frontline
Research & Learning Institute™

## Empowering K-12 Districts

# Navigating AI Adoption for Enhanced Educational Efficiency and Effectiveness

## Executive Summary

In early 2022, OpenAI launched ChatGPT, a free, user-friendly, conversational AI. Since then, K-12 leaders have had to navigate a dynamic digital landscape characterized by rapid software releases, impacting teaching and learning. These new technologies have ignited a debate about their place in the K-12 setting. Educators' voices are not yet fully represented in this conversation, raising questions about their views.

Adhering to its longstanding commitment to enhance teaching and learning outcomes by supporting districts with human-centered tech solutions, Frontline Education's Research and Learning Institute (The Institute) presents key findings from its inaugural K-12 Lens survey. The goal is to bring educators' voices to the forefront of the AI conversation. The data includes educators' AI perceptions and plans for integrating AI into the K-12 setting.

Leveraging this and other data, this white paper aims to answer the following questions:

- How do K-12 teachers and leaders feel about integrating AI in the school setting?
- In what ways are K-12 leaders currently using AI?
- Which K-12 domains do district leaders envision potentially benefiting from AI?

This report draws insights from more than 700 K-12 district leaders. It shares proportions of respondents who support, oppose, and are neutral to AI in the K-12 setting. An analysis of more than 300 open responses reveals that nuance exists within those three broad categories.

## AI Insights from The Institute

**1.6/5**

Average teacher AI comfort level

**9**

Unique administrator stances towards K-12 AI adoption

**4**

K-12 domains that administrators think may benefit from AI

**34%**

Teachers who oppose AI in K-12

**~50%**

Teachers who don't have a strong opinion either way about blocking AI

**21%**

Teachers who reluctantly accept AI in K-12

**21%**

Administrators who oppose AI in K-12

**38%**

AI-neutral administrators

**41%**

Administrators who support AI in K-12

## Low AI Adoption in K-12 Education: Lack of Training, or Something Else?

Despite media praise, AI's integration into schools remains limited, reflecting the slower pace of technology adoption often seen in K-12 settings compared to industry standards. While several surveys have explored teachers' use, knowledge, and perceptions of AI, there remains a significant gap in understanding administrators' thoughts, knowledge, and actions—or intentions thereof—regarding its integration to support their work.

According to a Houghton Mifflin Harcourt survey of 1,000 teachers and 215 administrators, just 10% of K-12 teachers utilized generative AI during the 2022-23 academic year, with an additional 38% reporting that they intended to adopt it in the following school year (Lucariello, 2023). However, a Rand research report, released at the end of the 2024 school year, concluded that only 18% of the K-12 teachers in their sample reported using AI for teaching in the 2023-24 school year and another 15% indicated that they had tried AI at least once.

Given AI's potential to enhance district operations, from recruiting and hiring new staff to teaching and learning, why are K-12 workers hesitant to embrace and integrate these new technologies? One possibility for the low and slow-growing adoption rate is a lack of knowledge and training. Though little has been reported about K-12 administrator knowledge, the same survey from Houghton Mifflin Harcourt revealed that only 1 in 5 teachers felt adequately prepared to use generative AI, such as ChatGPT, in their classrooms and that most teachers (58%) expressed a desire for professional development and/or coaching in AI usage.

Another survey highlighted that 87% of teachers had not received any formal training on AI integration, and only 17% felt confident enough to use AI in their work or to educate students on its usage (Prothero, 2023).

Further, though administrators have expressed more hope than teachers about the impact generative AI could have on teaching and learning, many educators do not yet view AI as a useful tool. Only 12% of teachers considered AI tools "very" or "extremely" helpful. Among the limited applications seen as beneficial, generating worksheets (51%), lesson plans (48%), and writing prompts (41%) topped the list (Lucariello, 2023).

Another significant hurdle to AI adoption in K-12 environments is the blocking of platforms like ChatGPT by some districts, citing concerns over student data security (Merod, 2023). Laws in many states require districts to write contracts for student data security to be signed by third party service providers that collect and store student data outside of an internal network. This includes personally identifiable information that is not public, like email accounts, names, and search history. Only service providers that agree to the terms are to be approved and adopted by districts. Large language models, like ChatGPT collect student data but have not been cleared for use, putting school districts at increased legal risk.

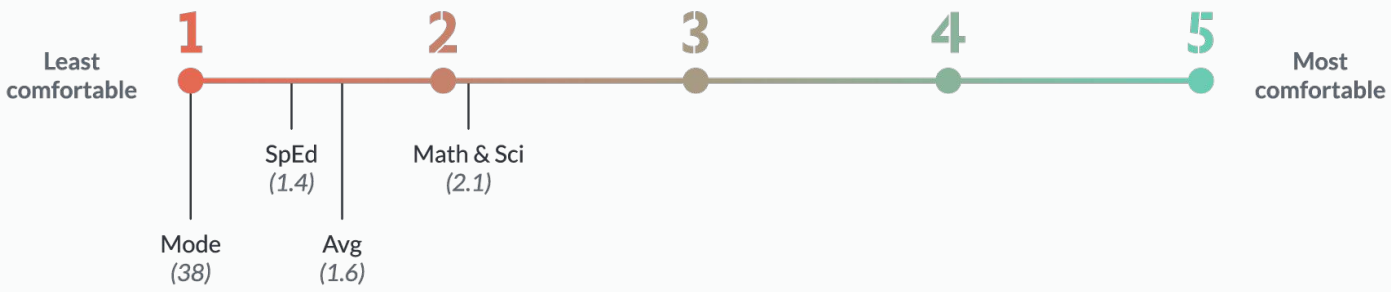
It's generally held that educators, including administrators and their staff, are on board with AI and that low adoption is attributed to lack of training and conditional barriers outside of their control, like data privacy concerns and legal risk. However, one missing piece of data that could help clarify the adoption lag is the attitudes of educators towards AI. ***How do K-12 leaders and teachers feel about AI in the school setting?***

## K-12 Lens: Providing a Clearer Picture of Educators' Attitudes Toward AI

### *Teacher AI Knowledge and Stances*

In August 2023, the Institute analyzed data from a survey administered to middle and high school teachers in New England public schools. Participants were asked to select a number on a Likert scale indicating their overall comfort level with AI, such as ChatGPT. A "1" indicated "least comfortable" and a "5" indicated "most comfortable." The results are plotted on the number line, depicted in Figure 1, below.

**Figure 1 – Teacher's Self-Reported Comfort Level with AI, Such as ChatGPT**




The most frequently selected answer option was "1" signifying that, during that period, teachers generally felt extremely uncomfortable with AI technology. Among the sample, math and science teachers emerged as the most comfortable group, reporting an average comfort level of 2.1. Conversely, special educators displayed the lowest comfort level, averaging 1.4. Across all content areas, the average comfort level stood at 1.6.

Analysis of open responses revealed that teachers' knowledge of AI primarily stemmed from second-hand experiences rather than personal experimentation with applications like ChatGPT. Their responses indicated an emerging understanding, largely tied to their immediate circumstances:

**Teacher AI Knowledge**

- Students are already accessing and using AI
- It can help with traditional assignments, like essay-writing
- It will challenge them to rethink traditional learning activities and assessment measures

Response patterns indicated that teachers wanted to learn more about the following:

1. How to detect AI-generated assignments
2. How to apply AI to the classroom productively
3. How AI will impact teaching and learning in the different content areas

After coding the open responses, three district camps of stances toward K-12 AI adoption emerged: Reluctant Acceptors, Principled Opposers, and Uninformed and Undecided. Each stance is defined in Table 1 and illustrated by quotes from the data.

**Table 1 – Teacher Stances Toward AI Integration**

| Reluctant Acceptors |
| --- |
| **Those who acknowledged their acceptance, viewing K-12 adoption as inevitable.** |
| *"We need to adjust and embrace it somehow…That's the direction we're going in and steering it to our benefit is more productive than denying access to it."*<br><br>*"I haven't engaged with this aspect of technology, but it's out there and our students are engaging with it, so we should at the very least educate ourselves on it as a whole."* |
| **Uninformed and Undecided** |
| **Those who are neutral to AI adoption, mentioning they know little and need to learn more before they can develop an opinion.** |
| *"I'm not sure why we are entertaining this…"*<br><br>*"I don't care if it's the wave of the future. I think it's dangerous and not researched and I don't want anything to do with it."*<br><br>*"This seems like a scary tool for students that will make our jobs even harder."*<br><br>*"My discomfort has nothing to do with ease of use. OpenAI has made ChatGPT easy to access and use. They've made it so people can have fun with basic applications. My concern is with AI in general. AI has been presented as inevitable, which means many who would express their opposition are just accepting what they feel can't be reversed. I feel that education has an obligation to not get drawn in by promises of enhanced experiences, better prepared workers, etc."* |

| Principled Opposers |
| --- |
| **Those who expressed strong opposition, fear, and feeling threatened by AI. Respondents who positioned themselves as morally and ethically against school adoption.** |
| *"I honestly don't know what [ChatGPT] is and have never heard of it until this email."*<br><br>*"I cannot answer the question accurately as I have zero knowledge or experience with artificial intelligence."*<br><br>*"I need more training on how to use this safely and appropriately in schools."* |

A follow-up question asked teachers: "Should districts block AI, like ChatGPT?" Teachers were asked to select one of three options that each mapped onto a stance. The results are displayed in Table 2. They indicate that most teachers in the sample fell into the Uninformed and Undecided category. About one-third of teachers were classified as Principled Opposers and one-fifth as Reluctant Acceptors. Not a single teacher expressed enthusiastic optimism for the new technologies.

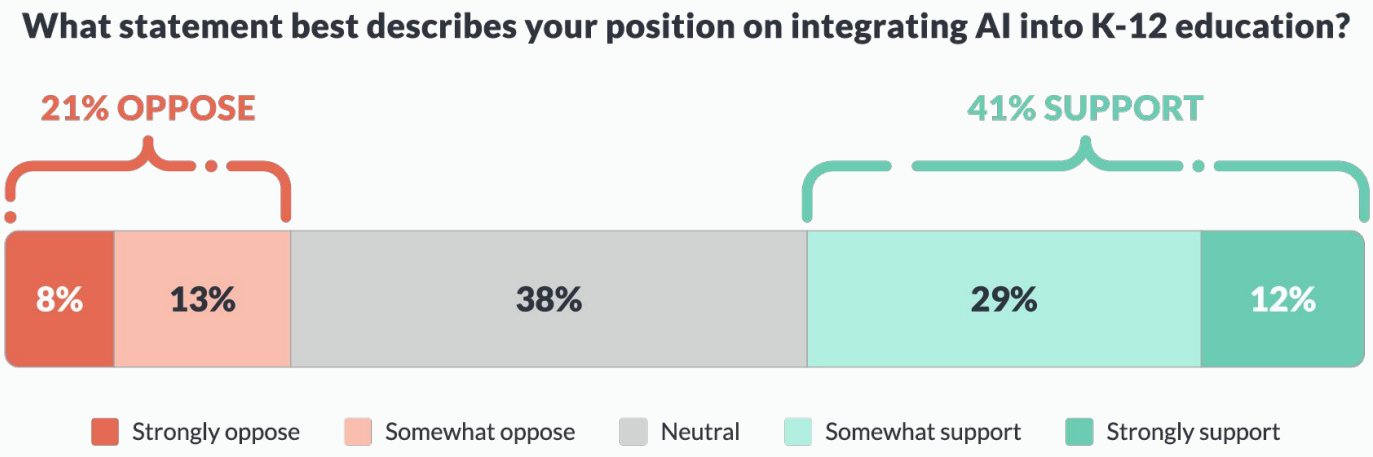
**Table 2 – Percentage of Teachers by Stance Toward AI**

| **Response Option** | "I believe schools should block as many AI programs as possible from student use. | "I don't have a strong opinion either way." | "I believe it is better to teach responsible use of new technologies." |
| --- | --- | --- | --- |
| **Stance** | Principled Opposers | Uninformed and Undecided | Reluctant Acceptors |
| **Percentage** | 34% | 48% | 21% |

## AI Knowledge and Perceptions: K-12 Leaders

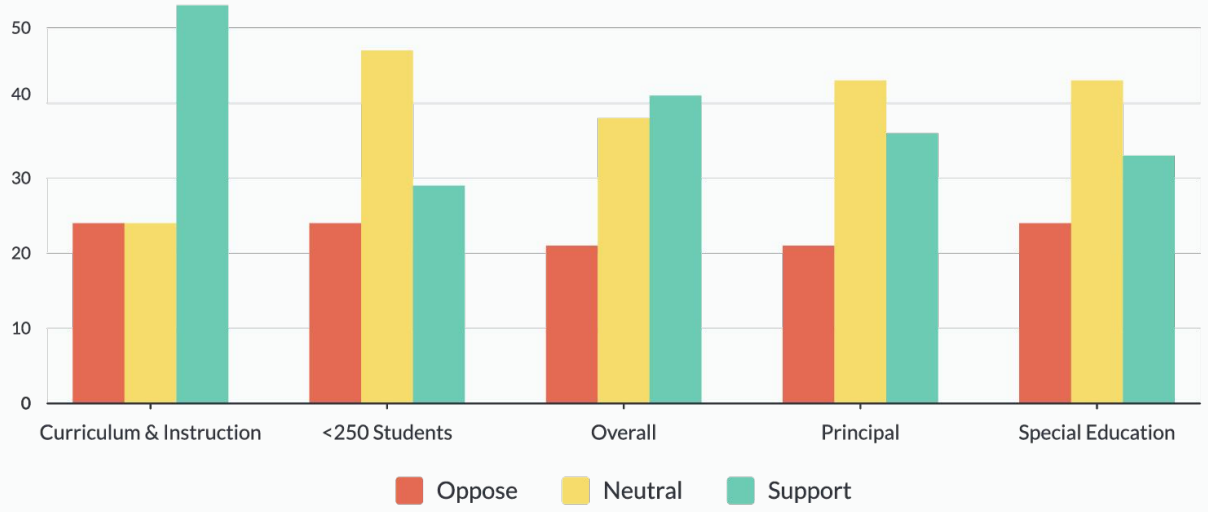
To address the gap in data on administrators' AI knowledge and attitudes, as well as explore other themes including avenues for improving district operations, the Institute administered its inaugural K-12 Lens Survey. Nearly 700 school leaders selected the option that best matched their stance on integrating AI into the K-12 setting. In comparison with the teachers' results from the pilot study, the district leaders had a much more positive view of AI. Compared with only 21% of teachers, a slight majority (41%) of K-12 leaders indicated some level of support, with 38% expressing neutrality and 21% expressing opposition. See Figure 2 for the complete breakdown of responses by stance.

**Figure 2 – K-12 Leader Attitudes Towards AI Integration**



Certain factors, like job role and district size appear to have influenced the attitudes of respondents. For example, among K-12 curriculum and instruction district leaders, support for AI stood notably higher than average, at 53%. However, district leaders in small districts, those with fewer than 250 students, reported below-average support, at 29%. Opposition levels hovered around 20% across different job roles and district sizes. See Figure 3 for percentages of respondents by stance, role, and district size.

**Figure 3 – Percentage of K-12 Leaders by Stance, Role, and District Size**




Analysis of open-ended responses reveals that although K-12 leaders may have self-selected into a particular stance bucket, their actual attitudes are more nuanced, even more so than the teachers' attitudes were just a few months prior. A thematic analysis of more than 300 responses produced a wide range of AI attitude profiles within the three broad categories. See Table 3 for descriptions of each and quotations from respondents to illustrate each category.

**Table 3 – Educator AI Adoption Attitudes**

Four different profiles of opposition towards AI K-12 adoption emerged from the data.

## Opposed

| Principled Opposers |
| --- |
| **Those who hold firm ideological or philosophical objections** |
| *"Kids are already too dependent on technology and need to do more for themselves. They have become lazy and expect everything to appear right at their fingertips. They do not know how to search for anything on their own or in a sustained manner."* |
| **Skeptical Critics** |
| **Those who harbor doubts or reservations about the efficacy, ethical implications, or potential negative consequences** |
| *"I think AI is too intrusive and lacks the ability to keep individual identity classified. Cyber-attacks on AI data pools happen almost daily and too many have become the victim of identity theft. This includes our children-students."* |
| **Traditionalists** |
| **Advocates for maintaining traditional teaching methods and resisting innovative technology in education** |
| *"The world doesn't need to be completely AI. Nor do the kids in school. They need to be able to do things without 'Google' again!"* |

| Tech Pessimists |
| --- |
| **Those who express a generally negative view of technology in education and fear its potential adverse effects on learning outcomes or student well-being.** |
| *"Children do not learn the best through the use of technology as a main source for teaching and learning. We have learned that from when schools were shut down for Covid-19. Direct teaching from a real person is the best teaching method."* |

### Neutral

*Uninformed/Undecided*

Like the teacher respondents, most district leaders' neutrality stemmed from their perceived lack of AI knowledge, training, and experience, in general and within the K-12 setting. Many indicated that this has prevented them from forming an opinion on the integration of AI into the K-12 setting. See the responses below:

- "I'm not sure about AI"
- "I need more training in this area to make an assessment, but I suspect that we will have to learn to adapt and find ways for AI to be useful."
- "I don't know enough at this time to officially have an opinion."
- "My concern is that integrating AI will lead to a privacy invasion that the companies aren't being transparent about."

## Support

Though the largest portion of respondents indicated that they support AI adoption in the K-12 setting, the open responses suggest that "support" might mean different things to different district leaders. See Table 4 for the variety of stances that emerged from the data.

**Table 4 – Range of K-12 Leader AI Support Stances**

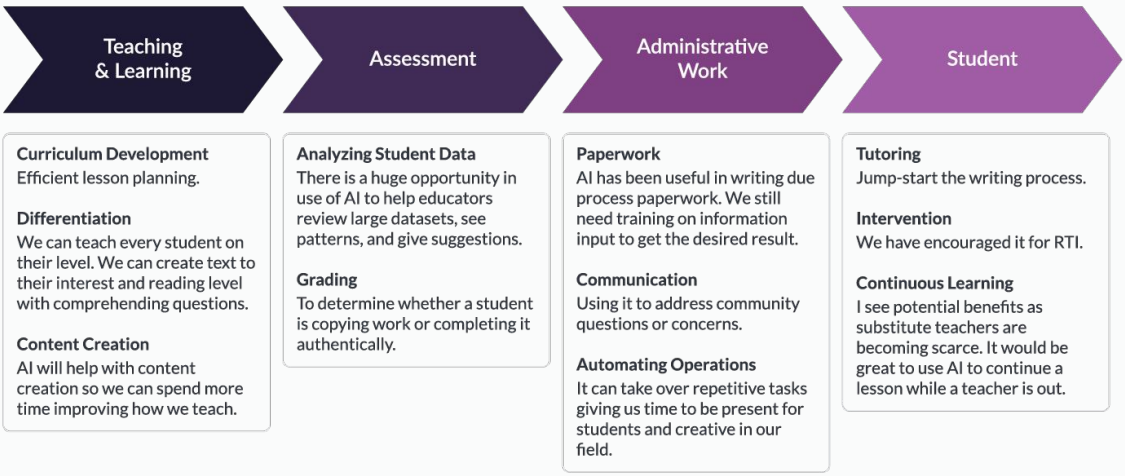
| **Reluctant Supporters** |
| --- |
| **Those who support AI K-12 integration because they see it as inevitable.** |
| *"It's here, whether we like it or not, so I don't think it can be ignored."*<br><br>*"It's not going away. Students need to be taught how to use it."* |
| **Partial Acceptors** |
| **Those who are open to AI in one setting but not another.** |
| *"Middle and high school students should be taught how to use AI, without plagiarizing. Upper elementary school should have a discussion about AI and how it works."* |

| Conditional Embracers |
| --- |
| **Those who are open to AI if training, guidelines, and human oversight are in place** |
| *"I'm not opposed to integration, but any integration needs to be well understood and purposeful."*<br><br>*"I see AI being helpful, but really hesitant taking the human factor out of HR."*<br><br>*"AI had the ability to help in the workplace environment, but it also has the ability to be a problem, such as when people rely too heavily on it."* |
| **Job/Learning Enhancement Advocates** |
| **Those who perceive AI as a tool that will optimize K-12 work and students' learning.** |
| *"There are many benefits to what AI has to offer. It can certainly make creating and designing faster and easier."*<br><br>*"It can help make certain parts of our jobs easier."* |

## AI Supporters' Plans for Integration

District leaders supporting the integration of AI into K-12 settings outlined various use cases in their responses to the K-12 Lens. These responses spanned domains including teaching, assessment, administrative work, and student learning. See Figure 4 for examples from the data. Note that these are not all in-use but rather ideas for how AI could provide benefits to those in the K-12 setting.

**Figure 4 – Potentially Beneficial Use-Cases from K-12 Lens Respondents**



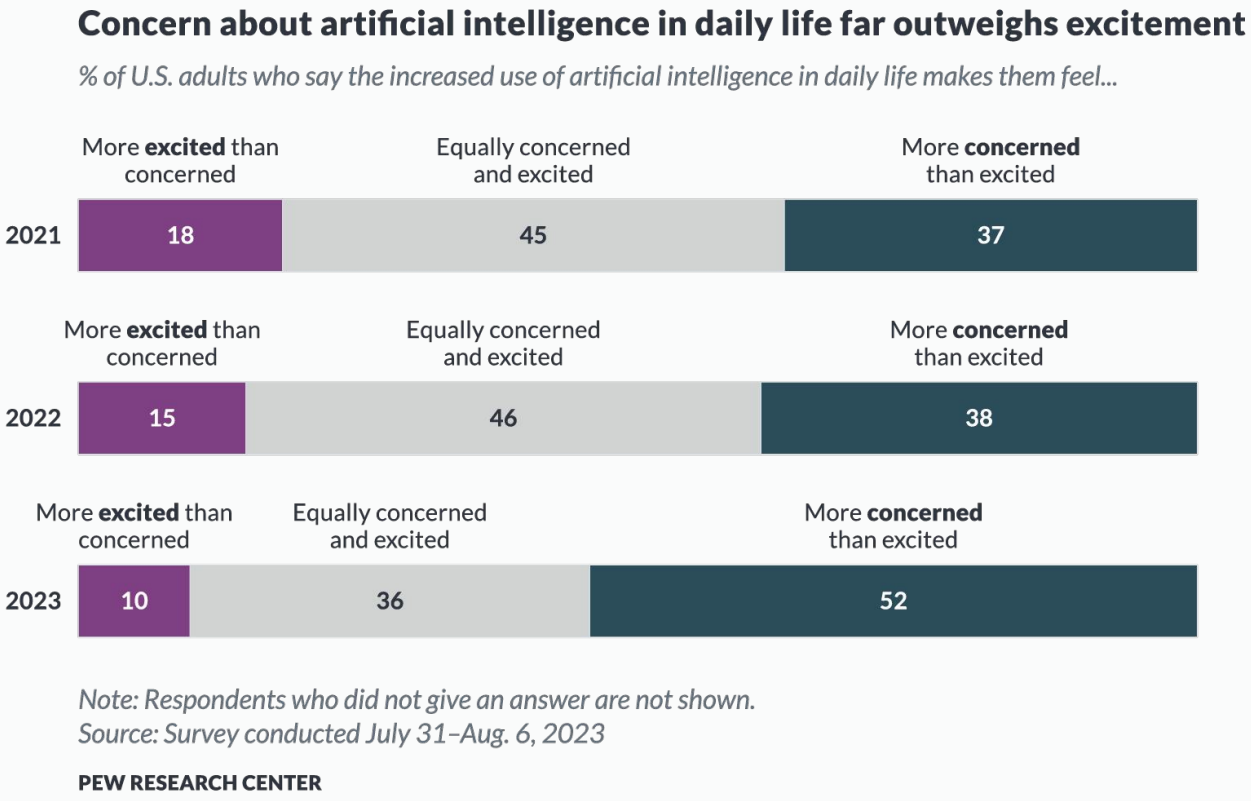

## Conclusion

In addition to the imperative for more training, the slower than industry-standard pace of AI adoption in K-12 settings reflects the diversity of attitudes toward the technology. According to findings from the K-12 Lens survey, while a higher proportion of district leaders (41%) view AI positively compared to teachers (21%), a significant majority remain neutral or cautiously opposed (59%). Additionally, even among those who express support for AI, a range of opinions exist. While some are truly optimistic about its potential benefits in district operations, teaching, and learning, others only embrace it under specific conditions or out of perceived necessity.

As AI progresses toward mainstream integration in our culture and workplaces, developing a comprehensive understanding of its capabilities and limitations becomes crucial for educators and administrators alike.

It is important to acknowledge that the data from The Institute represents snapshots in time of two groups' perceptions. Just as technology continues to evolve, so will educators' knowledge and attitudes toward AI. This dynamic can already be observed in the annual Pew Research Center survey, showcasing shifts in U.S. adults' attitudes toward AI over recent years. See Figure 5, below.

**Figure 5 – Shifting Attitudes Towards AI – Pew Research Center**




The Institute will continue to monitor data on K-12 leaders' stances towards K-12 AI adoption annually and share its findings to help district leaders better understand the AI K-12 landscape so that they can make informed decisions that will have positive impacts on teaching and learning.

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