liked by respondents (CNK, 2022: 5).

Polish teens would like to be able to meet with a real, authentic scientist – someone with whom they can talk not only about their field of expertise.

Preferred sources of knowledge and information

According to the 2022 report *Poland's Generation Z Enters the Game*, the vast majority of young people aged 15–19 treat social media as their primary source of information, with 91% of them mentioning YouTube in this regard, 90% Facebook, 84% Instagram, 78% TikTok, 70% Snapchat, and 52% Twitter. Fewer than 40% of respondents choose traditional media: 37% mention traditional television, 33% traditional radio, and 36% of respondents indicate Polish news websites such as Onet.pl or Wp.pl (CluePR, 2022: 5). Social media platforms are among the top five sources from which young people obtain current information about their surroundings, country, and the world: 45% mention Facebook in this regard, 31% YouTube, 29% Instagram, 28% TikTok, and 23% Twitter (CluePR, 2022: 9).
However, using social media to access information does not always go hand in hand with verifying that information. Only half of teenagers "take steps to verify the authenticity of information found online" (Lange, 2023: 123). In addition, less than half (47%) say they are concerned with the credibility of the profiles or individuals behind the content they see on social platforms (Lange, 2023: 123).
Their trust in a particular communication channel or information source often depends on their personal experience: 56% of respondents say they trust a source because they have used it for a long time and have verified it themselves; 43% base their trust on how common or popular the source is (CluePR, 2022: 11).

Authority Figures

When evaluating the credibility of a source, one in five respondents say they consider whether it was recommended by someone they know. For 16%, credibility is indicated by the presence of an influencer. Those who are active users of LinkedIn and Twitter tend to pay attention to: the reliability and accuracy of information (41%), the authors, journalists, and experts who provide it (37%), and recommendations made by experts (23%) (CluePR, 2022: 11).

For young people, a trusted opinion leader is "someone who builds their expertise through knowledge and experience in a specific field, along with authenticity and clear signs of success" (CluePR, 2022: 32).
They are also more likely to trust the opinions of close personal contacts, as well as activists or life coaches, rather than teachers or politicians (CluePR, 2022: 32–33). Members of Generation Z also value the ability to understand expert knowledge in an accessible way, and the availability of trusted figures in their everyday lives (Suchecka, 2023: 38).

Who counts as a trusted figure depends on the topic. For personal matters, such as healthy eating, young people report that they most often seek information from family members (70%), scientists and science (68%), and friends (68%). Half of respondents also trust social media and its users in this area (CNK, 2022: 9). When it comes to well-being and existential questions, young people again most often say they turn to family (87%) and friends (85%), while 71% consider science and scientists to be reliable sources. Social media and its users (64%), activists, and teachers (61%) are also seen as valuable sources of advice on how to be happy (CNK, 2022: 13). When it comes to climate change – a topic that young people identify as a "scientific" issue – the top source of information is again science and scientists (68%), followed by family (54%), friends (48%), and teachers (43%) (CNK, 2022: 11). What young people seek in authority figures is not just being inspiring, but also accessibility and closeness – they say they value the presence and opinions of friends and family, but also of influencers and well-known figures on platforms like TikTok and Instagram.

Members of Poland's Generation Z report that they follow an average of 13 influencers, most of whom are active in areas such as entertainment, lifestyle, fashion, sports, or gaming. The topics they follow tend to vary by gender. Survey responses indicate that young women are more likely than young men to follow accounts related to music and entertainment, lifestyle, fashion and beauty, travel, culture, and climate change or ecology. Young men, on the other hand, are more likely to follow content related to sports, gaming and e-sports, technology, automotive topics, and business (CluePR, 2022: 34–35). Young people are aware that influencers often promote a curated and artificial version of life in pursuit of visibility. However, they still value influencers for being up-to-date, for their boldness in expressing opinions, and for offering a sense of closeness and the potential for dialogue (CluePR, 2022: 38–39).

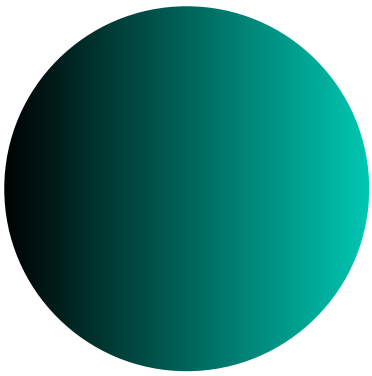
Two-thirds of respondents share content on topics that interest them: "to show what has caught their interest or what they're thinking about" (50%), "to express what moved them" (44%), "to inspire others or encourage them to engage" (43%), and "just for fun" (36%) (CluePR 2022: 17). For Generation Z, being an inspiration to others is one of the key markers of "being cool" (Matuszak et al., 2024: 26).

Summary

The findings of previous studies indicate that members of Poland's Generation Z – young people born between 1995 and 2012 – place strong emphasis on **well-being** and **mental health**, which are also important factors in how they choose a career path and employer. Opportunities for **social engagement** are also highly valued. Although they are often perceived as indifferent, in reality, Polish teens actively participate in social campaigns, protests, and initiatives supporting human rights and environmental protection. A noticeable rise in youth activism was observed following the tightening of abortion laws in Poland. **Security** is a key value for Generation Z, who prioritize stable employment over the pursuit of promotions. They want a job that provides a sense of meaning and allows them to pursue their passions. Gen Z also values **authenticity** and prestige, particularly when it comes from unique interests and personal experiences, such as travel. In interpersonal relationships, they seek to be accepted for who they are, which reflects their need for belonging. **Environmental protection** is also a clear priority: most Gen Zers reject the idea that ecological issues don't concern them, and they are willing to take action to protect the planet. **In education**, respondents point to a need for reform. They criticize the emphasis on rote learning and the lack of practical skills in Polish schools. The number of students reporting school-related stress is on the rise.

Social media is the primary source of information for young people. Most make use of platforms such as YouTube and Instagram, though they do not always verify the information they find there. Young people value the authenticity of influencers, as well as their accessibility and relatability.

The above findings point to three key areas that should guide the design of science events aimed at Polish teens. The first is their clearly expressed need for security and well-being. The second is their activism and desire to engage with issues that really matter – both on a global scale (e.g., climate-change strikes) and a local one (e.g., reproductive rights). The third concerns how they access knowledge and information. Research clearly shows that school is not their main source of information – instead, they rely on family, friends, and influencers, with the latter group being the most unpredictable. The challenge lies in reconciling the need for engagement with the need for well-being – or in encouraging a shift in perspective: to engage authentically, one may have to step outside one's comfort zone, even at the cost of one's short-term comfort.



Literature Review: Perceptions of Science

Is science important to Gen Z?

According to the results of the 2022 *State of Science Index* survey, the vast majority of Poles (88%) indicate that science is personally either very important (44%) or somewhat important (44%) to them. Only 5% of Polish respondents say that science is not important to them at all, while 7% have no opinion on the matter (3M, 2022). An equally strong majority (89%) believe that science is important in their family's everyday life: 44% say it is very important, and 45% say it is somewhat important. Only 6% do not see science as important in their family's daily life, and 5% are undecided.

More than half (53%) of respondents say science is **quite important for their local community**, while 30% consider it very important. 10% are unsure, while 6% do not see science as important at the local level. A clear majority of Polish respondents (89%) say that science is important to society in general: 47% believe it is somewhat important, and 42% say it is very important. Only 3% say science is not important to society, and 8% express no opinion (3M, 2022).

These results from Poland are generally consistent with global findings – comparable percentages of respondents worldwide say that science is either very or somewhat important. However, it is worth noting that in the global data, respondents more frequently than Poles described science as very important – for themselves, for their families in everyday life, for local communities, and for society as a whole.

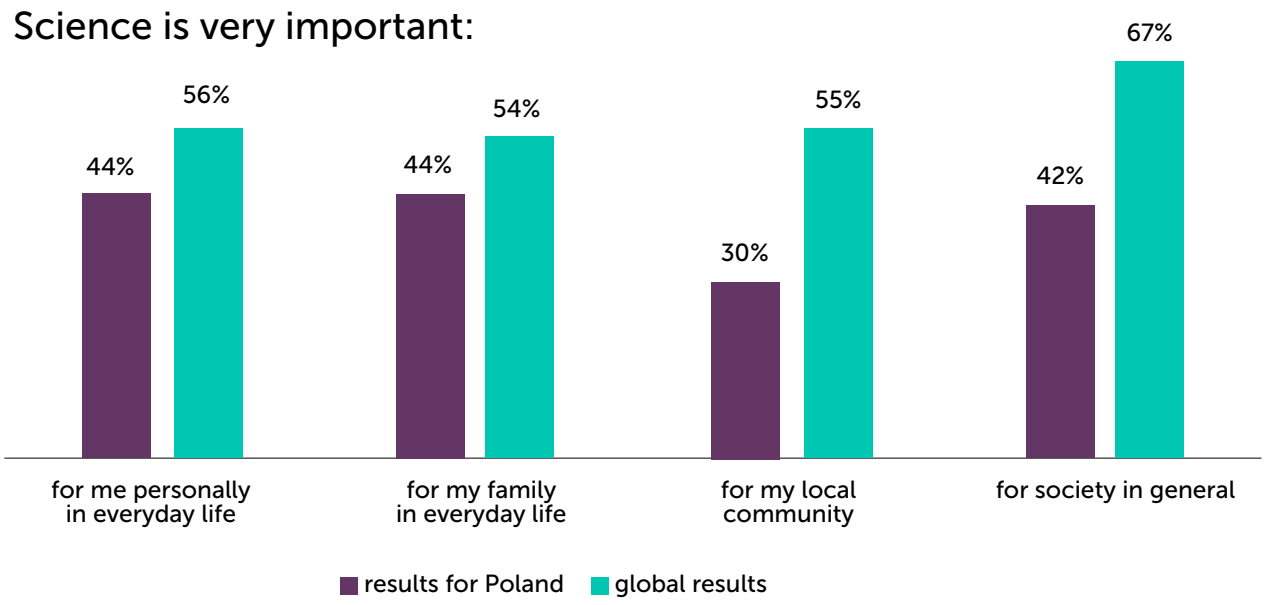


Fig 1. Distribution of responses to the question: "Science is very important for: me in my everyday life / my family in everyday life / my local community / society in general," broken down by results from the survey conducted in Poland and the global dataset.

When it comes to how Polish eighth-grade students perceive the importance of science, the picture is mixed and somewhat ambiguous (Łukianow, 2020: 50). On the one hand, scientific knowledge is seen as important; on the other, it is viewed as distant and abstract. Polish youths do not see how science connects to their own lived experience, nor do they perceive it as being meaningfully present in the school curriculum. Scientific content is also largely absent from the social media channels they follow.

According to the 2021 Eurobarometer survey, in turn, a majority (61%) of EU citizens also believe that "involving non-scientists in scientific research and innovation helps ensure that science and technology respond to the needs and values of society" (EC, 2021: 1; Eurobarometer, 2021: 9). This suggests that science may no longer be perceived as a domain reserved solely for scientists, but rather as an activity with relevance to people's everyday lives – at the individual, institutional, and societal levels. This result offers a clear indication that public engagement in scientific activities (e.g. citizen science projects) is worth encouraging.

Scientific practices

European youths aged 15–24 are more likely than older age groups to agree with the statement: "I would like to learn more about scientific achievements in places like town halls, museums and libraries." This view is shared by 61% of respondents aged 15–24, compared to 59% of those aged 25–39, 56% of those aged 40–54, and 48% of those aged 55 and older (Eurobarometer, 2021: 37). This suggests that both the desire to learn in informal education spaces and the belief in one's ability to learn new things tend to decline with age.

According to research among Polish 15-year-olds, at least half are aware that places such as zoos, aquariums, planetariums, science centres, museums, parks, nature reserves, and botanical gardens can serve as sources of learning (Łukianow, 2020: 35). This awareness may help shape the belief that learning can take place outside school, which is still seen as the primary space for acquiring knowledge (Łukianow, 2020: 36).

Other activities young people identify as opportunities for learning include participating in extracurricular interest clubs (nearly 60% of respondents overall, with almost 35% strongly agreeing), attending science events or festivals, and reading scientific periodicals (Łukianow, 2020: 35–36).

Out-of-school science practices are especially important for those Polish 15-year-olds who say they do want to become scientists. These students are more likely to report learning in non-school environments (Łukianow, 2020: 37). However, it's worth noting that all students – regardless of whether or not they aspire to a scientific career – tend to view science centres as places that support learning. That said, this perception does not necessarily translate into a more positive overall attitude toward science itself (Łukianow, 2020: 39). Scientific practices – regardless of where and how they take place – contribute to what has been described as "embodied science capital" (Archer et al., 2015). This includes an individual's personal experiences such as visits to science or cultural institutions, participation in workshops, classes, or lectures, and interactions with scientists.

Scientist – An important profession, but not one for me

Respondents generally view scientists positively and associate them with qualities such as intelligence (89%), credibility (68%), and teamwork skills (66%) (Eurobarometer, 2021: 178). Moreover, more than two-thirds of respondents (68%) believe that scientists "should actively participate in political debates to ensure that decisions are informed by scientific evidence" (EC, 2021: 1). Interestingly, younger respondents are more likely than older ones to associate scientists with collaboration – almost three-quarters of 15–24-year-olds, compared to 62% of those aged 55 and older (Eurobarometer, 2021: 189).

However, research on the image of scientists in the minds of Polish teens "show that they are most often perceived as somewhat disconnected from everyday concerns" (Łukianow, 2020: 28). The dominant stereotype remains that of the mad professor, reinforced and perpetuated by portrayals in popular culture. A significant majority – over 80% – of Polish eighth-graders say they do not want to become scientists in the future. More than 60% of respondents (65% of girls and 62% of boys) said they definitely do not want to pursue a career in science, while around 20% (18% of girls and 21% of boys) said they probably do not want to (Łukianow, 2020: 28–29).

Trust in scientists

Among Polish eighth-graders, trust in scientists has been found to be low: "Only 8% of respondents agreed with the statement that we should always trust what scientists have to say, while as many as 37% disagreed" (Łukianow, 2020: 27). In the older age group (15–19), more than half of respondents (57%) say they trust scientists, while less than one in five (19%) do not, and 23% are undecided. Similar trends have been reported for Polish teens' attitudes toward science and the scientific method: "Half of respondents (51%) believe that science and the scientific method are the only way to discover the truth." Nearly a quarter (23%) disagree with this view, while 26% have no opinion (CNK, 2022: 6).

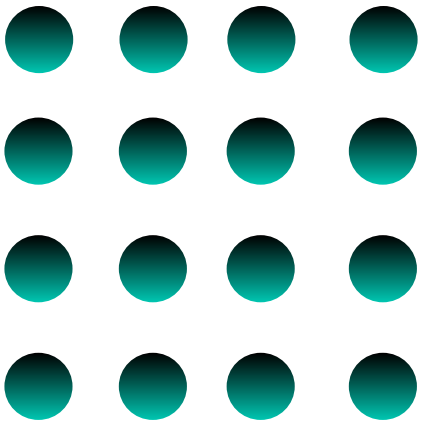
Among 15–25-year-olds, nearly three-quarters (74%) say they trust statements made by people from the world of science (such as professors or academics) when those appear in channels of communication they themselves have chosen (CluePR, 2022: 33). In addition, 79% say they trust experts within a specific field or topic. Higher levels of trust are linked to self-selected information sources, particularly social media platforms. This trust is therefore situational, tied to the platform, and does not necessarily reflect general trust in scientists as a professional group.

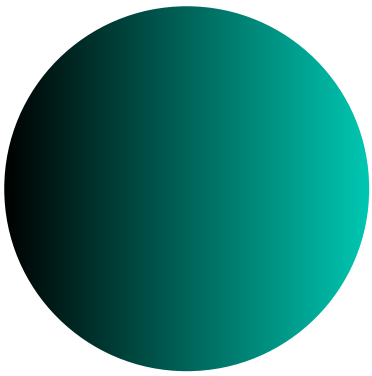
Summary

Previous research findings indicate that "science" is viewed as important by a clear majority of Poles in general: 88% consider it personally relevant, and 89% recognize its significance in their family life. However, Polish youths, especially eighth-grade students, have more mixed views – they tend to see science as distant and abstract, which impacts their engagement with STEM subjects. Interest in science declines with age; younger people (ages 15–39) are more interested in new discoveries than older age groups. Among Polish eighth-graders, there is a noticeable fascination with unsolved scientific problems, but at the same time, they struggle to see a connection between science and their everyday lives. Trust in scientists is also relatively low: only 8% of Polish eighth-grade students believe scientists should always be trusted. Among older Polish youth (15–19 years), trust increases to 57%. Although young people recognize the value of science, few envision themselves as future scientists – over 80% of eighth-graders say they do not plan to pursue a scientific career. When it comes to both formal and informal education, Polish young people express a desire to learn through diverse out-of-school activities, such as visits to museums or participation in science-related events. It is worth noting that science centres are often viewed by Polish youth as spaces for learning, which could be a key factor in fostering their future engagement with science.

Original research: Inventions, Zoos, Art, Science, BLIK, and Autism – Science and Scientists from the Perspective of Poland's Gen Z

Mindful of the key general traits of Gen Z as well as data on the role of science and scientific practices in the lives of young people, we decided to take a closer look at this generation in Poland. The aim of our study was to better understand their beliefs, emotions, and experiences. We also sought to identify the main features of youth-oriented initiatives that might be successful in helping educators design engaging and appealing science-related activities, programmes, and events.





Methodological remarks and analytical procedures

Our study was carried out using qualitative methods – specifically the elicitation workshop technique, which involves extended group interviews designed to surface the needs and expectations of individual participants. The study was commissioned by the Copernicus Science Centre and conducted by the research team at the firm Hearts & Heads: Edyta Gawlak, Seweryn Rudnicki, and Jan Strycharz.

Three elicitation workshops were conducted – two in the capital city of Warsaw, and one in the Silesian town of Opole. A total of 31 participants aged 15–17 took part. They came from Warsaw and its surroundings, as well as from the towns of Płock, Zgierz, Konin, and Opole. Participants were enrolled in various types of upper secondary schools, including general secondary schools and vocational schools. One key objective was to reach out to youth from towns of up to 130,000 residents, particularly those located farther from the Copernicus Science Centre in Warsaw. This location criterion reflected the goals of the "Science for You" programme and was based on prior experience from its implementation. Recruitment was conducted through social media and in collaboration with the Youth Culture Centre in Opole. The sampling was therefore purposive. The workshops took place in March and April 2024.

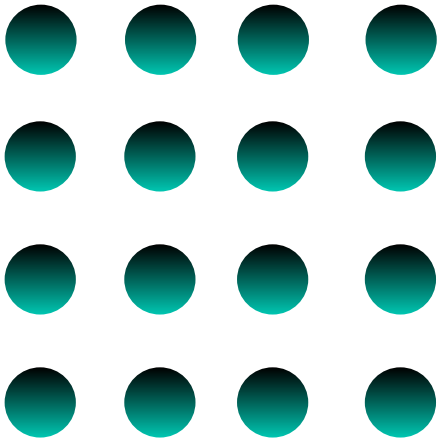
All participants were fully informed about the research, their rights, and the obligations of the researchers. Informed consent was obtained from all participants, along with parental or guardian consent. Participants also agreed to having the workshops recorded. As a token of appreciation, each participant received a free entrance ticket to the Copernicus Science Centre in Warsaw and a bookstore voucher. Their travel expenses to attend the workshops were also reimbursed.

The elicitation workshops followed a structured scenario, which is included as an appendix to this report. Discussions focused on: participants' associations with science and scientific activity, their perceptions of scientists, their personal experiences and emotions related to science. At the end of each session, participants designed a science-themed event they would enjoy attending.

Overview of the Elicitation Workshops

Associations Collage	Associations Mini-focus	Experiences Stories	Aspirations Project
Participants created a collage based on their associations with the phrase "scientific activity." They worked in small groups, using coloured magazines and markers. They presented their collages afterwards.	The facilitator moderated a discussion based on a list of specific questions related to associations with science and scientists, and how they are perceived. They ensured that everyone had a chance to speak.	Each participant prepared a short story about their most recent experience related to science. They then shared it with the group.	In small groups, participants designed an event under the theme "meeting a scientist." They were asked to plan an event they themselves would be excited to attend.

The elicitation workshops were recorded (after securing consent) for later analysis. The data were then examined with a focus on participants' associations with science and scientists, as well as their personal experiences and interests. These insights also helped identify desirable characteristics of science events that young people would be eager to participate in.



Research findings

What is “science”? What counts as “scientific”?

Our results indicate that Polish youths tend to recognize science in its material aspects – scientific work and technological development. They noted that the outcomes of science – things like bicycles, eyeglasses, and the BLIK mobile payment app – are practical tools that are helpful in everyday life. Participants saw science as being linked to inventions that improve life. To them, science manifests itself in material ways.

Polish teens’ initial associations were stereotypical, referring to the natural and physical sciences and linking them with progress, development, and usefulness in daily life:

> ***“As far as usefulness is concerned, the truth is brutal: the physical sciences are more useful – and also more interesting.”***

However, as discussions progressed, more subtle differences began to emerge: participants began to emphasize the importance of social sciences and the humanities:

> ***“We are people who have to live in society, so even despite technology, everyone still wants to be part of a community and have friends. So social sciences are the glue.”***

The Polish youths participating in our study also acknowledged that scientific development requires proper funding – for equipment and research work. At the same time, they expressed concern that scientists may become hostages to the institutions or organisations that fund their work:

> ***“At a corporation, that’s not really a scientist. He just does what he’s told. Science requires freedom.”***

Similar concerns were raised about the scientific status of social science research. The young people felt that social scientists often conduct contracted research, and thus lack “pure motivation”:

> ***“A social scientist – I picture someone with a clipboard and a questionnaire, surveying people. They collect data, but don’t really do much with it. They write an article and that’s it. A scientist digs into a field more because they love it. A social scientist does it because they have to, because it’s their job.”***

The surveyed Polish youth find it easier to recognize the material outcomes of work done in STEM fields. At the same time, they remain sceptical of the financial involvement of pharmaceutical or defence corporations. They are also aware that scientists can be placed under external pressure:

> ***“Sometimes scientists were under a lot of pressure and had to develop something new.”***

This quote is particularly interesting because one of the scientists whom participants mentioned by name was Robert Oppenheimer – likely a result of the popularity of the film "Oppenheimer" directed by Christopher Nolan, released in 2023.

Inventions, zoos, and art – are they

"Actually, art is a kind of science, because it involves a lot of exploration and searching."

"Is philosophy science? ... Well, I guess so. Aristotle was a scientist, too!"

"Science is all around us – for example, phones, computers, cars, buses – that's all science."

Omnipresent science

"In every area of life, you can apply scientific solutions – not just in technology, but also in things like agriculture and cooking."

"Knowledge shapes the whole world and drives continuous progress."

"Science improves our beauty too: for example, cosmetics, sports, hair dye – those are science as well."

In the view of the Polish teens participating in our study, science is present everywhere – even in various places they visit: zoos, museums, caves, and concert halls. Some participants even questioned whether attending a Japanese fair could be considered a "scientific" activity:

> *"I was recently at a Japanese fair at the EXPO. It was about learning new cultures – I kind of see that as science, but I don't know if it counts?"*

The theme of exploring other cultures and travel appeared in other comments as well, for example:

> *"On Erasmus in Greece, when I was there recently, we had lots of trips. The women who guided us really knew their stuff – we visited beautiful monasteries and saw amazing views. It was great to experience Greece for myself."*

The longer participants talked about scientific activity, the more they began to recognize science in their own (not necessarily academic) experiences, such as:

> *"I have a problem with my leg, so the hospital really showed me how our bodies are subjected to science. I had some fascinating tests, like bone scintigraphy and an MRI – it was interesting to see how science can help people and how I can get to know my own body."*

> *"At the gym, we test our body's limits, how we're progressing, how much we can lift. That's also science – checking how the body works and what it's capable of."*

> *"Right now, I'm doing a three-day hairdressing internship, so I'm working a lot with dyes and cosmetics. It's really interesting to see what they do, what they're made of, and how they're used."*

According to the study participants, the concept of "science" is quite capacious – it includes not only exploring the limits of one's own body and the medical diagnostics involved, but also the chemical reactions behind how hair cosmetics work. **While young people tend to envision scientific work itself (research, experimentation) primarily in the laboratory, they clearly see the application of scientific outcomes – such as specific products or technologies – as a part of nearly everyone's personal, lived experience.**

Science and school

Although our findings indicate that young people see science all around them and in the gadgets they use every day, they rarely recognize it during lessons at school. They draw a clear distinction between "science" and "learning". As a result, they are quick to notice those rare moments in school when they feel they're actually engaging in something scientific – experiences often associated with a sense of agency, engagement, initiative, and stepping outside the conventional role of "student," one that's been deeply ingrained through years of formal education. For example:

> *"A friend saw a video on TikTok saying that there are worms in hot dogs, so we checked it in biology class – it was cool to look at things under the microscope."*

> *"We made a chemical volcano. That felt like real science. Usually we just do exercises and learn from books. I wish we could do more volcanoes."*

> *"There's science at school, in lessons. Sometimes we have lab classes and do experiments, and sometimes we learn new things that way. Like when we saw the colours in a marker separate – there was just one brown dot, and then six different colours came out that made up the brown."*

Participants also highlighted the **negative impact of being graded**. Even activities they find engaging or scientifically interesting take on a negative meaning when they are subject to assessment:

> *"We have an astrophysics lab, and we do experiments there, and sometimes we go up the observation tower and look at the stars. It's all really interesting and I enjoy it – but it annoys me that we get graded on it."*

> *"They test that knowledge – like with quizzes – and we're graded on it, and that kind of kills the curiosity and the desire to try out new things or experiments in psychology."*

These comments underscore the need to "de-school" science-related events – not only in terms of the space and format, but also by removing the pressure of assessment.

At school, a lot depends on the teachers themselves. Their approach can help introduce students to the world of science and scientific methods:

> *"Our teacher is quite young, so she talks about biology in a cool way – it really gets through better."*

Polish young people report that they often feel it is outside of school that they engage with science – during field trips, museum visits, or even at concerts and fairs. As described in the first part of this report, previous studies confirm that teens are aware they can indeed acquire knowledge beyond school – not necessarily during structured activities, but in spaces like zoos, museums, or science centres.

Do It, Test It, Try It

As the quotes above well illustrate, participants say they feel more interested and engaged during activities that involve active participation:

> *"The best part was being able to touch things – like touching the little heart, holding something in your own hand, experiencing it yourself."*

> *"I learn best when I do something – not by reading or watching, but by doing. That's why I try experiments on my own, but I don't have anywhere to do it, cause I'm banned from the kitchen now."*

They also want to learn about things that are directly relevant to them:

> *"We want to find out about stuff that's mega practical for us."*

They would also prefer learning situations to feel authentic and provide real, personal experiences:

> *"I like cadavers, and cadavers like me – so I went to a morgue. It was cool that it felt real and that we weren't learning in some assigned place. It was a real situation."*

This desire to experiment, to test things for themselves, and to apply the experience to other areas of life supports engagement (and not just among teens). **Having the opportunity to engage with a sense of agency – to act, make decisions, and take initiative – also fosters a sense of usefulness in the knowledge and skills being acquired** (see Jachymek, 2022, 2023; Łukianow, 2020; Reeve & Jang, 2022; Sałkowska, 2023; Tsai et al., 2008).

"(I feel interested) not when I read something, but when I do something."

The scientist – What do young Poles think they are like?

Stereotypical perceptions of science are closely linked to stereotypical images of scientists – as individuals cut off from reality, locked away in laboratories, so absorbed in their work that they have no time for any private life:

> *"A scientist is an older guy with no hair on his head – everyone sees a scientist that way: an older man, balding."*

> *"At universities [which, according to teens, is where one actually encounters scientists – MS], it's clear that most PhDs and professors are older people [...]. And we all know it takes time to get those titles – it's not something that just happens overnight."*

> *"Scientists' lives aren't all that interesting, cause after work, they don't have any friends or any family."*

Another stereotype that emerged in these conversations is the association between exceptional intelligence and autism-spectrum traits:

> *"They don't have much of a social life; they just sit in the lab. Some have certain disorders – like autism – and those people are really smart and focus on one topic."*

> *"Scientists are on the autism spectrum because autistic people are very intelligent and are so predisposed. I recently read about a young girl with an IQ higher than Einstein's who had already finished university..."*

The image of scientists held by young people largely reproduces popular culture clichés: the "male scientist, a lab worker with a distinctive facial expression and haircut, surrounded by typical lab equipment" (Bałandynowicz-Panfil, 2017, p. 33).

At the same time, young people associate scientists with specific personal qualities – persistence, patience, creativity, and the ability to cope with failure:

> *"To work in science, you need certain traits. It's not for everyone. You have to think, be creative – I mean, someone who can make something out of nothing, who sees things others don't, and who develops them further."*

> *"You try and try and try. You have to be really persistent. To become a scientist, you need to be a brain in that field."*

Note that these young people most likely rely on such stereotypes because they have limited direct contact with scientists. As a result, they fall back on familiar tropes about scientific work and the lifestyle of scientists. At the same time, they admit that the world of science has an air of mystery – and even a touch of magic:

> *"Scientists are the wizards of the 21st century."*

> *"A scientist is a much older man with no hair on his head – that's how everyone sees a scientist: an older man with a bald spot."*

> *"I'd really like to know if he really doesn't have a social life."*

> *"Yes, he's withdrawn, just sits in the lab all the time and has no time for his family."*

Polish youths are aware that science is changing, with younger scientists entering the field, bringing new ideas

"A scientist is an older guy with no hair on his head – everyone sees a scientist that way: an older man, balding."

"I'd really like to know if a scientist really doesn't have any social life."

"Yes, a scientist is withdrawn, just sits in the lab all the time and has no time for his family."

The scientist – A new image emerging?

Research indicates, however, that stereotypical perceptions of scientists and scientific work are nevertheless beginning to shift. **Polish youths are aware that science is changing, with younger scientists entering the field, bringing new ideas:**

> *"There's a stereotype that science is mostly for old guys with beards, but young people can contribute too."*

> *"The age of nerdy scientists is ending – young people are slowly becoming scientists, slowly changing the world and bringing a fresh, open mindset. They want to do things differently than before."*

Research findings from previous studies, also presented above, indicated that younger respondents are more likely than older ones to associate scientific work with collaboration. This view was also echoed in statements from our respondents:

> *"The era of scientists working alone and making huge discoveries is long gone. Now it's all about research teams."*

> *"A genius with broad knowledge, curiosity, and pressure on their shoulders can end up having a mental breakdown. That's why it's a shame no one talks about how many people there are around such scientists, about how they don't do it alone."*

It seems that young people aren't just referring to research teams working on joint scientific projects, but also to the often invisible support and effort of others who contribute to the work of scientists – a theme also explored in the 2016 film "Hidden Figures" (dir. Theodore Melfi).

Interestingly, **young people also see an active role for themselves – they believe scientists can learn something from them, especially when it comes to maintaining a healthy work/life balance** (a theme that, as noted in previous chapters, is very important to this age group):

> *"A scientist [...] could learn something from us, like going outside for a walk, having a social life outside of science, too."*

Our survey participants also described **an interesting figure – the "activist scientist"**: someone who has scientific authority and expert knowledge, but who is also deeply engaged in social issues. One example they mentioned was in the context of animal protection:

> *"There's this kind of crazy scientist, super into their thing – an activist. That kind of person could help us save the animals."*

One can imagine a similar "activist scientist" becoming involved in other causes important to young people, such as climate change or mental health.

Everything young people would like to ask scientists

While Polish teens may not be especially curious about scientists' specific research topics – as established earlier in the report – they are eager to learn about their personal lives outside of work. For example:

> *"What do they do for fun, in their free time – if they have any? I wonder if they feel like a normal person, like someone who works 9 to 5?"*

It's notable that the concept of a "normal person" is implicitly positioned in opposition to the figure of the scientist. The defining features of "normality" here appear to be a traditional 9-to-5 work schedule, demarcating a clear boundary between professional and personal life.

Young people also said they are interested in the very **process of becoming a scientist and whether choosing a scientific career was the right decision:**

> *"I'd like to know how it started – how it happened that they became a scientist. I'd like to know whether they regret becoming one."*

> *"Honestly, I could never imagine my whole life being focused on just one thing. But I get the feeling that they can't leave science behind now, because they don't have anything else. I'd really like to ask about that."*

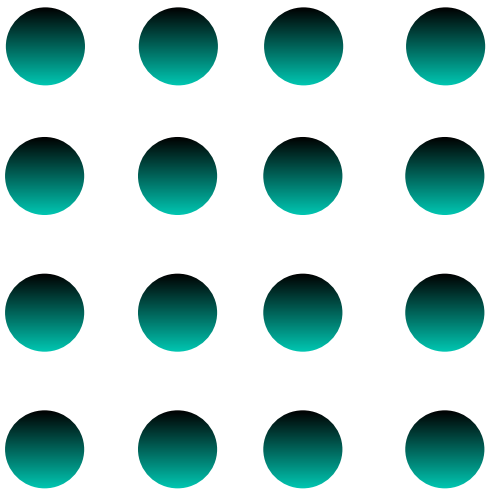
Polish teens are also curious about scientists' dreams and failures:

> *"I'd ask what the scientist's biggest dream is – what they'd like to discover."*

> *"I'd like to know what their biggest failure was, because that's always interesting, too."*

As seen throughout the study, young people are not interested in the subject matter of scientists' research, but rather in what it's like to actually be a scientist. This suggests that they have limited personal experience with researchers or scientific professionals.

Polish youth would also like to know how scientists deal with the challenges that they themselves face – such as failure, emotional struggles, or even social exclusion. Note that the study participants are on the verge of making decisions about their own career paths, so their curiosity about the scientist's trajectory and whether it was the right choice is entirely natural and understandable.



Meeting a scientist – But what kind of scientist?

The statements cited above make it clear that the Polish young people who participated in our study lack personal experience interacting with scientists. What's more, they tend to view scientists in a stereotypical way – as individuals working in the natural and physical sciences, and generally inaccessible to those outside the world of academia. It's no surprise, then, that they expressed a desire to meet someone who could genuinely talk about their life and work. Importantly, participants did not expect scientists to pretend to be someone they're not in order to appeal to them. **They greatly value authenticity and naturalness. At the same time, they acknowledged that not everyone might be well suited to speaking with young people – or more broadly, with those outside of the scientific community:**

> *"I've attended talks as a listener, and honestly, some people just don't know how to connect with young people. They think standing and speaking for an hour and a half, without any chance to ask questions or have a real conversation, will interest us. There was no vetting to check whether someone would actually be good at engaging with youth. Like, someone might have a PhD in some field and a ton of knowledge – but they should also be checked for whether they know how to relate to young people."*

Importantly, this idea of having "a good approach to youth" doesn't mean trying to mimic teen slang or pop culture. Rather, it means being open to genuine contact, showing real interest in what matters to young people, and listening to them:

> *"Because when someone is like a god of science, there's shame and fear. They have to be more approachable – not so distant and all-knowing, because that's intimidating."*

"We want an adventure – we love adventures!"

What kind of science event would young people like to attend? Their responses indicate that it needs to be something that makes a "big splash." In the kinds of events they envision, they want to travel – be it into outer space, on safari in Africa, or at least to London:

> *"Our event takes place in London, outdoors."*

> *"We want it to happen in space – we'll be exploring the universe with a scientist."*

> *"Our event is a month-long safari trip to study different animal species. It's invite-only."*

Of course, no one expects a youth science event to actually involve a space mission or a trip to Africa. But the idea of travel and a change of setting is clearly very important to young people. In more down-to-earth suggestions, they emphasized locations outside the school context. What matters is a space that feels pleasant, cozy, and modern:

> *"The activities take place in a garden, where it's green and warm, with a specially designated area for the event so no one interrupts. There should be birds to make the atmosphere nice, and of course, comfy chairs and beanbags so it's comfortable."*

> *"We want to take it out into the city – not do it with the school."*

Participants also pointed out the importance of accessibility, especially for people with disabilities:

> *"It would be great if it was in a modern space – clean, well-lit, and accessible. In some small towns, there are these old-school community centres built back in the communist era, with yellow walls, red leather chairs, and wooden stages. That's just off-putting. It's not the kind of place that makes you feel like important conversations are happening here."*

Referring back to findings from the study by Matuszak et al. (2024), it's clear that young people want to participate in events that take place in "prestigious" settings. Neither the school nor the local community centre will meet that standard. In fact:

> *"School is not about doing science."*

After years of formal education, young people have become socialized into their expected institutional roles as students. They know how to behave in ways that meet expectations. It seems that even the most exciting event, if held at school – a space where the roles of authority (teachers and adults) and passive receivers (students) are automatically and rigidly reinforced – may not feel like something "for them." Instead, it risks being perceived as just another school obligation.

A Sense of Agency – "I Decide If and How I Engage"

Young people don't want to remain stuck in the "student" role. They want to be able to take the initiative and be treated as partners. At school, out of habit formed over many years of education, they tend to fall back into a scripted way of behaving – focusing on what they're expected to learn, what grade they'll receive, or whether they've answered correctly according to the answer key. It also matters that science-related events held at school are often mandatory, even when students have no interest in the topic.

In our study participants' view, such events should be voluntary and, ideally, preceded by a recruitment process, so that only those who are genuinely interested and motivated take part:

> *"The idea is that it should be voluntary, because when whole classes turn up, it's usually a disaster."*

> *"There definitely should be a recruitment process – it shouldn't be for everyone, only for those who truly want to be there."*

> *"There should be a selection of people – not just anyone who signs up, but those who are actually interested and would get something out of it."*

When events bring together people with shared interests, participants feel a greater sense of mutual acceptance and belonging – as a group of individuals with distinct passions, genuinely curious about science. It's also simply not realistic to design a single event that will engage everyone equally:

> *"You can't get 30 people interested in a single topic – it just doesn't work."*

> *"It's important for the group to be curious and open-minded, because if no one is going to talk, nothing will come of it and it'll be boring."*

The ability to make their own choice about participating in a science event reflects a recognition of young people's autonomy:

> *"If someone signed up for this kind of activity on their own, that shows more independence – and there's a better chance that if they made the decision themselves (and not because a teacher told them to), they'll come in with a positive attitude: 'I came to this because I really wanted to.'"*

Young people don’t want to remain stuck in the “student” role. They want to be able to take the initiative and be treated as partners.

Young people's autonomy and decision-making capacity should also be acknowledged during the event itself. Our findings indicate that Polish teens especially value formats in which they can adjust their level of participation at any given moment, based on their comfort and interest:

> "We like the 'long table' format: with six people at a table, who rotate while the rest listen. There are tons of variations – like a permanent 'throne' chair for the speaker, and other participants can join in to take part in the discussion. What matters is having a moderator to keep the conversation going. You come to learn, but also to share. I can listen, I can speak, or I can do both."

"Well, we're going because we earned it for Opole." "Everyone who's interested goes there."

"When entire classes come, it usually ends up being a failure."

"If a peer recommends it to me, there's a better chance I'll like it."

When a science event takes place in a welcoming space, with a pleasant atmosphere, drinks and-snacks, and is intended for a selected group of participants, it takes on the qualities of prestige. That, in turn, makes it more appealing to members of Generation Z – as shown by the findings discussed in earlier sections of this report. Such events should also address Gen Z's core needs: a sense of safety, a preference for authenticity, and the opportunity to engage with niche interests. Above all, teens emphasize voluntary participation: not being forced to attend is one of the key characteristics of a science event they would genuinely want to take part in.

"A friend saw a video on TikTok saying that there are worms in hot dogs, so we checked it in biology class – it was cool to look at things under the microscope."

A science event that actually engages young people – recommendations

A science event should be planned together with young people, following the rule: **"Don't design for them, design with them."** Involving them from the very beginning ensures an authentic sense of

Young people involved in designing the event can become its **ambassadors** – youth are more likely to trust opinions and recommendations from their peers than from adults.

The scientists taking part in the event should be **genuinely interested in engaging with young people** and open to answering questions not only about their research topics but also about their scientific careers.

The event should be aimed at those who are genuinely interested. It should include proper flow: conversations, demonstrations, debates. Such **events are also more likely to be seen as "prestigious"** in the eyes of youth. Real interest in the topic matters more than the age of the participants.

The event should take place in a space that doesn't feel like school or like being evaluated. Ideally, it should be comfortable and provide a **sense of security**. If it is held at a school, special attention should be paid to the atmosphere and format, since unfriendly spaces can make it harder for young people to feel at ease than in other venues.

If the event aims to challenge stereotypical views of science and scientists, it's worth inviting younger scientists and those not necessarily associated with STEM fields. Young people often don't associate **social scientists and humanities scholars** with "science" and don't recognize the impact of their work in everyday life.

Choose a format that **allows participants to engage at different levels**, even during the event itself (e.g. the so-called long table format).

Appendix: Elicitation Workshop Scenario

Elicitation workshop scenario
Prepared for: the Copernicus Science Centre in Warsaw, Poland
Objective: To elicit qualitative data on the mental models and experiences of science among young people aged 15–17. The data will serve as inspiration for developing an educational service designed to promote science among this age group.
Target group: Youth aged 15–17

Workshop Elements

1. Short welcome and introduction to the goals of the session (approx. 5 minutes)

2. Icebreaker round (approx. 10 minutes)

Participants and the facilitator form a circle and toss a ball to one another. Whoever catches the ball says their name and where they are from.

3. Task #1: Collage on the theme "Scientific activity" (approx. 45 minutes)

Participants are divided into two or three smaller groups. Each group receives a large sheet of paper (flip-chart size), a stack of colourful magazines, scissors, glue, and a set of coloured markers.

Their task is to create a collage composed of cut-out images and marker drawings. This collage should serve as the group's visual definition of the phrase *"scientific activity"*.

Next each group presents their collage and explains why they chose each element. The facilitator probes and asks follow-up questions to gather as much insight as possible into the participants' associations with the phrase *"scientific activity"*.

4. Focus group session (approx. 30 minutes)

Following the presentations, the facilitator asks any of the following questions that were not already addressed during the collage presentations:

-> Do you see "science" or "scientific activity" in your life? Around you? Where? How does it show up?

-> Who is "a scientist"? What does their job involve? Do you know any scientists? Any names?

-> What are the fields of science? For example, what does a social scientist do?

-> Is the life of a scientist interesting? Or boring? Or a bit of both? Are there aspects of a scientist's life that seem especially interesting? Are there things you would like to learn or experience yourself?

-> Does science happen at school? What does that look like?

5. Task #2: Personal experience (approx. 30 minutes)

Participants are given an individual task. Each person receives a sheet of paper and is asked to describe their most recent significant experience involving science – whether it happened at school or during an event. Next, they identify: one positive aspect of the experience, one negative aspect, and one idea for how it could be improved.

After completing the sheet, each participant shares their experience with the group. The facilitator follows up with questions to deepen the given participant's perspective.

6. Task #3: Design a meeting with a scientist (approx. 60 minutes)

Participants are divided into two smaller working groups. Each group is asked to design their "ideal meeting with a scientist" – one so engaging that they'd be willing to attend even a month before their final school exams (*matura*). Using a prepared template, they respond to prompts related to the event's key elements:

- The guest/scientist – Who is the scientist? What are they like? How do they behave?
- The participants – Who takes part in the event?
- Duration – How long does the event last? Is it one-time or recurring? Is there follow-up?
- Location – Where does the event take place? Does the location change?
- Benefits – What do I, as a participant, get out of it? Do I learn something? Receive something?
- Schedule – What happens during the event? (step-by-step, in as much detail as possible)
- How I find out about the event – Through which channels does information reach me so that I consider it trustworthy and worth my attention? Whom should such information come from?

After preparing their project concepts, each group presents their ideas. The facilitator asks follow-up questions to deepen the understanding of why participants find the proposed structure appealing.

Additional questions from the facilitator:

-> Imagine that your dream activity is happening in different locations across Poland. Does that change anything for you? Would you like to hear about what others did? Would you like to meet participants from other places? What would you think of something like a closing gala? What would it look like?

7. Summary and conclusion

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