

# Adolescents, *ChatGPT*, and Co.

## WHAT GERMAN ADOLESCENTS THINK ABOUT ARTIFICIAL INTELLIGENCE AND WHERE THEY WOULD LIKE SUPPORT

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**A study analyzed the importance of applications based on artificial intelligence in the everyday lives of German adolescents.**

Whether image- or text-generating processes, the Internet of Things (IoT), or personal assistants on smartphones – applications of artificial intelligence (AI) are now integral to many aspects of everyday life, and users recognize both advantages and disadvantages (Cousseran et al., 2023, p. 23). The disadvantages and dangers include, for example, the assumption that AI applications increase dependency on technology or threaten jobs. However, there are also notable advantages, such as enabling more targeted therapies in healthcare (Cousseran et al., 2023, p. 23).

Artificial intelligence applications have also become part of adolescents' lives. In 2023, only 15% of adolescents aged 12 to 19 report not having heard of *ChatGPT*. 38% have already tried out the AI application themselves, and an additional 36% have heard about it (mpfs, 2023, p. 31). However, how significant are AI applications in the lives of adolescents? Findings remain limited on this subject (exceptions include Cousseran et al., 2023; Schober et al., 2022; 2023; see also Götz & Holler in this issue).

This study, therefore, explores,

- what adolescents know about AI applications,
- where they encounter them,
- how they evaluate these applications, and finally
- where their knowledge originates.

### THE STUDY

To answer these questions, we<sup>1</sup> conducted the research project "Algorithms and Artificial Intelligence in the Everyday Life of Adolescents" on behalf of the Bavarian Regulatory Authority for New Media (Bayerische Landeszentrale für neue Medien, BLM; Wendt et al., 2024). The study utilized 3 methodological approaches:

- 6 focus groups with German adolescents (average age 15.8 years, 11 boys, 13 girls),
- a diary study with some of the adolescents from the focus groups, and
- a representative online survey of 610 German adolescents.<sup>2</sup>

Data collection took place between October and December 2023. In the focus groups<sup>3</sup>, the participants were asked to discuss their knowledge, evaluations, emotions, and knowledge transfer regarding artificial intelligence. To ensure comparability of findings, the focus groups were guided by an interview framework. They were transcribed verbatim, pseudonymized, and analyzed using a category system.

### What do adolescents know about AI applications?

The findings<sup>4</sup> impressively show that AI applications have arrived in the lives of adolescents. In the focus groups, participants frequently mentioned direct points of contact with AI applications. They most frequently used text-generating applications such as *ChatGPT* or translation tools (e.g., to

answer everyday questions and complete homework). Additionally, they experimented with image-generating applications (e.g., to edit and create new, sometimes funny images). The adolescents are also familiar with AI applications embedded in social media. For example, they spoke about bots they interact with and whose personalities they can customize to their interests and needs. The bots (e.g., *My AI* on Snapchat) suggest targeted prompts as search queries based on usage behavior, such as the content of a book the adolescents are currently reading and about which they have been talking to friends online or inquiries about appropriate clothing for the weather:

"Or on Snapchat *My AI*, for example! Suddenly, there is a robot. You can write to the robot, or you can send it snaps, and it responds too." (Alisia, 17 years old)

"It also scans pictures. So, if you send something from outside, it says something like 'Oh, how nice is the weather outside' or something like that." (Antonia, 16 years old)

AI applications also help and advise with personal developmental tasks (e.g., the first heartbreak). Further, but primarily indirect points of contact include technological developments, which, thanks to artificial intelligence, create new things or are integrated into everyday life (e.g., smart speakers in the household). When adolescents use AI applications, it is typically in a school context or, much less frequently, in their leisure time. They primarily rely on artificial intelligence to solve homework and work assignments for school or to generate texts (e.g.,

tables of contents and bibliographies, text summaries). AI applications such as *ChatGPT* also help with translating foreign language texts:

“Many of my friends simply use it for Latin and Latin exams translating because it translates better than other translations.” (Leon, 15 years old)

Artificial intelligence is used much less frequently in adolescents’ spare time, e.g., when interacting with voice assistants or using bots as search engines. Even though adolescents use AI applications regularly, they are unsure what the term “artificial intelligence” truly means. They tend to define the term based on specific applications they use and potential fields of application, distinguishing it from other related terms such as algorithms. This uncertainty becomes evident when discussing possible AI application originators in the group discussions. With 3 exceptions, the adolescents could not identify specific creators, instead offering very abstract notions. They generally lacked knowledge about how AI is developed or what characterizes it. However, some participants speculated that AI applications continue learning through being used:

“The basic code is still written by some people who are either employed to do it or just people who do it for research purposes or simply do it in their free time, who are very interested in it. However, it is scary that the AI partly writes itself.” (Tim, 16 years old)

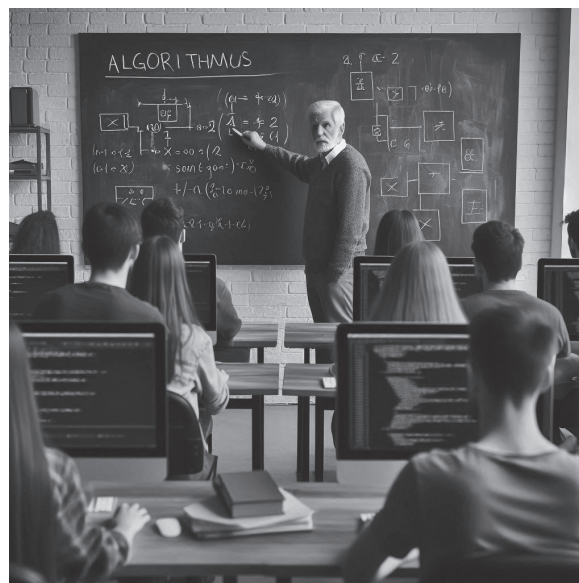
### What do adolescents think about AI applications?

The adolescents’ uncertain knowledge about AI is also reflected in the evaluation of AI applications. While they recognize certain advantages, they also express disadvantages. On the positive side, they see AI as a tool that can simplify various aspects

of life (e.g., at work or school). AI applications also promise inspiration and assistance. However, adolescents are wary of the reliability of AI-generated content, emphasizing that it cannot be trusted blindly. They believe it is essential to verify AI-generated information, as responses from *ChatGPT* to the same inquiry may vary. Concerns also extend to the potential impact of AI on the working world. They fear the replacement of professions and a loss of control over certain aspects of life:

“We should almost be afraid of it because now, of course, we still have it under control because we are just at the beginning. However, nobody knows what it will look like in 20 years. (Agreement from the peers) At some point, this system may understand how to generate itself. Moreover, this is when we lose control.” (Alina, 16 years old)

The adolescents’ assessments also reflect this perception of the advantages and disadvantages. Here, too, they articulate both positive and, above all, negative emotions in the group discussions. In addition to affirmative assessments, which are characterized by an openness to technological progress, the adolescents shared feelings of insecurity and fear:



Ill. 1: AI at school: Adolescents criticize that teachers often lack interest in and understanding of AI applications and their potential<sup>5</sup>

“I also find it quite creepy when it comes up with personal stuff, like, ‘How are you?’” (Melina, 15 years old)

However, despite these negative assessments, adolescents continue to use AI applications without profoundly considering the potential consequences – partly because they lack the knowledge to assess them:

“But if you spend the whole time thinking about what it is in the first place, it gets scary at some point. However, otherwise, you do not think about it like that; you use it because you think: ‘Yes, that answers everything for me.’” (Miriam, 14 years old)

### Where does the (lack of) knowledge come from?

The focus groups reveal that adolescents lack knowledge about AI applications. This knowledge gap leads to uncertain, adverse judgments and possibly unreflected usage of artificial intelligence. In traditional socialization contexts, such as family and school, there is hardly any knowledge transfer about AI – likely because adult socialization instances lack understanding and pass their fears resulting from a lack of knowledge onto the adolescents.

Conversations within families primarily focus on the potential negative consequences of artificial intelligence (e.g., its impact on the job market) or, depending on the occasion, practical discussions about acquiring AI-based technology such as voice assistants. At schools, conversely, discourse about AI is dominated by emphasizing the disadvantages rather than the opportunities of AI applications. However, it often does not take place at all. Very few adolescents remember talking about AI applications at school. When addressed, it is typically in passing – through a textbook page, a worksheet, or as a debate topic.

## RESEARCH

Teachers often feel unsure of how to integrate AI applications into everyday school life and address the implications and changes they could bring. This often results in bans, threats of installing control mechanisms, and lessons shaped by opinions rather than facts about AI. All too often, teachers lack an understanding of AI applications and their potential (see also Burow in this issue; Ill. 1), which Leon (16 years old) attributes to their age: “We have many teachers who are very old and do not understand anything.” (Leon, 16 years old)

In rare instances, schools do address AI comprehensively. Olaf (16 years old) and Oskar (17 years old) reported that their school discussed AI applications extensively in class:

“Because that is also our future, so to speak, I will say, artificial intelligence. It is just growing now. Moreover, it will look very different in a few years than it does now. Much different, I say. Moreover, teachers need to know *Chat-GPT* because, for example, when a pupil with a five [with poor grades] in German suddenly hands in something that a pupil with a one [with excellent grades] could have written.” (Oskar, 17 years old)

The impetus for dealing with AI applications in the classroom often came from adolescents. Their use of AI led to teachers also addressing the topic: “I do not want to sound mean, but do 40-year-olds use it? I do not think they found out about it at first, but we, the young people, found out more quickly and realized what it was and then used it.” (Oskar, 17 years old)

Due to the absence of structured knowledge transfer by the school and family, adolescents exchange information, share experiences, and offer each other help, such as tips for formulating search queries. However, this behavior is often based on the abovementioned lack of knowledge. Therefore, it is questionable how the categorization of experiences and acquiring new knowledge can work.

### Approaches: Where do adolescents want more support?

Unsurprisingly, adolescents wish more knowledge transfer about AI, focus-

ing on risks and opportunities. They want to understand how AI applications work and to form well-founded judgments based on information. This knowledge transfer should occur regularly within their socialization contexts and take on the adolescents’ perspective. They are often more open to technological developments than adult socialization authorities are to AI applications:

“Many people fear it. My parents, for example, are always against it. But we just must learn how to deal with it. And if you find a good approach and a good balance, then I think it can work well.” (Nora, 16 years old)

However, to be able to use AI applications, comprehensive, multidimensional skills are required (Süna & Hoffmann, 2021). These are located on a cognitive level (technical skills) but also go beyond this and concern skills related to the actions of the adolescents themselves (self-competence) and in community with others (social competence; Pfaff-Rüdiger & Riesmeyer, 2016; Riesmeyer et al., 2016). Technical competence includes knowledge about AI applications, their authorship, and characteristics. This knowledge is essential to initiate a process of reflection in terms of the evaluation and categorization of AI applications. This ability is part of the concept of self-competence. Finally, social competence focuses on interacting with others and passing on knowledge to others. Future teaching and educational approaches across all socialization contexts should address these 3 dimensions equally. ■

## NOTES

<sup>1</sup> Ruth Wendt and Claudia Riesmeyer were responsible for the project. Larissa Leonhard, Janina Hagner, and Jessica Kühn worked on the project. Further information on the project can be found at: <https://www.blm.de/de/wir-fuer-sie/blm-events/events-2024/algorithmen-und-kuenstliche-in.cfm>. The final report is available online at [https://www.blm.de/files/pdf2/blm\\_schriftenreihe\\_111.pdf](https://www.blm.de/files/pdf2/blm_schriftenreihe_111.pdf) (Wendt et al., 2024).

<sup>2</sup> Quota by age, gender, school-leaving qualification, regional distribution by federal state, and municipality size classes.

<sup>3</sup> The following section focuses on the findings of the focus groups on AI applications. Further information on the diary study and the survey can be found in the final report.

<sup>4</sup> All the following findings refer to Wendt et al. (2024, p. 69 ff.).

<sup>5</sup> Image generated with Bing with the prompt: “Photo of an older teacher standing at the blackboard teaching students (diverse, girls and boys, 15-17 years old, with their backs to the viewer) sitting in front of computers, in computer science on the topic of algorithms.”

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