Understanding & Navigating the Landscape of Tech in K-12 Schools

Madeira City Schools Planning Commission
February 2025

Emily Morgan
Kara Foley
Katie Smith
Chris Wagner
Eric Guerre, Chairperson
Kenji Matsudo, Resource

Understanding & Navigating the Landscape of Tech in K-12 Schools

Table of Contents

Objective

This study will explore how to better prepare and expose students to the emerging artificial intelligence boom and evolving technology usage in K-12. How can we help students become critical thinkers and consumers of digital information? What impacts will artificial intelligence have on career paths for students and how do we help prepare our students for this evolving landscape?

Methodology

This study utilizes a convergent mixed-methods design, integrating quantitative surveys with qualitative comments and document analysis to provide a comprehensive understanding of AI's role in K-12 education. This approach allows for the identification of broad trends while capturing deeper insights from educators and industry professionals.

The research was conducted in three phases:

1. **Phase 1: Survey Data Collection (Quantitative)**
    - Surveys were distributed to 6th-12th grade students and educators to assess their awareness of AI and digital literacy skills.
    - The survey utilized Likert-scale, multiple-choice, and open-ended questions to measure levels of engagement with AI concepts, critical thinking about digital content, and confidence in future career pathways.
2. **Phase 2: Comments (Qualitative)**
    - Semi-structured interviews were conducted with educators and industry professionals to explore their perspectives on AI's impact on education and workforce demands.
    - Industry professional interviews provided insights into the evolving skills required in AI-influenced careers and recommendations for better student preparation.
3. **Phase 3: Curriculum and Policy Analysis**
    - A review of current K-12 curriculum frameworks and education policies were conducted to assess the extent to which AI education and digital literacy are integrated.
    - Key documents from school districts, state education agencies, and national education organizations were analyzed to identify gaps and best practices.

This study seeks to explore the opportunities and challenges associated with Generative AI in K-12 education while promoting its responsible and effective use. It draws on guidance and insights from trusted resources such as the US Department of Education Office of Educational Technology, Ohio Department of Education and Workforce, and Common Sense Media.

CREATING THE SURVEY

The Planning Commission Committee developed a survey in response to current technology use and practices in Madeira Elementary, Madeira Middle School and Madeira High School.

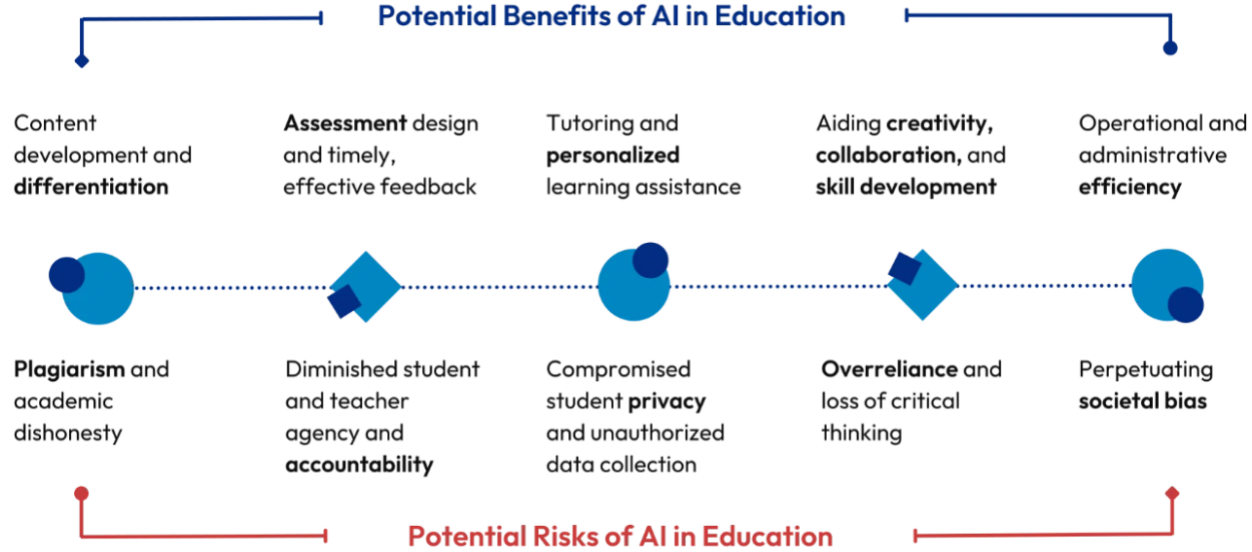
PUBLISHING THE SURVEY

The survey was administered through Google Forms and published in November through mid-December (2024). Language Arts teachers at Madeira Middle School sent the survey to current 6th grade students. 121 students completed the middle school survey. Dave Kennedy, Principal, Madeira High School emailed all 9th grade students. 101 students completed the High School survey.

Background Research

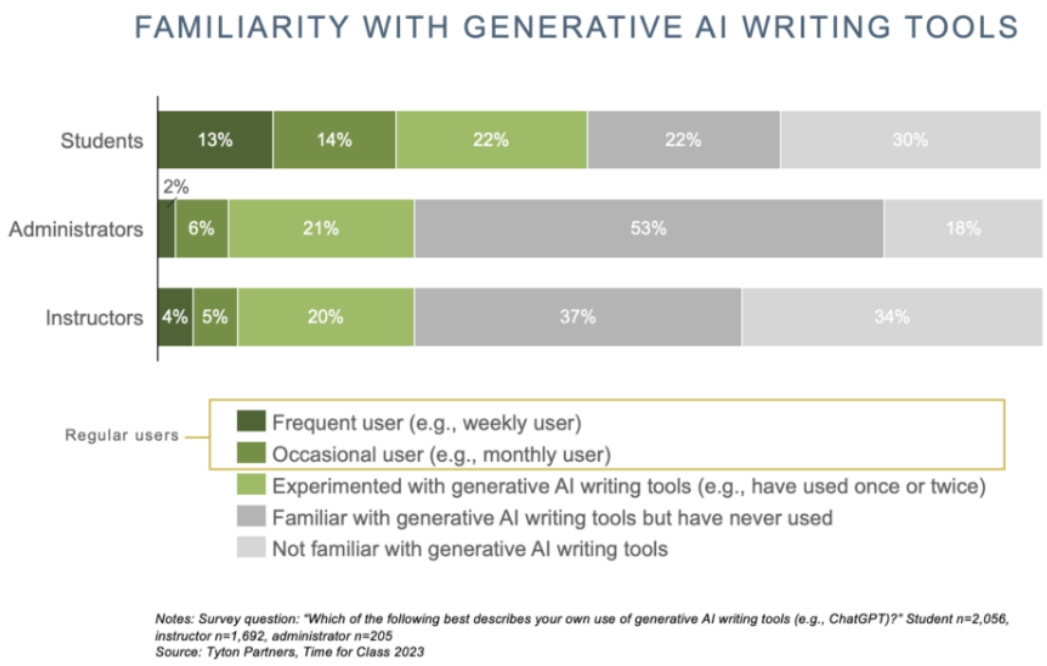
Artificial Intelligence (AI) is a computer program or app that can perform tasks that typically require human intelligence (e.g., analyzing data, identifying objects, creating images and essays). Reactive AI are tools that respond to specific inputs or situations without learning from past experiences. Predictive AI are tools that analyze historical data and experiences to predict future events or behaviors. Generative AI such as ChatGPT or other Large Language Models (LLMs) are tools that generate new content or outputs, often creating something novel from learned patterns.

Generative AI is becoming a permanent fixture in education, with its influence set to expand as artificial intelligence continues to evolve. While concerns have emerged about students using AI for dishonest purposes, its potential to enhance learning and creativity offers a compelling counterbalance.



ARTIFICIAL INTELLIGENCE AND EDUCATORS

AI can serve as a tool for sparking creativity, providing diverse perspectives, summarizing information, reinforcing lesson plans, and generating visual content. However, student adoption currently outpaces that of instructors. A 2023 national survey by Tyton Partners found that 27% of students regularly use generative AI tools, compared to just 9% of instructors. Nearly half of students have experimented with AI writing tools at least once, while 71% of instructors have yet to explore them.



As AI continues to integrate into various aspects of life, educators must ensure that students are prepared for an ever-evolving workforce, equipping them with the skills needed to succeed in an AI-driven world. Some Ohio school districts are integrating AI into education through teacher training and professional development. Schools like Clark-Shawnee, Northeastern, Mechanicsburg, Graham, and Urbana are embracing AI for lesson planning, differentiation, and administrative tasks while emphasizing ethical and responsible use. The State of Ohio recommends districts should consider leveraging the free AI-powered education courses that are available to all educators across the state in addition to **Ohio's TechCred** program which reimburses school districts for the cost of providing tech-focused professional development. **Ohio's Educational Service Center Association** provides related resources such as professional development courses, summit events, and practical strategies for enhancing professional learning and leveraging AI in education, as well as the **Ohio Learning Community** in collaboration with other regional partners.

Teachers looking for no cost options can explore self-paced introductory online courses from platforms like Google, Microsoft, and Code.org. These courses are specifically designed for educators, covering AI fundamentals and practical applications in teaching. Notable options currently include Google's "Generative AI for Educators," Microsoft's "AI for Educators," and Code.org's "AI 101 for Teachers."

ARTIFICIAL INTELLIGENCE AND THE CLASSROOM

Public schools are taking different approaches to generative AI - some ban it, while others integrate it. While guidelines are still being developed in school districts across the nation, the Brookings Institute highlights three possible actions schools can take:

Banning generative AI - By the end of May 2023, ChatGPT joined YouTube, Netflix, and Roblox on lists of websites either banned for school staff and students among various large U.S. school districts, where access would require special approval. The controversial movement to widely ban ChatGPT began when the two largest school districts in the nation—New York City Public Schools and Los Angeles Unified—blocked access to ChatGPT from school Wi-Fi networks and devices. Other districts soon followed.

Citing the Children's Internet Protection Act (CIPA), Fairfax County Public Schools in Virginia restricted access to ChatGPT, since the chatbot may not be appropriate for minors. Texas's Austin Independent School District cited similar concerns about academic integrity and child safety in its decision. Seattle Public Schools banned access to not only ChatGPT, but also six additional websites that provide AI-powered writing assistance, including Rytr, Jasper, and WordAI. While these were not full bans, student use restrictions affected teacher adoption and use. But the biggest problem, by far, is that this approach could cause more harm than good, especially if the benefits as well as the opportunities are not weighed.

Integrating generative AI - New York City Public Schools, the first school system to block access to ChatGPT, was also the first to reverse its ban. Within four months of the initial ban, the reversal came after convenings of tech industry representatives and educators to evaluate emerging risks and understand how to leverage ChatGPT's capabilities for the better. To support teachers, NYC school district leaders have provided resources developed by MIT (Massachusetts Institute of Technology), along with real-life examples of successful AI implementation from classrooms in the district that have been early adopters of technology. The district also plans to create a shared repository to track each school's progress and share findings across schools.

Placing generative AI under review - While districts like Prince George's County (MD), Jefferson County (KY), and Chicago (IL) have not banned ChatGPT, they have placed the chatbot under review. School districts that haven't acted yet are watching and waiting, and most fall into this category. A recent survey by UNESCO (United Nations Educational, Scientific and Cultural Organization) found that less than 10% of schools have implemented guidance on generative AI, and of the schools with policies in place, 40% reported that the guidance was only communicated verbally, not in writing. Just as

demand for transparency is put on developers on how AI is built, we need to provide transparency for students and teachers on how AI can be used. A nationwide survey of K-12 teachers revealed that 72% have not received guidance on generative AI use. Generally, the longer schools delay their deliberation of bans or integrated use of new generative AI technologies, the higher the stakes.

Many classroom policies thus far are too narrowly focused on one tool, ChatGPT. There are currently thousands of generative AI products on the market, and more are being developed every week. School districts need to consider the use not just of ChatGPT, but other generative AI applications, like Llama 2 or BARD, as well as the widespread educational tools, like PowerSchool, Kahoot!, or Khan Academy.

ARTIFICIAL INTELLIGENCE AND STUDENTS

While some advantages of AI in education have already been mentioned - inspiring creativity, summarizing existing materials, and so on, here's a brief look at eight more advantages.

It can be used to personalize learning. AI can help you tailor your content to individual student needs and learning styles, based on AI-driven analytics that give you insight into student performance and learning trends. In this way, AI helps students be more engaged and motivated.

It can provide students with immediate feedback. AI offers students instantaneous and detailed feedback on their work, helping them to see their strengths and weaknesses. Such feedback enhances understanding and learning outcomes—and helps teachers to know what to focus on in future lessons.

It can be used to create and supplement content. Through AI-powered platforms, you can create lessons, activities, assessments, discussion prompts, and presentations simply by providing a short prompt with keywords.

It can result in more inclusive lessons. AI has powerful tools that make previously inaccessible material available to students with special needs. Tools that offer text-to-speech, visual recognition, speech recognition, and more can help teachers adapt resources so that all students have an equal learning opportunity.

It can provide greater access to resources. Educators can access a wealth of AI-powered platforms to facilitate and enhance the learning that takes place in their classrooms. Just a few examples are Canva Magic Write, which helps in brainstorming, outlining, and lesson planning; Curipod, which enables teachers to quickly create interactive lessons; Eduaide, which provides teachers with more than 100 resource types to choose from to create high-quality instructional materials; and Quizzizz, which can be used to design quizzes that will create a personalized learning path based on each student's responses.

It can make abstract concepts more understandable. Image-generating AI tools such as Picsart and Visme can turn complex concepts into more readily accessible content.

It can be used to handle administrative tasks. You can use AI to streamline administrative tasks such as grading, scheduling, communicating with parents, and managing student records. This frees you up to do what you do best: teach. It affords you more hands-on time with students and helps to ensure that no students fall through the cracks.

It can foster critical thinkers. The advent and growing use of AI in classrooms lends itself to discussions regarding critical thinking and ethical considerations. Students are naturally intrigued by AI. The rich discussions that you can facilitate can help them grow and develop as thinkers and learners.

ARTIFICIAL INTELLIGENCE BUILDING AND DISTRICT GOALS (2024-2025)

District Objective: innovative practices to broaden student engagement, critical thinking, and workplace readiness.

Madeira Elementary and Middle School Objective: Understanding and applying AI for instructional practices in student learning.

Madeira High School Objective:
ELA - continue to evaluate and monitor the use of AI.
SS - Develop and implement strategies to utilize AI to enhance student learning.

The vision of Madeira City Schools is to strengthen our learning community for students, teachers, and parents whereby we become … A school community where learning is personalized and success is ensured. Our world is changing and it is changing quickly. To thrive in this environment requires that we continuously create and explore. We are committed to viewing change as a reality, a necessity, and an opportunity. To create and explore we must:

1.) Be curious. When a challenge arises, get curious, not furious. To find solutions we have to ask questions, investigate, and search for the what, the why, and the how.

2.) Take risks. Playing it safe doesn't always result in the best outcomes. Sometimes we need to try something new or different. Growth requires change and change requires us to take risks. We have to push through existing boundaries and that can be scary, but it is hard to grow if we don't risk making mistakes.

3.) Create opportunities. When change happens don't focus on what we don't like about the change. Instead focus on finding and creating the opportunities that are inherent in the change. Our culture is essential to that effort and is the heart of our district. It makes Madeira City Schools a special place to learn, teach, and grow to achieve our potential. Building and sustaining Madeira City Schools' culture requires intentional effort from everyone in the organization.

INFORMATION FROM NEIGHBORING DISTRICTS

Sycamore:
Adding policy EDEC - Artificial Intelligence to Board policies
Have written document for guidance and information
AI Exploration Team (staff members)

Mariemont:
Have written school policies and guidelines specific to AI for students and staff
Established a teacher group to look at how AI will be impacting education
Currently developing guidance for students staff and parents

Indian Hill:
Received funding from grants and the state of Ohio to further advance knowledge of AI
Have restricted access of ChatGPT to 8th grade and below
Require parent approval from written document

Wyoming:
Selected staff members and administrators to be a part of districts AI team
Collaborating with Hamilton County Educational Service Center Developing to support the development of a guidance document for the ethical and effective use of AI.
Recently met with NEOLA and will be adopting the updated language around AI within the Student Conduct policy language and within the Student Technology Acceptable Use and Safety policy. Within these policies there is now new language for "Use of Artificial Intelligence Tools For School Work".

BUILDING SURVEY RESULTS

Madeira Elementary School

This report summarizes teacher experiences and perspectives on the use of Artificial Intelligence (AI) in the classroom, based on provided feedback. The data suggests a variety of applications for AI, with varying levels of adoption and perceived effectiveness.

Key Themes and Findings:

Writing and Communication: AI tools are frequently used for writing-related tasks, including:

○ Email Composition: Assisting with wording and phrasing for parent communication.
○ Content Creation: Generating reading passages, worksheets, quizzes, and other materials, often differentiated for various reading levels.
○ Grammar and Editing: Utilizing tools like Grammarly for error checking.
○ IEP Writing: Supporting the drafting and refinement of Individualized Education Programs.
○ Social Story Creation: Developing narratives to help students understand social situations.
○ Script Writing: Assisting with planning programs and scripts.

Content Generation and Adaptation: AI is employed to:

○ Create Non-Fiction Readings: Tailoring readings to specific content focuses.
○ Generate Math Problems: Developing multi-part word problems.
○ Summarize Passages: Condensing information for easier student comprehension.
○ Generate Word Lists and Reader's Theater Plays: Creating resources for reading groups.
○ Translate: Facilitating communication with parents who speak different languages.

Lesson Planning and Brainstorming: While some teachers find AI helpful for brainstorming activities and outlining key lesson points, others feel that teacher-created materials are currently of higher quality, particularly in math.

Differentiation and Individualization: AI is used to:

○ Differentiate Text Levels: Adapting reading materials to support diverse learners.
○ Individualize Student Tasks: Exploring the potential for personalized learning experiences.

Student Engagement: Some teachers report that AI tools can enhance activities and engage students, while others express caution about over-reliance on AI. One example

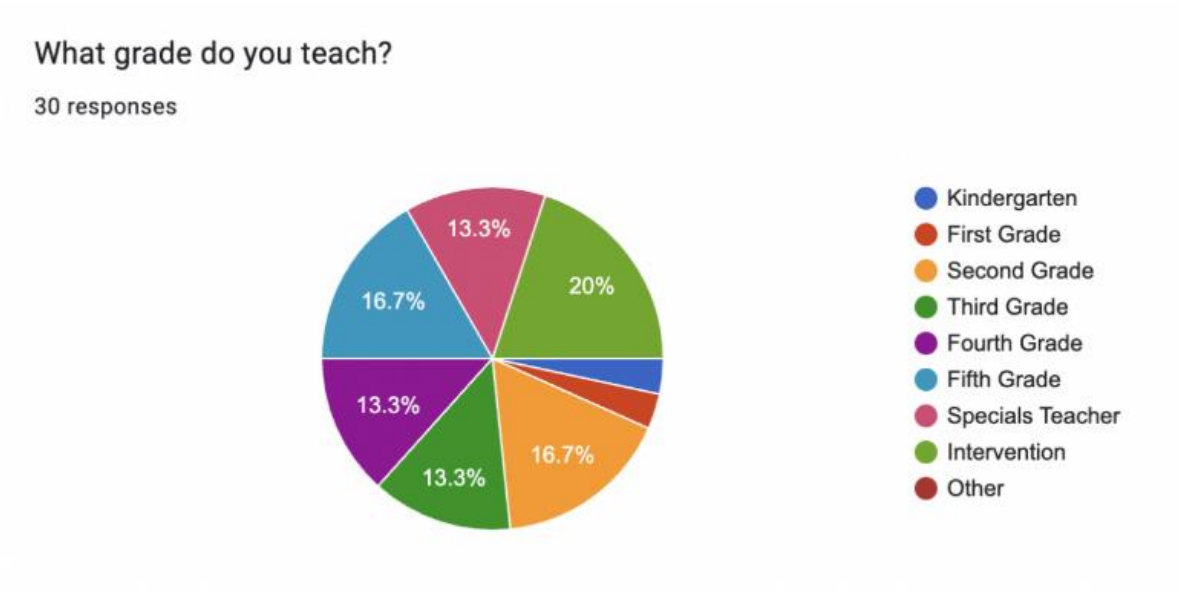
given was creating safe conversations with historical figures.

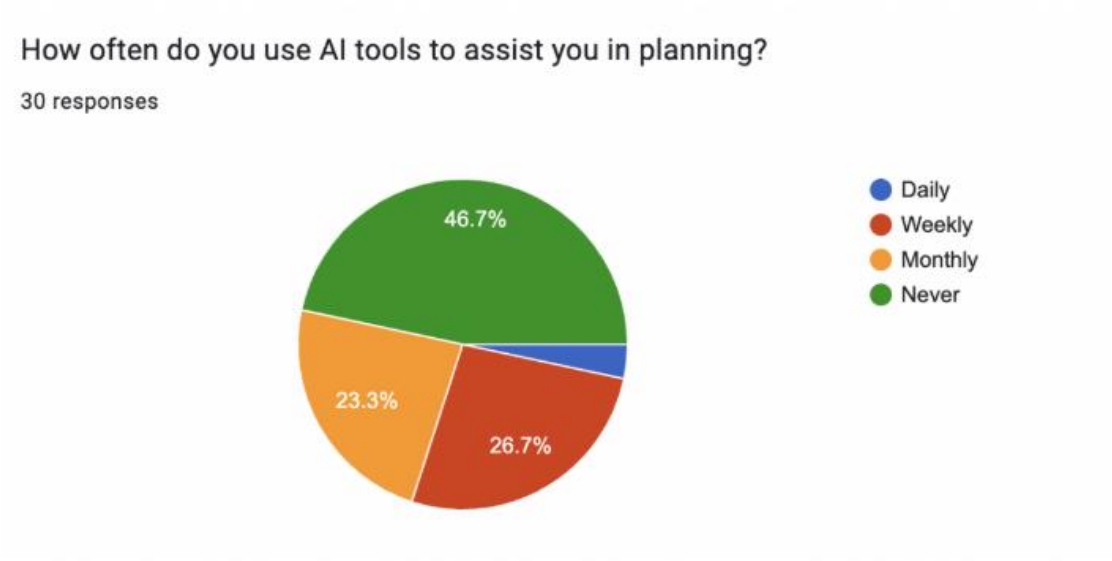
Limitations and Concerns: Some teachers have not yet explored AI tools, while others express concerns about students mastering foundational skills (like reading and writing) before using AI. The quality of AI-generated math activities was also a concern raised by at least one teacher.

Specific Tools Mentioned: Grammarly, Brisk, and Google Forms were specifically mentioned as tools used by teachers.

Conclusion:
The feedback reveals that AI is being used in a variety of ways in the classroom, primarily to support writing, content creation, and differentiation. While many teachers see the potential benefits of AI, concerns about quality, student reliance, and the need for foundational skills development exist. Further exploration and professional development may be beneficial to help teachers effectively integrate AI tools into their practice. More data is needed to assess the
impact of AI on student outcomes.

Results from current students at **Madeira Elementary School Staff** are as follows:





Teacher responses reveal a generally positive, though often exploratory and cautious, outlook on the potential of AI in the classroom. Several key themes emerged:

● Resource Creation and Time Savings: A significant number of teachers highlighted the potential of AI to save time and streamline resource creation. This includes generating reading passages, comprehension questions, assessments, rubrics, social stories, multiple-choice questions, short answer prompts, and even finding poems on specific topics. One teacher noted that "many resources save teachers so much time creating new material (as a starting point)." Another mentioned using it "to help minimize time I have to use Googling or finding different resources."

● Writing and Communication Support: AI's ability to assist with writing tasks was frequently mentioned. This included help with wording for parent emails, newsletters, report card comments, and other communications. One teacher stated, "I have found it to be most helpful in taking my thoughts to formulate a well-stated email or letter."

● Brainstorming and Idea Generation: Several teachers see AI as a valuable tool for brainstorming, generating ideas for activities and projects, and overcoming creative blocks. "AI is helpful when I'm feeling a little stuck and need a place to start," one teacher commented. Another mentioned using it after brainstorming as a group to "generate additional 'detailed words'."

● Differentiation and Accessibility: AI's potential for differentiation was also noted, with one teacher specifically mentioning its ability to "bring nonfiction text down to a certain grade level."

● Teacher Efficiency and Productivity: Several teachers mentioned that AI helps them work more efficiently. It's "just used as a tool to help cut back on the small things so I can move on and use that info to teach," one teacher explained.

● Limited Experience and Need for More Information: A recurring theme was a lack of experience with AI tools and a desire for more information and training. Responses like "Honestly, I don't know enough about AI," "I haven't used it," "Would love to continue to learn more!" and "I am sure but I have not used it" were common.

● Concerns about Student Use: One teacher expressed the sentiment that AI is "especially for teachers. Not so much for kids," suggesting a concern about the appropriateness of AI tools for younger learners. Another teacher emphasized the importance of hands-on learning and movement for 2nd graders.

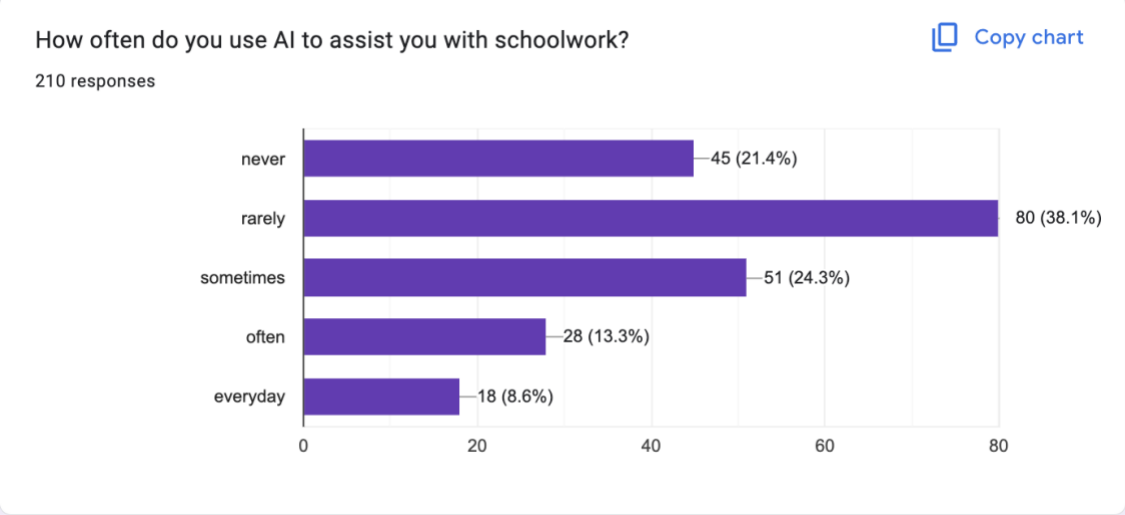
Illustrative Quotes:
● "many resources save teachers so much time creating new material (as a starting point)"
● "I have found it to be most helpful in taking my thoughts to formulate a well-stated email
or letter"
● "AI is helpful when I'm feeling a little stuck and need a place to start"
● "bring nonfiction text down to a certain grade level"
● "Honestly, I don't know enough about AI"
● "especially for teachers. Not so much for kids"

Conclusion:

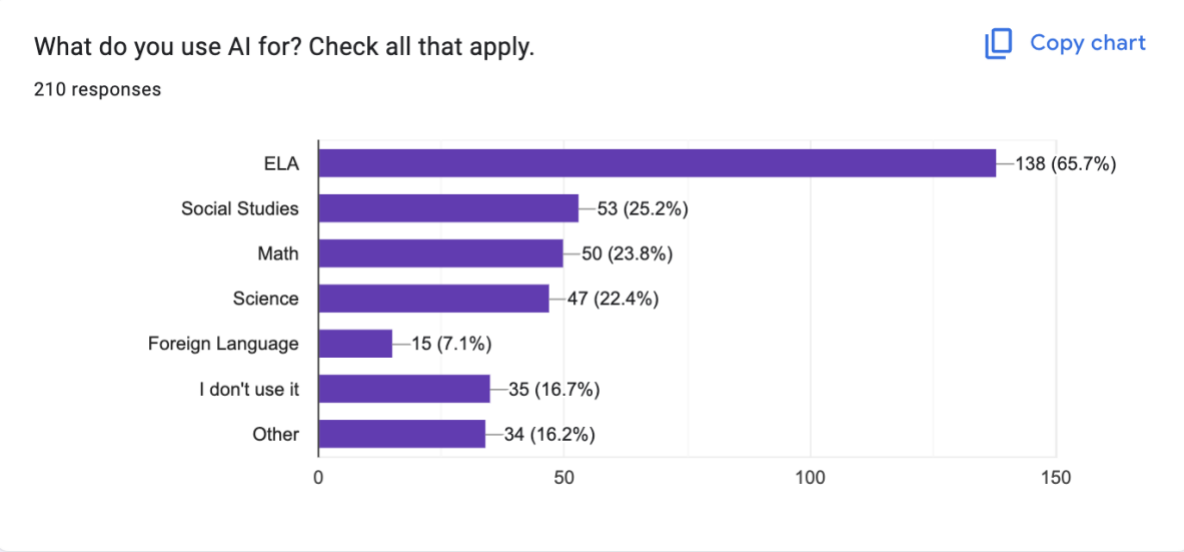
The data suggests that teachers are interested in exploring the potential of AI, particularly for saving time, creating resources, and supporting writing and communication. However, there is a clear need for more information, training, and exploration of AI tools specifically designed for educational purposes. The recurring comments about limited experience and a desire to learn more suggest that professional development opportunities focused on AI in education would be highly beneficial. The concerns about student use highlight the importance of carefully considering the age and developmental stage of students when integrating AI tools into the classroom.

Results from current students at **Madeira Middle School** are as follows:

Question 1 Takeaway: 46ish% of our middle school students are using AI

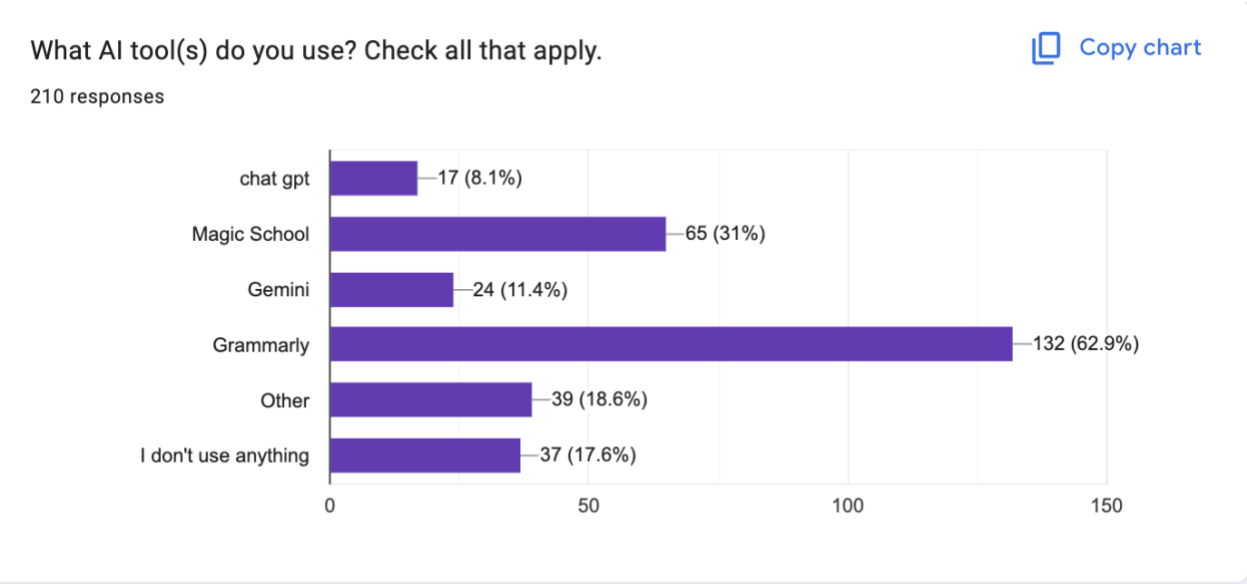


Question 2 Takeaway: Our middle school students are using AI most frequently to assist with writing tasks.



Question 3:

Takeaway: Grammarly currently pops up automatically… which is probably why it is used the most by our middle school students



Question 4: How have you used AI to help you with your schoolwork?

Takeaways: Our middle school students mostly see AI as a tool to help with writing.

In Their Words…

- *it helps me to spell and make my work look more professional by giving me tips*
- *When a suggestion shows up from grammarly I click on it.*
- *I only mainly use it when the teacher tells us what to use it for and stuff like that. I don't like using it much.*
- *I did not understand a certain topic so chat gpt gave me a brief understanding enough to get a 10/10*
- *I haven't used it for any schoolwork, but I have used Grammarly to write silly stories that aren't for assignments, and I have used Microsoft Copilot to have random conversations that are often about soccer.*
- *I use the Gauth app when I do a problem for the math homework and I'm not sure if I'm right on a problem.*
- *I have asked it to give me ideas*
- *I have this one app and it tells me if I got a math question wrong but it does not tell me what I got wrong and what the answer is.*
- *I use it for my s.s homework once and math once but when I use grammarly for spelling cheek.*
- *I have used AI to help with grammar and to check over my multi paragraph essay (Magic School).*

Question 5: What are some ways AI **should** be used in school?

Takeaways: Our middle school students generally have a fairly limited view of how AI can be used as a learning tool (writing assistance)... they are also wary of the technology… Many associate AI use with cheating… they are most comfortable with AI tools that have been introduced and modeled by teachers

In Their Words…

- *I think that AI can be used to write emails and then students tweak it, and I have had an assignment in STECH class that had me have AI summarize recipes and make a new, 5 step recipe*
- *AI should be used in school to help with teaching. If students are not an auditory learner they could use AI to help with that.*
- *When we are writing essays and the teacher can't help us and we can use like magic school for example to give us feedback.*
- *To give feedback, and suggestions AFTER you write something.*
- *NEVER*
- *Some ways AI could be used in school is in ELA maybe by a thing that the teacher can see us using but other than that and even that, I don't think we need to use it!*
- *when the teachers let you.*
- *NO ASKING FOR ANSWER!*
- *To help spelling and to NOT do your homework, but to help you write sentences. (a little.)*

- *AI should be used as a shared tool that can help kids learn how to spell better. I don't think AI shouldn't be used to a grade advantage and possibly ever to write kids essays.*

Question 6: How do you think AI will impact your future?

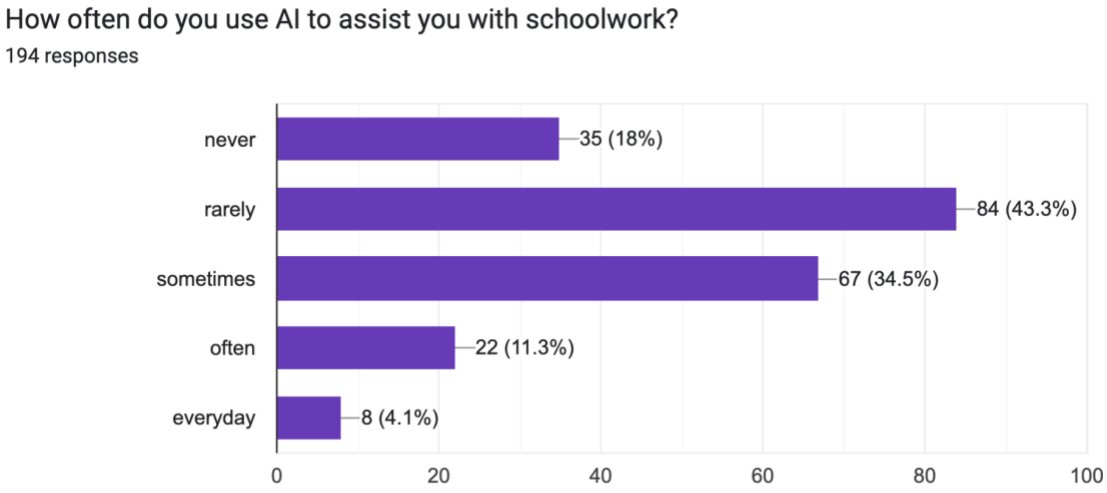
Takeaways: Our middle schoolers currently have a limited view of how AI will impact their futures… there is a weariness in many responses about AI and how it may negatively affect the job market… an emphasis on empowering students to view AI as an opportunity for learning and growth should be a goal as we discuss AI use in the classroom

In Their Words…

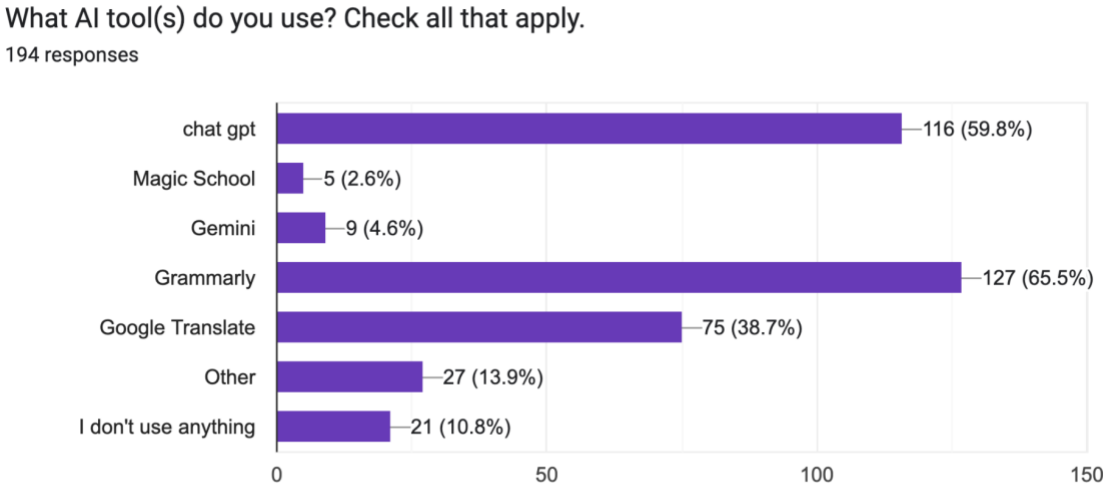
- *It will start to learn everyday tasks and start using everyday phrases to act like a human*
- *Badly very very badly.So bad I can't even explain it.*
- *I think it will impact my future badly because everyone will start using AI and not do their work with their own mind.*
- *AI will take over most jobs.*
- *It could end bad but if Elon musk keeps making those AI robots then we are cooked like we're done.*
- *I think it will be good for laziness but hopefully it doesn't take over the world like in the lorax.*
- *I think if I start using it a lot I will start having better work but I will not understand a lot of the corrections and I may start getting slightly lazy about when I use it.*
- *I don't think AI will "take over" mostly because there is not enough storage in the world to have an extra amount taken for "robots." We should all be careful and understand how we can use AI to make our brain learn better. :)*
- *I think it will impact my future positively because my dad is a surgeon and they are starting to implement ai in the hospital and my dad said it has been helpful.*
- *I think it will impact it because some possible jobs will be gone because each day AI keeps on getting more advanced and can do even more human tasks.*

Results from current students at **Madeira High School** are as follows:

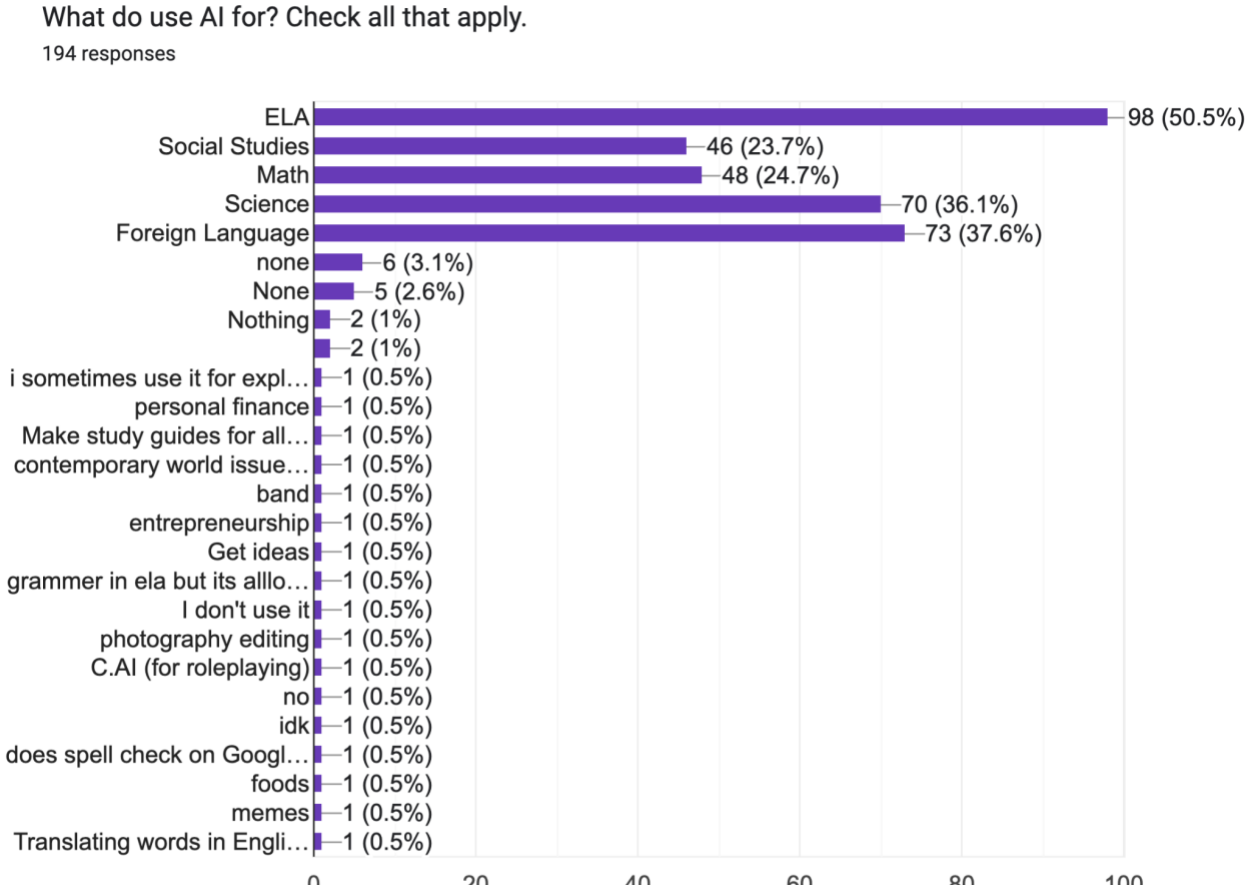
Question 1:



Question 2:


What AI tool(s) do you use? Check all that apply.
194 responses
chat gpt
116 (59.8%)
Magic School
5 (2.6%)
Gemini
9 (4.6%)
Grammarly
127 (65.5%)
Google Translate
75 (38.7%)
Other
27 (13.9%)
I don't use anything
21 (10.8%)
0
50
100
150

Question 3:


What do use AI for? Check all that apply.
194 responses
ELA
98 (50.5%)
Social Studies
46 (23.7%)
Math
48 (24.7%)
Science
70 (36.1%)
Foreign Language
73 (37.6%)
none
6 (3.1%)
None
5 (2.6%)
Nothing
2 (1%)
2 (1%)
i sometimes use it for expl…
1 (0.5%)
personal finance
1 (0.5%)
Make study guides for all…
1 (0.5%)
contemporary world issue…
1 (0.5%)
band
1 (0.5%)
entrepreneurship
1 (0.5%)
Get ideas
1 (0.5%)
grammer in ela but its alllo…
1 (0.5%)
I don't use it
1 (0.5%)
photography editing
1 (0.5%)
C.AI (for roleplaying)
1 (0.5%)
no
1 (0.5%)
idk
1 (0.5%)
does spell check on Googl…
1 (0.5%)
foods
1 (0.5%)
memes
1 (0.5%)
Translating words in Engli…
1 (0.5%)
0
20
40
60
80
100

Question 4:

What are some ways AI should be used in Schools?

In Their Words…
● *Giving students detailed explanations when teachers aren't around* ● *Study Guides* ● *For checking Grammar and Spelling, making sure paragraphs sound strong* ● *It can be incredibly helpful to explain stuff in simple terms* ● *To help find definitions* ● *Anyway that isn't doing the work for you* ● *I personally use it to understand how to do certain things, I never use it to get answers, but just a different explanation.* ● *To check your answers if you have no one there to help you* ● *Help give guidelines for designs or product ideas* ● *To be able to give more in depth knowledge on a topic that is understandable to the student rather than trying to understand a very knowledgeable way of teaching it coming from a person with something like a PhD or other form of high knowledge* ● *I don't think it should be used* ● *Practice test* ● *Editing in art class, citing works* ● *Prompt new ideas* ● *Practice for tests, and could help in math and physics* ● *Provide examples, if a kid asks ,"why do I need this in real life"* ● *Generate ideas, small translations (a word or phrase at a time) in foreign language* ● *I think AI is actually fairly helpful. A lot of teachers portray it in a negative way but it has A LOT of benefits. I do understand how it can be used poorly though. I think that it can be used to really help students understand how to do things. Because when you use AI a lot of times they explain step by step on how to do the problem or solve it which is really helpful. You can also chat with AI to get a better explanation on how to do something when teachers don't explain it the way you need.*

Question 5:

How have you used AI to help with your schoolwork?

In Their Words…
● *No* ● *I have not* ● *To make quizzes for myself to practice. Also it gives good summaries of certain topics in bio that I don't understand* ● *I have used it to help me understand topics such as factoring, Latin adjective-noun agreement, and used it to check for grammar mistakes and bad flow in my papers* ● *Grammarly for paragraphs/grammar check, google translate to check work* ● *Yes to help me with homework because the teacher didn't properly teach the unit or I didn't understand the way my teacher was teaching* ● *I've used ChatGPT to create practice problems for me to study for math* ● *I have used it to quiz myself on certain topics, look for replacement words in essays, and ways to remember certain steps in Biology* ● *For ideas relating to research topics* ● *I have asked it for topic ideas or how to start a message like an email* ● *Citations* ● *I tell it to make me study guides for APUSH that puts all the info we have learned so I Can look over it before the test*

Question 6:

Do you think using AI is negatively affecting your learning? Please explain.

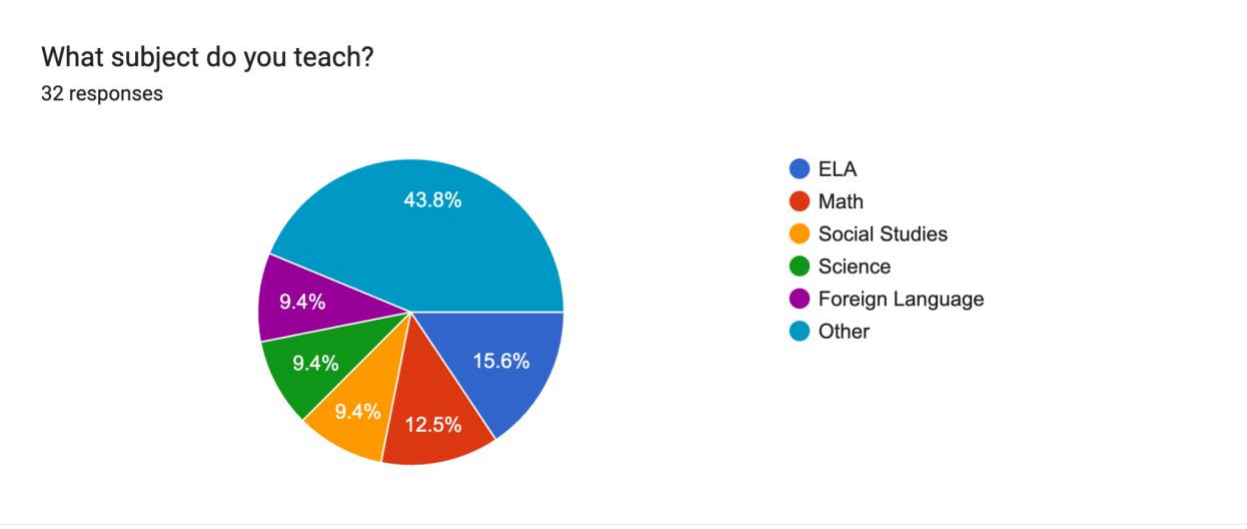
In Their Words…
● *No* ● *No, because I think it is a helpful tool if used in the right way (not for cheating). It has helped me when studying and for tests and for answering questions I had.* ● *I have mixed feelings. I think it can be helpful in some ways; I've used ChatGPT to explain concepts I didn't understand in more depth. I am to have integrity with all I do, but also I think having that tool can be tempting and I sometimes fight the urge to not do my work. I know I CAN do it, I just don't want to. So I'd say it more negatively impacts my motivation.* ● *I think it's positive and negative, it can help you understand, but I will over rely on it sometimes* ● *No, I think I'm actually learning more since AI has been introduced since I can get different types of explanations from it* ● *Yes, it could cause you to not learn the material and could fail a test* ● *No! I think it is helpful for me. For others, I'm not sure because people definitely overuse it and stop actually using their brains* ● *I think the way I typically use it benefit my learning , but I could see how it might start*

negatively affecting my learning if I started looking up the answers to problems frequently

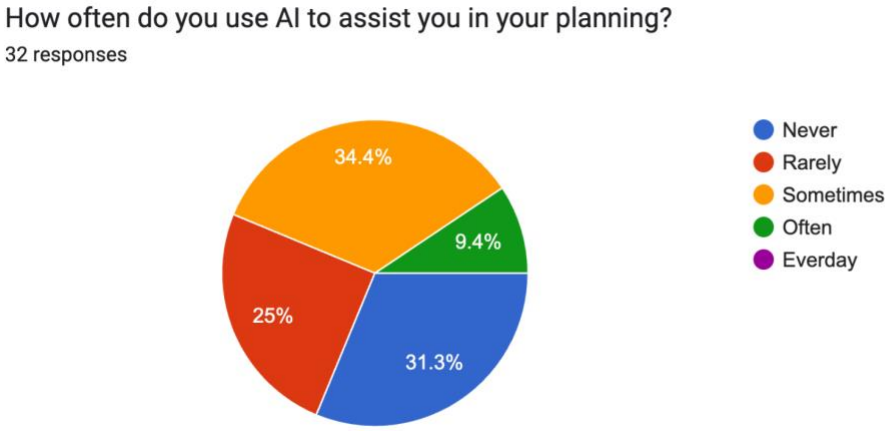
- *Yes, I think it hurts the originality of our ideas, and it undermines people who put time, energy, and effort into coming up with something on their own.*
- *Depends how you use it. If you use it as a help source to have practice tests or equations to do, then no. But if you use it as a way of not doing homework then definitely yes.*

Results from staff members at **Madeira Middle School** and **Madeira High Schoo**l are as follows:

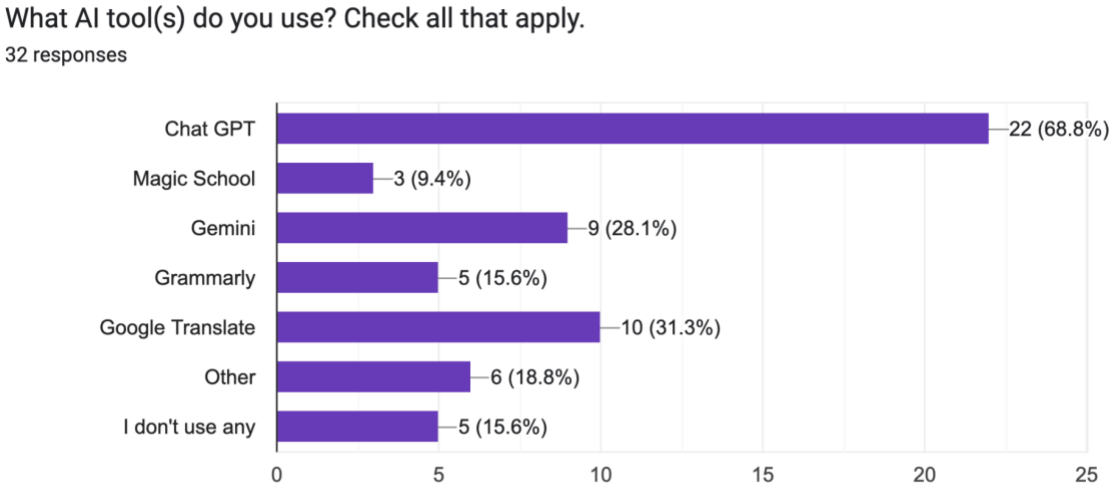
Question 1:



Question 2:



Question 3:



Question 4:

How has AI helped you plan your classes?

In Their Words…
● *Created essay questions and emails to send to parents* ● *It has helped me design assessments. I usually have to alter the questions, but it gives me a base* ● *I have used it to generate extra practice problems for study guides. I have used it when a student comes up and asks me for more examples of a certain type of problem* ● *I have used it to create a lab document when I'm trying a new lab. It's a starting point that I tweak. I always think it's easier to "tweak" a lab handout than to start from scratch* ● *It hasn't. I know it could help, but I think it's fun to plan and create for my class. Why would I deprive myself of the pleasure of creativity.* ● *Helps with IEP writing. Helps clean up emails* ● *Yes - this is the future. We need to learn and stay ahead of the game* ● *Google translate has helped me translate items (tests, worksheets, homework) for students* ● *AI can be used to help students interact with historical figures, and create creative presentation with AI imaging. AI can sometimes be used to help me create new projects that are more expansive and differentiated based on previous lesson plans that I have created. It has also taken over for quick google searches/references for initial findings before expanding into more academic-type research* ● *I used it to write a rubric, which I then modified to fit the needs of my class.* ● *It has, but not often. Math AI hasn't been all that helpful - seems to be getting a bit better but often will have mistakes come up with asking for AI.* ● *It has given me ideas, as well as given me study guides with answer keys.*

Question 5:

Are there ways you think using AI in the classroom is helpful? Please explain.

In Their Words…
● *To get ideas, create lessons, and create alternative plans* ● *It helps differentiate lessons and it also helps designs lesson plans and assessments* ● *I have also used it to enhance my presentations on Canva to keep student interest high* ● *I'm sure it could be helpful in my subject area in coming up with multiple choice distractors. That would save me some time. The most helpful idea I've used is showing students that AI writing doesn't have the same voice that they do. Not only does that display for them that I would be able to tell if they use AI to write, as their personality is missing from the writing, but it also shows them that writing isn't a formula. They can see that it's a chance to formulate their own thoughts on something.*

- *Yes - creative design, extension to current material*
- *It can make tasks quicker and eliminate the time it takes for repeated task creation*
- *I like to use the image creator with my students*

Questions 4 & 5 Take-Away: AI is being used in a variety of ways in the classroom, primarily to support writing, content creation, and differentiation.

Question 6:

How has AI hindered learning in and out of the classroom?

In Their Words…

- *Students may use it to write essays instead of wrestling with the material themselves*
- *Umm..my biggest fear and complaint is related to 7th graders (or any school aged kid) who are not learning the thinking skills associated with writing. I have kids who are using it (rarely because I think/hope they are still scared of the consequences) to write entire assignments. If they are doing this without thinking or comparing or evaluating the answer or writing anyway, they are not learning the skills that are assigned by the state OR (more importantly) just basic life skills of writing which I think will hurt them in the long run. I am not against AI, but I think we are against a HUGE shift in teaching to help kids know when it is enhancing their writing and when it is taking over their writing/thinking. There will come a time where they are etter at using it than we are, but I just hope that doesn't come at the price of learning how to think for yourself, plan a piece of writing, and evaluate critically. I also think it is our job as teachers to make sure we don't get to that point, but I do not feel totally prepared as to how to get to that. I feel we are all in different places with it as a staff.*
- *Some students use it to find the answers*
- *It's hard to argue to students that it's important to learn to write well, when so much of their writing can be done for them! They don't know how to use it with discernment.*
- *Many students think that an AI result is the "perfect answer" but we know that a fault input can give a faulty answer.*
- *It doesn't make people think on their own!*
- *I definitely would never give a "take home" problem solving test. I didn't really do this before because I cannot verify who is actually doing the work. Over the years, there have been many ways for students to cut corners and finish an assignment without actually learning or understanding the material. For this reason, I have always made the majority of the grade based on in-class assessments where I can watch the student completing the assignment. AI makes this more necessary, but it doesn't feel like a huge change for me*
- *It is being pushed as the "easy" option. I do not like that tone…I feel like it needs to be treated as a tool that can be used for specific reasons, but not band-aid to make my teaching life easier. Example…I am using my computer to complete an essay - as opposed to a written piece of paper survey - the tech is being used for a very specific purpose that suits it well. AI needs to be*

treated like this - use it for a specific purpose.

- *I haven't found it a hindrance yet*
- *The only possible hindrance is for those students who decided to use this to plagiarize, which I have only caught in a few instances. This has been only on research papers that they have copied and pasted directly from AI sources, and is caught by AI checks.*
- *It's not just AI, but kids don't want to think and jump right to their computers - they want to look something up. For example, I asked "What do you think there are more of in the world, eyes or legs?" Some struggled through and thought about it while others quickly googled an answer.*
- *I have not seen many changes in my subject area of math*
- *It feels as though students expect to always have something else tell them the answers, rather than taking the time to process. This includes the usage of tools like Google. While there will always be these tools in their future professions, it is making retention of material much more limited and therefore critical thinking is hindered. The desire to learn seems to be fading.*
- *I have lost count of how many students have tried to turn in AI generated writing as their own work. This means they are not practicing the writing skills they are supposed to be learning by doing the assignments.*

Question 7:

What kind of additional AI education would you like as an educator?

In Their Words…

- *I would like a tutorial on how to use Magic School*
- *I'd like to know what colleges are doing. It may also be helpful to see specific examples of it being used in High School English classes (not just theoretical).*
- *I'm not sure. I'm still exploring at my own pace…there has been a lot of info given to use recently….still processing*
- *NA*
- *I only have so much time to tinker or play. It's helpful to hear how other people are using AI or how they are dealing with students and AI.*
- *I would LOVE LOVE LOVE to have a conversation around pedagogy as far as age appropriate use of AI with students. At what age do/should kids be introduced? Why should kids be introduced at those ages? What is the purpose? I don't want students to view it as the "easy" option.*
- *If AI is here to stay, we need to teach for the present and future. Let's teach kids how to use it. Let's problem solve scenarios vs. memorizing formulas, dates, maps.*

- *Anything! In a perfect world, I would want to be a classroom leader of 20 students that all used AI 100% of the time to follow a specific curriculum. This is the direction of education. You all need to look into this school model. It will be the future of school (http://alpha.school/)*
- *More capable translation tools for mathematics and differentiation tools for mathematics. From what I have seen, many of the tools available have not been created to handle upper level mathematics (notation, equations, concepts)*
- *I just need to play around with it more*
- *Anything and everything*
- *I would be interested in knowing more about safeguards with AI so that I could feel good about using it with my students*
- *AI that helps me adapt materials and lessons for ELL students would be great. It would also be good to have advice on which tools are more reliable. Some of the things that have been suggested to me so far have not been consistently helpful. For example, Chat GPT was suggested as a way to get chapter summaries of a book, but when I tried using it, the summaries had incorrect information or were of the wrong chapter. If I can't rely on a tool consistently, it's more work to try to use it, so it would be good to know when they're introduced which are more reliable.*

INTERVIEWS FROM THE WORKFORCE

- "I think we are at the very beginning of a long journey of even understanding what the future impacts are, but, without a doubt, the skills that will continue to be more and more relevant are the uniquely human skills like creativity, judgement, relationship building, and persuasive communication. I would also say that across all fields, students and employees who are AI savvy and open minded/creative about applying it in a range of roles and situations (while also being mindful of risks and downsides) have an edge over those with an "old school" mindset of waiting to be told how and when to use a piece of technology in their roles." -Anna Thompson Pearson, Head of People at Orchard

- "Some suggestions to develop critical thinkers could be to create assignments asking students to "cheat" by having AI create essays, which the student then critiques- a sneaky way of getting students to think hard about the work and find the faults in the AI generated material. Another assignment could allow unlimited AI use but hold the students accountable for the facts and outcomes produced by the AI. Students could also conduct interviews with the AI before they speak to

people at real organizations." -User Experience Researcher for a leading technology company

- "The easiest way to prepare kids for AI in the workforce is for them to actually have a fundamental understanding of what it is and how it works. My biggest concern around future generations is the widening gap between those that understand it and those that don't. They don't understand how the data is collected. They don't understand how it's refined. They don't understand how it's used. They don't understand how it generates results. For example, if you ask [AI] a question and you tell the AI that [the answer] is wrong and you ask for another, it will apologize, assume it's wrong and give you something else, even if it was right. Because it doesn't know. What we cannot have is a generation that just assumes everything is right." - Head of Data Science for a leading payment processing company

- "AI is rapidly transforming various industries, creating new opportunities and reshaping existing roles. For students, this means that the future job market will demand a different set of skills and competencies. Here are some key impacts AI will have on career paths.

    - Emergence of New Roles: AI will create entirely new job categories that we can't even fully envision today. Roles such as AI ethicists, machine learning engineers, prompt engineers and data scientists will become increasingly prevalent.
    - Evolution of Existing Jobs: Many current jobs will evolve to incorporate AI technologies. For example, healthcare professionals will use AI to enhance diagnostics and treatment plans, while educators will leverage AI to personalize learning experiences. The focus here is that humans can focus on more "value add activities" to spend countless hours performing work that a human does not "have to do". Not only does this save time, it allows humans to potentially do more work that energizes them as they have the time to do so. (For example, the administrative burdens of doctors (or any profession) can be automated)
    - Increased Demand for Technical Skills: Proficiency in AI-related technologies, such as machine learning, data analysis, and programming, will be crucial. However, soft skills like critical thinking, creativity, and emotional intelligence will also be highly valued as they complement technical abilities – that human touch will never be replaced by a machine.

To prepare our students for this AI-driven future, we must focus on the following strategies:

- Integrating AI Education into Curricula: Schools should incorporate AI and computer science courses into their curricula to provide students with a strong foundation in these areas. It is our responsibility to provide them with the tools and knowledge they need to succeed
- Promoting Lifelong Learning: Encouraging a mindset of continuous learning will be essential. As AI technologies evolve, so too must the skills of the

workforce. Providing opportunities for ongoing education and professional development will be key.

- Fostering Collaboration and Interdisciplinary Learning: AI is not confined to a single field; it intersects with various disciplines. Encouraging students to engage in interdisciplinary projects and collaborate with peers from different backgrounds will help them develop a well-rounded skill set.
- Emphasizing Ethical Considerations: As AI becomes more integrated into our lives, understanding its ethical implications will be crucial. Educating students about the ethical use of AI and the importance of fairness, transparency, and accountability will help them navigate the complexities of this technology.

One thing that we must keep in mind is that the implementation of new technologies has always eliminated some jobs, but also replaced them with other impactful alternatives. If we could shift our mindset to the positive benefits of this technology vs. the job eliminations (as there will also be additional jobs), we will be able to enjoy the benefits the technology is intended to provide! (Think computers, cell phones, tv's, internet, electricity, typewriters, fax machines, etc!)" - Mohini Sharma, Director, Business Operations, *Transact Services/Risk & Compliance/Airgap/Cloud Ops/NSD,* Microsoft Federal Business Operations

"AI is a tool that will absolutely be included in all facets moving forward. It must be regulated and it needs to be taught by someone with specific knowledge of both its value and its shortcomings. If AI instruction is equitable, then we will have created a level playing field for the next generation of users. But it begins with access to computers, AI itself, and knowledgeable teachers." -Active AI Investor

RESEARCH FROM THE WORKFORCE

One of the primary impacts that AI is having on careers is reduced demand for jobs (or parts of jobs) comprised of repeatable, predictive tasks. Unfortunately, these are the types of entry-level jobs that interns or new grads often fulfill. According to a May 2024 report at SHRM.com, "Among 804 U.S. hiring managers surveyed April 17 for Intelligent.com, 70 percent of respondents said AI can do the jobs of interns." Therefore, it is increasingly important to ensure that students are well-trained in how to best utilize AI in their jobs and how to distinguish themselves in the workforce. "With gen AI becoming more effective at executing work, there is an increased demand for professionals who can determine whether the AI is executing the right work and which person in the workplace can effectively move that work forward. " (Grammarly)

We can help MCS students "stay ahead of the curve" by providing them opportunities to use AI in the classroom, while also emphasizing human interactions and providing scenarios where both types of skills are utilized. "Instead of banning AI in schools, we should be teaching children how to work with AI effectively and ethically. At the same time, we need to double down on developing their creativity, critical thinking, and emotional intelligence – the skills that will set them apart in an AI-driven world." (Forbes)

According to the September 13, 2024 Forbes article “How You Become Irreplaceable In The Age Of AI”, there are several ways workers (and students) can prepare themselves for AI in the workforce:

- “Being AI-ready… the ability to stay updated on AI advancements, understand their impact on our jobs, and critically evaluate the benefits and risks. It's also about learning to use AI ethically and effectively, augmenting our abilities rather than replacing them.”
- “Embracing our humanity… As machines take over more tasks that we once thought were uniquely human, we need to double down on the skills that truly set us apart… genuine creativity, critical thinking, and social authenticity.”
- “Adapting to Rapid Change… a new level of mental agility and openness to continuous learning.”

“The most powerful innovations from AI in education will supplement, not supplant the role of teachers.” - Dr. Vicki Phillips, Forbes. The key is to determine how to balance both human and technical skills. A Grammarly article titled “9 Strategies for Career Readiness in the Era of Gen AI” lists ways that schools can tackle AI integration into the classroom:

1. Curriculum mapping
2. Assignment deconstruction
3. Transparent and living policies
4. Alumni boards, student councils, industry partnerships, and faculty committees
5. Employer engagement and industry partnerships
6. Increase access to AI tools; standardize the right ones
7. Create informed, responsible AI citizens
8. Double down on durable soft skills
9. Gen AI resources for faculty upskilling

Conclusion and Recommendations

Conclusion

- Students are using AI, but need guidelines on how to use it ethically. According to a September 2021 article from the National Library of Medicine, "Artificial Intelligence in Education: Addressing Ethical Challenges in K-12 Settings", there are four types of challenges and risks that should be addressed when teaching AI in an educational setting: Privacy, Bias and Discrimination, Surveillance and Autonomy. Ethical discussions should occur alongside technical teachings to ensure students know how the AI is being created and the risks and impacts of using it.

- Continuous education for AI literacy is needed. It is important for students to "understand what these tools can and can't do and come up with [their] own plans for using them effectively." It is also critical to know "why they are doing things a certain way and be able to clearly explain the reason." (a May 2024 article, SHRM.com, "Report: AI Could Replace Some Interns, New Grads")

- Soft skills should be emphasized across all classroom subjects. While increasing technical ability is important, AI "can't replace the important interpersonal connections that help make our jobs meaningful." (Dr. Mark Scullard in Forbes January, 19 2025 article, "5 Soft Skills That Are Critical In The Age of AI"). According to that article and additional research mentioned above, people-centered skills are more important than ever and are what will enable employees to distinguish themselves. The 5 Soft Skills mentioned are:
    - Strategic Thinking
    - Communication Skills
    - Honesty and Integrity
    - Critical Thinking
    - Adaptability

- The classroom needs to be linked to career paths and skills needed to succeed, by leveraging the Madeira City Schools and community network. Exposing students (and teachers) to the workplace through in-class visits or projects, mentorships, etc. provides real-world insights and expertise. This alignment can drive additional career opportunities for students, as well as build technical and soft skills to help them thrive.

Recommendations

Preparing students for the use of AI in their future career paths requires a holistic approach. Not only is education required for both students and staff on the technical usage of AI, but further emphasis on soft skills, such as communication and collaboration, is needed to ensure that students are ready for a changed workforce. Additionally, Madeira's community can be leveraged as a resource to help tie workplace experiences to classroom curriculums and teaching methodologies.

According to our Culture Playbook "we are committed to viewing **change as a reality**, a **necessity**, and an **opportunity**"... with that in mind, we make the following recommendations:

- Establish policies, including the path for resolution of issues
    - Determine if an overall policy is required and/or whether policies should be classroom/subject-specific. Teachers should have written guidelines to support their classroom policies.
    - Include verbiage in the Technology Usage (and/or student handbook) acknowledgement that students/parents sign at the beginning of the year

- Create an ongoing group of teachers, staff and students dedicated to researching and recommending actions around AI for Madeira City Schools. Sycamore Schools' has created an "AI Exploration team to explore the use of Artificial Intelligence and to develop a recommendation of how to educate, facilitate and use AI to empower students and staff", with a purpose to create:
    - "A deeper understanding of AI uses, perspectives, biases strategies tools and resources
    - Policies and norms for both students and staff
    - A direct/strategy for purposeful and impactful educational use."

- Carve out an AI/Technology board as a permanent part of the Planning Commission, focused on trends in technology and ensuring skills learned in the classroom are aligned to the "real world".

- Leverage the MCS alumni network to bring in industry expertise, provide mentorships, and exposure to AI applications.
    - They could be members of the AI/Technology board, as well as guest speakers in the classroom and teacher in-service days or student shadow days.
    - If it doesn't already exist, an alumni roster with profession could be created

- Designate in-building resource(s) to provide expertise and support to teachers
    - Help to integrate AI into curriculums (see below) consistently
    - Provide counsel on how to handle incidents
    - Training

- Add AI topics to In-service Day education

    - Bring in experts, including leveraging parents and alumni
    - Hands-on exploration with tools
    - “Train the trainer” - send several teachers/staff to conferences and have them lead sessions for the rest of the district

- Explore how to incorporate AI into class curriculum(s), as well as career counseling
    - MCS should focus on a few (3-4) technologies to expose, teach and integrate into classroom learning, across all subjects
    - Regular, subject area discussions to share ideas and ensure consistency of implementation
    - Include counselors in training sessions so that they can provide guidance on emerging AI careers to students
    - Additional focus on critical thinking and project-based learning within each class
    - Potentially add an AI class

- Continue elementary school digital citizenship program through all grades
    - A standard program and curriculum to ensure equality in availability in technology and consistency of messaging (e.g. ethics)
    - Integrated into targeted grades/classes, with a coordinated growth path of understanding and technology usage
    - Include AI Literacy - covering its capabilities, limitations, and ethical considerations
    - Ensure students know how AI is created, and how the models are creating the information they are receiving

Resources

- https://www.forbes.com/sites/bernardmarr/2024/09/13/how-you-become-irreplaceable-in-the-age-of-ai/
- https://www.grammarly.com/blog/institutions/9-strategies-for-career-readiness-in-the-era-of-gen-ai/
- https://www.shrm.org/topics-tools/news/organizational-employee-development/report--ai-poses-threat-to-interns--new-grads
- https://www.forbes.com/sites/danfitzpatrick/2024/11/07/5-chatgpt-prompts-for-educators-preparing-students-for-an-ai-world/
- https://www.grammarly.com/blog/institutions/9-strategies-for-career-readiness-in-the-era-of-gen-ai/
- https://www.teachai.org/toolkit
- https://tytonpartners.com/generative-ai-in-higher-education-from-fear-to-experimentation-embracing-ais-potential/
- https://www.govtech.com/education/k-12/ohio-educators-get-to-know-ai-as-an-ally-in-the-classroom
- https://innovateohio.gov/wps/wcm/connect/gov/7484d716-5c6f-47d2-a04a-7914e11bc44c/AI+In+Education+Strategy.pdf?MOD=AJPERES&CONVERT_TO=url&CACHEID=ROOTWORKSPACE.Z18_JQGCH4S04P41206HNUKVF31000-7484d716-5c6f-47d2-a04a-7914e11bc44c-pdaPrLS
- https://www.brookings.edu/articles/should-schools-ban-or-integrate-generative-ai-in-the-classroom/
- https://ocw.mit.edu/courses/res-mas-002-day-of-ai-spring-2022/
- https://www.unesco.org/en/articles/unesco-survey-less-10-schools-and-universities-have-formal-guidance-ai
- https://study.com/resources/chatgpt-in-the-classroom

Questions to consider:

- https://www.forbes.com/sites/danfitzpatrick/2024/11/07/5-chatgpt-prompts-for-educators-preparing-students-for-an-ai-world/
- https://www.moreusefulthings.com/resources

Appendix A