

The Impact of Using AI Chatbots on Teenagers

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ABSTRACT

AI chatbots are systems designed to simulate human conversation, allowing users to interact through text or voice for various purposes, such as entertainment, business, and education. This paper focuses on the use of AI chatbots in education, as their adoption among teenagers has occurred without awareness of the implications. One of the ethical concerns regarding the use of these AI is how it impacts a teenager's self-development. In this paper, I will argue that although current research offers a divergent view of AI—presenting a mix of positive and negative outcomes rather than a consensus—using it in education nevertheless alters the learning environment. This shift impacts teenagers' self-development, as their cognitive systems are shaped by AI environments.

Keywords: AI chatbots, AI ethics, AI in education

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Introduction

The human environment is currently changing as it becomes increasingly integrated with Artificial Intelligence (AI). Humans become connected with AI in everyday life for various purposes. For example, in business, we use AI to predict customer demand and behavior, write formal business emails, assist in evaluating or predicting profit and loss, and generate artwork. In medicine, AI is used for detecting and reading cancer or tumor scans. It is also being applied to diseases like Alzheimer's, which are difficult to identify and often misdiagnosed (Khachnaoui & Mahjoubi, 2021). In education, students use Generative AI chatbots such as ChatGPT, Gemini, and Claude to write essays and homework, and they are currently using them for research literature reviews. The fact is that AI is becoming part of our environment, and the presupposition is that it will somehow impact our thoughts and ways of living. It is like a hermit crab that now uses plastic garbage as a shelter instead of a shell because its environment is changing. Similarly, we must find a way to balance and fit into the world with AI. In a general overview of fields where AI is already engaged, we find that it brings both great benefits and serious problems. In business, there are concerns about AI replacing humans; the discussion involves AI-generated artwork, where human artists debate whether it is illegal to train AI on their work without permission. In medicine, the main debate relies on the question: how reliable is an AI doctor? Who is responsible if AI misdiagnoses a patient and causes serious harm? Finally, and the main focus of this paper, AI in education, we find that an obvious issue with AI is its impact on the students' cognitive system, as well as on teacher and student behavior. As Holmes and Tuomi state, not every AI that is currently used in education was created for educational purposes (Holmes & Tuomi, 2022). For example, AI chatbots, we have used them for many purposes primarily to provide automated answers. For instance, they assist government officers by answering general questions with specific answers—like how to apply for a visa—or to help customers secure refunds and solve common problems. Now that AI chatbots have entered the field of education, we must determine how to adopt them properly for educational purposes. A key issue is that AI chatbots are already being used in a school environment without a full awareness of its impact.

This paper focuses on the use of AI chatbots in education, as it is currently being used in education and is easy for students to access via websites or mobile applications. The paper is divided into three parts: First, I will explain and provide examples of how AI chatbots are integrated into educational environments. Next, I will address the ethical concerns of using AI in education. Finally, I define the fundamental basis for the argument that AI significantly impacts self-development.

AI in Education

AI in education refers to the use of AI for educational purposes, including the enhancement of the learning process and the implementation of AI chatbots for

administrative tasks within the school environment. Many believe that AI chatbots are great tools for assisting students in their learning; however, others argue that it might interfere with students' performance. This study focuses on AI chatbot usage among teenagers aged 13–18, a period marked by significant physical changes and the remodeling of the prefrontal cortex (Blakemore, 2018, as cited in Best & Ban, 2021). This brain region is responsible for decision-making, impulse control, and a young person's ability to plan and consider the consequences of their actions (Choudhury et al., 2008, as cited in Best & Ban, 2021). Adolescence is the age at which teenagers face physical changes; in the meantime, they are developing self-awareness, which is related to self-image. A favorable self-image is associated with open communication with people important to help them define their identity (Sandu et al., 2015). In this section, I will explore how AI chatbots are currently integrated into this stage of learning.

School is one of the oldest institutions in human history where the relationship between teacher and student is developed, with the teacher's main responsibility for sharing knowledge and skills with the student. Today, we begin school at an early age, as it is the fact that the brain develops rapidly during these years; consequently, young people seem to have great memories and find it easier to learn new skills such as languages. School is the place where students develop many skills: social skills, basic knowledge, the development of personal interests, and personal identity. With the integration of AI into education, the traditional teacher-student dynamic has expanded to include AI as a third participant in the learning process. In Thai schools more around ten years ago, it was the beginning of mobile phone era and the rise of an online society. Students at first were not allowed to bring them to school because they were expensive, and it is believed that they would distract students from learning. The fact is that both reasons are true. The phones were quite expensive during the early days of the industry. Additionally, numerous empirical studies show that using phones has negative impacts on the student learning process. For example, a study shows that using digital tools constantly can impair the brain's ability to focus and sustain attention. (Ophir et al., 2009 as cited in Shanmugasundaram & Tamilarasu, 2023) Digital dementia can lead to a range of cognitive impairments, including memory loss, attention deficit, reduced ability to communicate, impaired decision-making abilities (Manwell et al., 2022 as cited in Shanmugasundaram & Tamilarasu, 2023) Even though we have found the impact of using digital tools, the AI situation is different. Previously, when students were given Math homework, they had to find a way to solve the problems on their own. Even if they use search engines like Google to find answers, they still have to analyze and determine the validity of the answers themselves. Students in Asia who were not native English speakers carried and used heavy dictionaries to find and translate words or sentences. It took a lot of time to finish a single sentence or paragraph, and Google Translate at that time was not good enough. Nowadays, students rarely use dictionaries, as they can rely on AI chatbots. It takes only a few seconds and provides answers all they want in any subjects. The problem regarding AI in education is whether AI should be integrated in the learning process, and if so, to what extent?

We have seen that the use of AI is widespread in many purposes; let's explore how it is used in education: A researcher team from the United Kingdom has developed an AI to design a learning environment for children with autism to develop and improve their social skills. The AI called "Andy" acts as a social partner for the children. It helps them learn or improve social communication skills by designing an environment where children interact with a cloud-based system through a multi-touch 42-inch screen. In this environment, children have the opportunity to interact with both AI and humans. There are many activities in this class. For example, filling basket with flowers activity, Andy demonstrates the action and takes turns with the children. The AI then asks for a particular flower to be put in the basket, praises the child for completing the action, and ends the task. (Smith et al., 2018) This is an example of how AI can be used as a personal assistant for learners. The main point is that children with autism often have a difficult time connecting with others; therefore, using AI in this process may help them to prepare for real-world social situations. Practicing social skills with AI may be more effective for these children than practicing with humans, as humans may hold unconscious biases or pass judgments that could negatively impact their development. This study also attempts to balance activities, determining which ones require human participation and which one should allow children to explore independently. This ensures that they are not afraid to express themselves fully or experiment with new behaviors.

AI chatbots, such as ChatGPT, Gemini, Claude, are also popular tools for assisting students and teachers with learning. A majority of teens in the USA (ages 13–17) say they use chatbots (ChatGPT, Copilot, or Character.ai)—roughly two-thirds of teens (64%). Fewer (36%) do not use these tools (Faverio & Sidoti, 2025). Anyone with a smartphone and an internet connection can use many AI chatbots for free. It's as simple as texting a friend on Facebook, Line, or WhatsApp—just type your message and hit send, and the AI will respond instantly. We can ask AI chatbots to generate many things, including images, poetry, papers, and essays. So, school homework is very easy for them. AI chatbots can act as tutors, providing instant feedback, answering questions, and guiding students through their learning journeys (Sridhar et al., 2022 as cited in Harry & Alexandra, 2023) Some universities also develop AI chatbots for their students; for example, Georgia State University implemented a chatbot named "Pounce" which provides personalized support to students by answering questions and providing guidance on both academic and administrative matters (Harry & Alexandra, 2023) As stated earlier, AI chatbots are not specifically designed for academic study, their integration into the student experience has occurred without awareness or preparation. In Thailand, there is a lack of formal preparation for incorporating this technology into the learning process. The worst situation is that many teachers lack an understanding of how these AI tools work, while students are already using them to complete homework or assignments. The issue is that students can now use them to complete assignments without truly understanding the material, which may lead them to bypass attending classes or engaging with the lessons. Consequently, foundational knowledge may be perceived as unnecessary because AI chatbots provide

answers in a few seconds. This differs significantly from traditional study methods; whereas searching for answers in books requires active reading and comprehension, AI chatbots provide instant results, often removing the cognitive effort required for learning. For example, students can take a picture of a math test and input it into an AI chatbot; without thinking, they can get the answers.

The evidence for using AI chatbots is ambiguous; the benefits and harms are often intermixed. For example, Harry and Alexandra argue that AI chatbots are beneficial because it allows students to learn at their own pace according to their individual needs and abilities, which can lead to improved learning outcomes. I agree with them that AI can improve student learning, as it can track specific details, personal histories, and academic records. While human teachers can evaluate and remember each student's background knowledge, managing a large number of students can make it difficult to provide individualized attention to everyone. Since each student's learning ability is unique, AI chatbots can assist teachers by tracking and analyzing each student's learning progress and background. This allows teachers to better understand individual backgrounds and challenge students to progress to the next level. They also propose that AI can enhance student engagement by providing interactive learning experiences. For example, chatbots and virtual assistants can provide adaptive learning which can help students stay engaged by presenting material at their level (Harry & Alexandra, 2023) I think this is also a significant advantage of using AI chatbots in education; it enables students to learn what they want at their own interests. While a human teacher may struggle to address each student's specific knowledge gap, AI chatbots can design personalized lessons which can help students specialize in their areas of interest. I believe this could bridge the educational gap for local students by allowing those in rural areas, who may lack access to teachers in their specific subjects of interest, to study their subjects of interest. They also raise the challenge of using AI in education; for example, privacy concerns, as AI collects large amounts of students' personal data, which could pose a risk if it falls into the wrong hands. Additionally, the cost of using AI in education remains high. Finally, there is a concern of potential bias, as AI can be biased if they are trained on flawed or biased data. (Harry & Alexandra, 2023)

After reviewing the benefits and challenges of using AI chatbots, I believe that the benefits or harms of using them depend on the intentions of the users or students. They can be very helpful by providing explanations—ranging from simple to complex material—and various practice test examples. If you ask them to generate a test, you can receive feedback once you complete it. It will analyze which types of questions you answered incorrectly and provide feedback on the specific areas where you need improvement. The chatbot will ask if you need more practice and provide additional questions similar to the ones you missed. If students know how to use these tools effectively, they can significantly enhance their performance. However, a problem arises if students use them without thinking for themselves, analyzing the material, or trying to comprehend the lessons. They will become tools that have a negative impact on students'

cognition by making it effortless for them to avoid thinking. In my opinion, the role of teachers in the age of AI chatbots is to ensure that students use them in productive ways by creating an environment that supports a love of learning, curiosity, and a growth mindset. Accordingly, students will know how to use AI in a way that benefits them as they strive to improve themselves.

AI chatbots are tools that allow students to discuss academic knowledge or personal interests. Whether these tools are useful depends on how students use them. The role of the human teacher is to encourage a love of learning in students; in this way, AI chatbots can effectively help students improve their performance. If this approach fails and using them results in more negative impacts, they may be banned from use, much like smartphones. Some countries, such as the Netherlands and South Korea, have already banned the use of smartphones in classrooms. The reason for this is that smartphones have a negative impact on student performance, primarily due to attention. I believe that AI will become increasingly integrated into education, much like smartphones, which have become essential personal items. An ethical concern regarding the use of AI in this field is: What are the impacts of using AI on student learning? I will address this in the next section.

The ethical concerns of using AI in education

As stated earlier, the learning process is changing by the integration of AI. This shift raises critical concerns: How should AI be integrated, and what are the positive and negative impacts? It is also necessary to explore the ethical implications of this movement. In this section, I will explore ethical concerns of using AI in education.

The ethics of using AI in education is simply about how AI can be integrated into learning ethically and responsibly. How can AI shape educational methods and support lifelong learning? What are the unethical uses of AI in education? There are at least two groups impacted by this shift: teachers and students. First, the impact of AI on teachers is: Will AI replace human teachers? In my opinion, the answer is no, because human teachers can deeply understand their students in a way that AI cannot, particularly from a psychological perspective. For example, a human teacher can read the classroom atmosphere and perceive student emotions, sharing real-life experiences better than AI. The reason is that although AI can find a wider variety of real-life examples for students from big datasets, it lacks the capacity to show genuine care or truly empathize with students. AI also lacks a physical connection to the students. Interacting with AI is to interact with text. Even if AI can sometimes generate more beautiful language than a human teacher, it lacks the capacity for emotional involvement. Therefore, I think that it is impossible for AI to fully replace human teachers. The second ethical concern is that teachers may have a lower capacity to share knowledge compared to AI. In some disciplines, like Math, AI might provide more examples for students to explore various ways of thinking than human teachers can. Also, AI can constantly update its knowledge,

while it may take more time for human teachers to learn and share new knowledge with their students. In this context, AI can be beneficial for both teachers and students. Teachers can use AI to keep their knowledge up to date, while students can use it for self-study. The teachers must understand how to balance the students' use of AI. For example, when a teacher assigns homework to evaluate understanding, a perfect answer no longer guarantees that a student has comprehended the lesson, since it might have been generated by AI chatbots. Teachers must have conversations with the students to ensure they truly understand the lesson and the work they submitted. While using AI chatbots for homework can show the negative impact of students copying and pasting answers, they also serve as tools for students who are truly interested in the subject. They allow them to learn various ways of answering questions, which encourage them to understand the material more deeply than what is taught in the classroom.

The third ethical concern regarding students using AI is that constant usage may decrease social skills, as students have fewer connections with other people. [2] This may lead to less empathy and less understanding of how to live with other people. The fourth concern is students' over-reliance on AI chatbots. This may lead to an inability to make decisions on their own, as they may lack confidence without these AI. The final concern is that students may lack trust in human teachers. Some teachers may lack the necessary expertise to effectively guide students in this area. If students find that a teacher is wrong or that AI provides deeper content, it may lead to trust issues between human teachers and students, which will impact the learning environment and student outcome.

In this section, I explain the ethical concerns of using AI in education, exploring both the positive and negative impacts on teachers and students. In the following section, I will establish the fundamental basis for how AI influences self-development.

How using AI chatbots impacts teenage self-development

In this paper, when I refer to the "self" I mean the cognitive system. Whenever we perceive the world, whether we are watching a movie, reading a book or being insulted by colleagues, the brain continually wires new neuron pathways. In scientific terms, these neural pathways represent the self or our identity. We know that "the self" develops during a young age, however, it's difficult to prove or determine the exact age at which the self is established. No one can remember the exact moment they first became conscious, aware of their own existence or their first experience of the world. While most organs develop fully within the womb, the brain is not yet complete at birth; it continues to develop significantly throughout childhood. Even though the brain is a physical organ, much like the heart, arms, or liver, it is unique because it is the center of self-development, housing an individual's unique experiences. This explains why, even though we share the same biological structure, we remain distinct in character. This can be demonstrated by observing what happens when brain or neural pathways are damaged by accidents or brain diseases. Much medical evidence shows that individuals with brain damage often undergo personality changes. The main point is that the self is essentially a physical system of

neural wiring within the brain. If this system is damaged, an individual will inevitably change. Even if you have been developing a self over twenty years, it can be altered in a single minute if it is injured. We often believe that we create our own self and act independently; however, part of our identities is constantly shaped unconsciously by our environment. A psychological experiment shows that the brain is influenced by recently perceived information (Marcel, 1983) For example, if you have just seen the word “Apple” and are asked to play a word completion game such as “A _ _ L _” most people will immediately think of APPLE. This concept is utilized in commercial marketing through the strategic placement of advertisements. For instance, if you are hungry for fried chicken and see a red advertisement for a specific brand, you are more likely to think about that option you perceived. The advertisement succeeds if it influences your decision to purchase. This is an example of how the environment impacts our thoughts or cognitive system. This is the same way that part of the 'self' is shaped by external influences and the surrounding environment. It can be assumed that using AI chatbots will somehow shape self-development in teenagers.

The environment on earth is changing due to the rise of social media and digital devices. As social media currently becomes a central part of most people's lives, especially for teenagers, in the way humans live is shifting from physical social interaction to social media interaction. The negative impact of these tools is a lot and primarily affects students' attention. For instance, students who use phones during class achieve lower scores than those who don't. (Shanmugasundaram & Tamilarasu, 2023) I think the significant reason behind this is that the human brain is easily shaped by its environment. The learning environment can be simply categorized into at least three eras: the non-digital, the digital, and the AI age. The AI age differs from the non-digital and the digital ages primarily in how students learn. In the non-digital ages, learning was based on books and instructors. During this period, it was difficult to pursue personal interests because one had to purchase books and find specific teachers who shared those interests. So, it was difficult for poor students to access education. In the digital age, we had search engines like Google. However, in the early days of the digital age, technology devices were so expensive. This showed the same problem as before: students from low-income families lack the budget to purchase devices or access search engines. Consequently, this seemed to widen the gap between poor and wealthy students in education. Fortunately, technology is now cheaper, and the governments often ensure all students can access these tools at school. This allows the students to explore and access knowledge they want. Additionally, the number of creators or influencers in every field has started to promote and share knowledge via various platforms. The students have alternative ways to gain knowledge, whether from books, videos, instructors in person, or online teachers. This marks the beginning of a knowledge expansion; however, the digital world contains more than just educational content. It includes cartoons, fiction, movies, and even pornography, all of which can distract students from learning. Entering the era of AI in education. AI chatbots don't just assist students with searching for knowledge; they can also summarize books and identify main arguments on their behalf. The shift from the digital age to the AI age is significant: in the digital age, students still had to learn by doing, even with technological support. In

contrast, AI chatbots can now easily perform most student tasks. For example, they can generate writing more smoothly and faster than most beginning students. The concern is that students may experience hindered development of their writing skills. Apparently, AI chatbots have become an interfering agency in the student learning process by providing results in which students have almost no involvement. That is why researchers in the field of AI education have started to debate how to integrate AI into the learning process. As stated earlier, the impacts of using AI chatbots include concerns over data privacy, biased training datasets which affect AI decision-making, and a lack of transparency when using AI to evaluate student performance. (Eden et al., 2024) I think these are merely technical impacts. We can find ways to secure data privacy systems and hire specialists to carefully label datasets before training AI to avoid biased decisions. We can also develop systems that allow AI to indicate which data is used to evaluate a student's performance or how it reached a decision. The fundamental problem is that it is difficult to study self-development in students within the AI age because we don't know yet how AI chatbots will shape them. Students can use AI in various ways that we may not anticipate. This shift will impact them in numerous ways, as AI allows them to explore and perceive content far beyond traditional boundaries.

One similarity between AI chatbots and students is that both can be trained on biased information, which affects their decision-making. Consequently, if students are exposed to biased AI-generated content, it is reasonable to conclude that their cognitive systems are being impacted. It is inescapable that students of this generation will have a new perspective on the world. They are beginning to study with AI chatbots and will eventually enter a business world that increasingly utilizes AI for recruitment, investment, and strategic planning. Their way of thinking and working will be different from those in the non-digital world. The medical field has also entered the age of producing AI tools to support doctors; for example, AI assists radiologists in interpreting medical imaging. Many studies show that AI can help doctors diagnose cancer or tumors by reading scans faster and more accurately than experts. The reason is that AI can process and learn more samples than a human expert. Furthermore, AI can assist in tracking medical history or lifestyle behaviors. These will impact the self and behavior of new generations, as they may rely more on AI than on humans due to its efficiency. While adults today primarily experience AI in work and healthcare, the new generation will perceive a full life circle integrated with AI which is the very world we are currently building.

Conclusions

In this paper, I argue that the use of AI chatbots significantly impact self-development in students or teenagers. I begin by examining how AI is integrated into students' lives, particularly within education, as they spend most of their time in school. Students are increasingly surrounded by AI. For example, AI chatbots can either enhance or hinder their learning process. Some institutions are developing AI chatbots to assist students with administrative tasks and learning. The learning environment is currently being transformed by the integration of AI. Next, I explain the ethical concerns of using

AI in education, which primarily impacts two groups: teachers and students. First, AI chatbots can perform several tasks more efficiently than a teacher; for instance, it can provide multiple ways to find an answer, it is available whenever a student is ready to learn and can offer specialized knowledge based on a student's personal interests. However, AI chatbots have limitations, such as a lack of emotional connection. It cannot evaluate a student's emotional state, nor does it understand what it is like to be a human. Second, while students benefit from the use of AI, as it can be a valuable tool to help students dive deeper into their personal interests and can accurately assess a student's level to manage their learning process effectively, it also raises concerns that they may find it difficult to develop emotional connections with others and engage in physical social interaction. Additionally, AI can be misused to complete tasks without the student truly comprehending the lessons. This is the reason why we must balance the use of AI in students' education. Furthermore, scientific evidence for using AI in this field is inconsistent, as numerous studies show positive impacts while many others indicate negative ones. This inconsistency must be addressed by establishing a framework or theory for the integration of AI in education. Finally, I examine how AI shapes self-development. I argue that the self is fundamentally rooted in the brain, which is shaped by its environment. The evidence supporting this statement includes the subliminal priming effect and the fact that brain damage can cause significant changes in personal identity. This leads to the conclusion that integrating AI into a students' environment significantly impacts their self-development. As the new generation encounters AI in every part of life, mainly including education, the workplace, and medicine, this will reshape their personal growth and their perspective of the world.

Notes

- [2] This is different from using AI to assist children with autism, as I mentioned at the beginning of the paper. In that context, the AI is specifically designed to help those children develop social skills.

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Reference

- Best, O., & Ban, S. (2021). Adolescence: physical changes and neurological development. *British Journal of Nursing*, 30(5), 272–275.
<https://doi.org/10.12968/bjon.2021.30.5.272>
- Blakemore, S.-J. (2018). *Inventing ourselves: The secret life of the teenage brain*. PublicAffairs.

- Choudhury, S., Charman, T., & Blakemore, S.-J. (2008). Development of the teenage brain. *Mind, Brain, and Education*, 2(3), 142–147. <https://doi.org/10.1111/j.1751-228X.2008.00045.x>
- Eden, C., Onyebuchi, N., & Adeniyi, I. (2024). Integrating AI in education: Opportunities, challenges, and ethical considerations. *Magna Scientia Advanced Research and Reviews*, 10(2), 6–13. <https://doi.org/10.30574/msarr.2024.10.2.0039>
- Faverio, M., & Sidoti, O. (2025, December 9). Teens, social media and AI chatbots 2025. Pew Research Center. <https://www.pewresearch.org/internet/2025/12/09/teens-social-media-and-ai-chatbots-2025/>
- Harry, & Alexandra. (2023). Role of AI in education. *Interdisciplinary Journal and Humanity (INJURITY)*, 2(3), 260–268. <https://doi.org/10.58631/injury.v2i3.52>
- Holmes, W., & Tuomi, I. (2022). State of the art and practice in AI in education. *European Journal of Education*, 57(4), 542–570. <https://doi.org/10.1111/ejed.12533>
- Khachnaoui, M., & Mahjoubi, A. (2021). Machine learning and deep learning for clinical data and PET/SPECT imaging in Parkinson's disease: A review. *IET Image Processing*, 15(10), 2111–2126. <https://doi.org/10.1049/iet-ipr.2020.1048>
- Manwell, L., Tadros, M., Ciccarelli, T., & Eikelboom, R. (2022). Digital dementia in the internet generation: excessive screen time during brain development will increase the risk of Alzheimer's disease and related dementias in adulthood. *Journal of Integrative Neuroscience*, 21(1), 28. <https://doi.org/10.31083/j.jin2101028>
- Marcel, A. J. (1983). Conscious and unconscious perception: An approach to the relations between phenomenal experience and perceptual processes. *Cognitive Psychology*, 15(2), 238–300. [https://doi.org/10.1016/0010-0285\(83\)90010-5](https://doi.org/10.1016/0010-0285(83)90010-5)
- Ophir, E., Nass, C., & Wagner, A. (2009). Cognitive control in media multitaskers. *Proceedings of the National Academy of Sciences*, 106(37), 15583–15587. <https://doi.org/10.1073/pnas.0903620106>
- Sandu, C. M., Pânișoară, G., & Pânișoară, I. O. (2015). Study on the development of self-awareness in teenagers. *Procedia - Social and Behavioral Sciences*, 180, 1656–1660. <https://doi.org/10.1016/j.sbspro.2015.05.060>
- Shanmugasundaram, M., & Tamilarasu, A. (2023). The impact of digital technology, social media, and artificial intelligence on cognitive functions: a review. *Frontiers in Cognition*, 2, Article 1203077. <https://doi.org/10.3389/fcogn.2023.1203077>
- Smith, T., Alcorn, A., Avramides, K., Beale, S., Bernardini, S., Foster, M. E., Frauenberger, C., Pain, H., Good, J., Guldborg, K., Kea-Bright, W., Kossyvakis, L., Lemon, O., Mademtzi, M., Menzies, R., Rajendran, G., Waller, A., & Wass, S. (2018). Blending human and artificial intelligence to support autistic children's social communication skills. *ACM Transactions on Human-Computer Interaction*, 25(6), Article 37. <https://doi.org/10.1145/3271484>
- Sridhar, K., Yeruva, A. R., Renjith, P. N., Dixit, A., Jamshed, A., & Rastogi, R. (2022). Enhanced machine learning algorithms lightweight ensemble classification of

normal versus leukemic cel. *Journal of Pharmaceutical Negative Results*,
13(Special Issue 9), 496–505. <https://doi.org/10.47750/pnr.2022.13.S09.056>