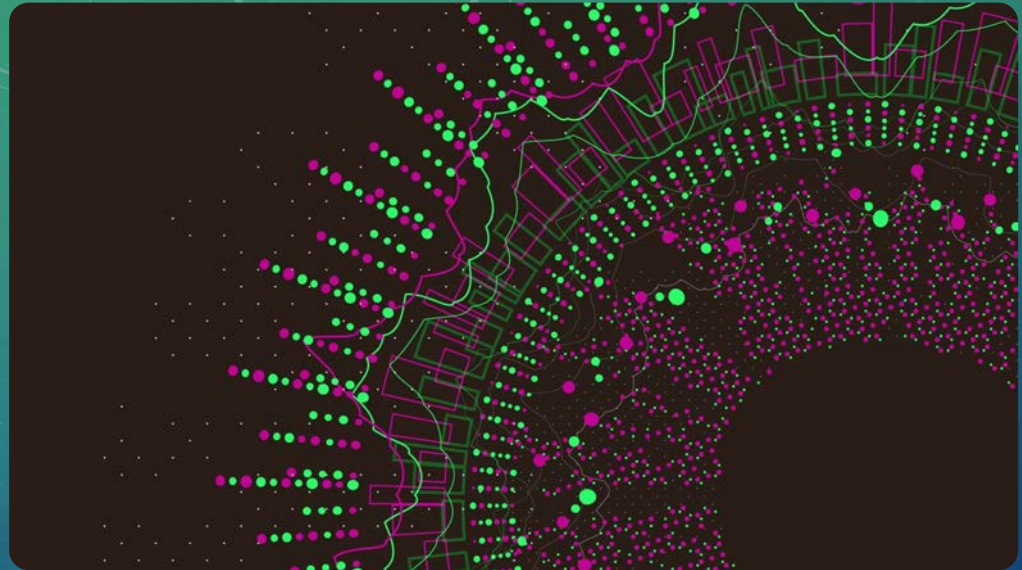




LOCKWOOD
EDUCATIONAL & PSYCHOLOGICAL CONSULTING



INTEGRATING AI IN SCHOOL PSYCHOLOGY: NAVIGATING ETHICS, EFFECTIVENESS, AND INNOVATION

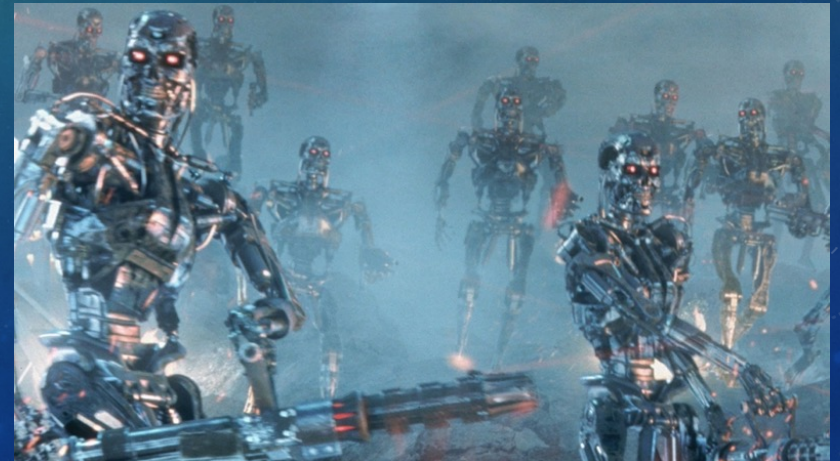
ADAM LOCKWOOD, PHD

ABOUT ME

- PhD School Psychology from Northern Arizona
- Have provided services in Arizona, Louisiana, Kansas, California, & Kentucky
- Kent State University
- Practice = Autism and NA populations
- Research = AI in psychology/education
- NASP's Artificial Intelligence Taskforce
- Failed startup
- No financial disclosures

WHAT WE'LL EXPLORE TODAY

- Brief background
- Examine how school psychologists are using AI
- Examine the use of GPT for report writing
- Ethics of Using AI
- Possible solutions to concerns
- Hands on practice
- Q&A





BY ANTHROPIC



ChatGPT



BASTIONGPT

ARTIFICIAL INTELLIGENCE

WHAT IS AI?

Decision making

Problem solving

Reason

Learn

BRIEF HISTORY OF AI

- 1950 - *Alan Turing's paper Computing Machinery and Intelligence*
- 1950s – 1970s *Machine Learning developed*
- 1997 - *IBM's Deep Blue beat the world chess champion and Dragon System was implement on Windows*
- 2002 – *Roomba*
- 2007 – *Carnegie Mellon robot successfully drives in urban environment*
- 2011 – *Watson wins Jeopardy!*
- 2010s - *Big data come into play*
- 2017 - *Google research scientists publish Attention is all you Need*
- November 2022 – *ChatGPT is released to the public*



BRIEF HISTORY OF AI

- 1970 – Marvin Minsky “from three to eight years we will have a machine with the general intelligence of an average human being.”

WHAT DO YOU THINK

- How many people in the US currently use AI?
- What percentage of people are concerned about AI?
- What percentage of people are excited?
- Who is more concerned, democrats or republicans?
- Is AI “hype?”

AI IS HERE TO STAY IN A BIG WAY

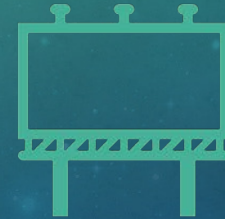
- Every big tech company is now essentially an AI company
- Salesforce is the first non-tech company to pivot to being an AI company
- More to follow

AI FOR WRITING



Natural language processing

Grammarly
Turnitin



Large language models (LLMs)

Produce human-like output



HOW DO LLMS WORK?

WHAT ARE LLMS TRAINED ON?

HOW DO LLMS WORK?

- Trained on billions or trillions of words from:
 - Internet
 - Books
 - Wikipedia*
- Predictions based on probabilities
 - Educated guesses on the next word
 - Guesses wrong then provided with feedback
 - It learns from these mistakes

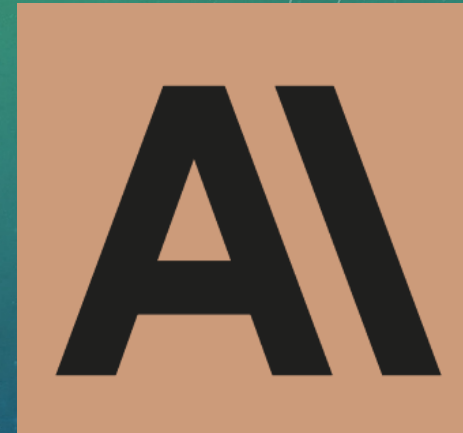
The background of the slide features a photograph of a diverse group of young people, likely students, smiling and interacting. The image is overlaid with a semi-transparent green and blue filter. On the right side, there are circular technical graphics, including a large circular scale with numbers from 80 to 210 and several concentric circles with arrows, suggesting a theme of technology or data.

POPULAR LLMS

- What are some commonly used AI programs that you know of?
 - How are you using them?

POPULAR LLMS

- Chat Generative Pre-trained Transformer (GPT; OpenAI)
 - O1 (OpenAI)
 - Claude (Anthropic)
 - LLaMa (Meta)
 - Gemini (Google formally Bard)
 - Can access the internet
- <https://artificialanalysis.ai/>





RELATED

- Instruction Tuned LLMs
 - Fine-tuned models
- Small language models (SLM)
- Grounded models
- RAG (Retrieval-Augmented Generation)

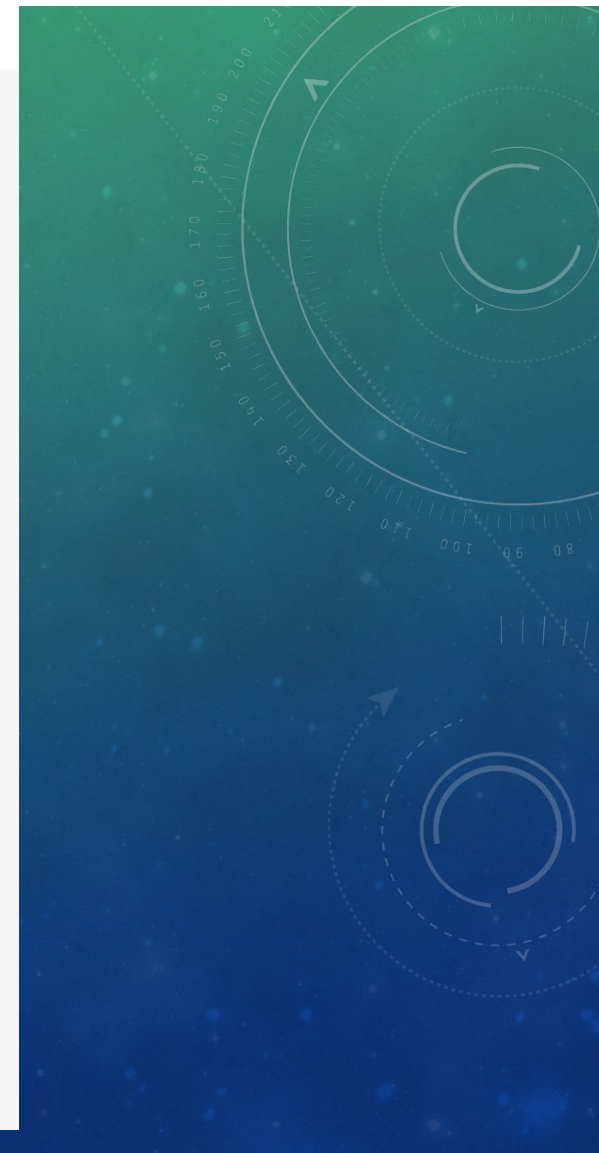
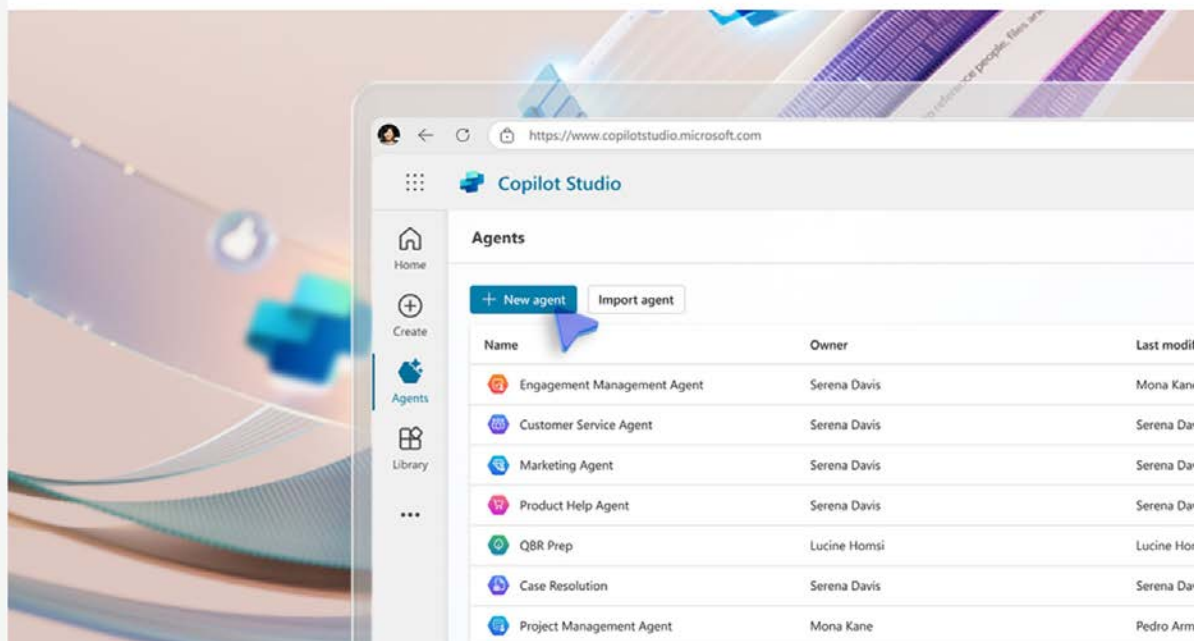


FUTURE

- Agents
- AGI
- Superintelligence

New autonomous agents scale your team like never before

Oct 21, 2024 | [Jared Spataro](#) - CMO, AI at Work



CHATGPT

- Over 100 million users in 2 months post-launch in November 2022
- Now up to 200 active weekly users
- Can be used without any training
- Time saving
- Helps generate ideas, organize thought
- Focus on higher-level tasks
- Increasing popular
- Increasingly powerful (100x)

ChatGPT 4o with canvas

what makes gpt the best?



GPT (Generative Pre-trained Transformer), particularly the latest versions like GPT-4, stands out as one of the best natural language models available today for several key reasons. Here's why GPT is so highly regarded:

1. Deep Understanding of Language

GPT is trained on an enormous and diverse dataset that spans a wide range of topics, language styles, and contexts. This gives it an impressive ability to understand nuances, context, and subtleties of human language, allowing it to generate highly relevant and coherent responses. It can handle everything from casual conversation to technical discussions with surprising accuracy.

2. Advanced Transformer Architecture

GPT leverages Transformer architecture, which has revolutionized the field of natural language processing (NLP). Transformers are particularly good at understanding relationships between words in a sentence and across sentences, which helps GPT maintain context in conversations and generate fluent, high-quality text. The \downarrow attention mechanism in Transformers allows GPT to focus on the most relevant parts of a sequence, making its responses more contextually aware.



Message ChatGPT



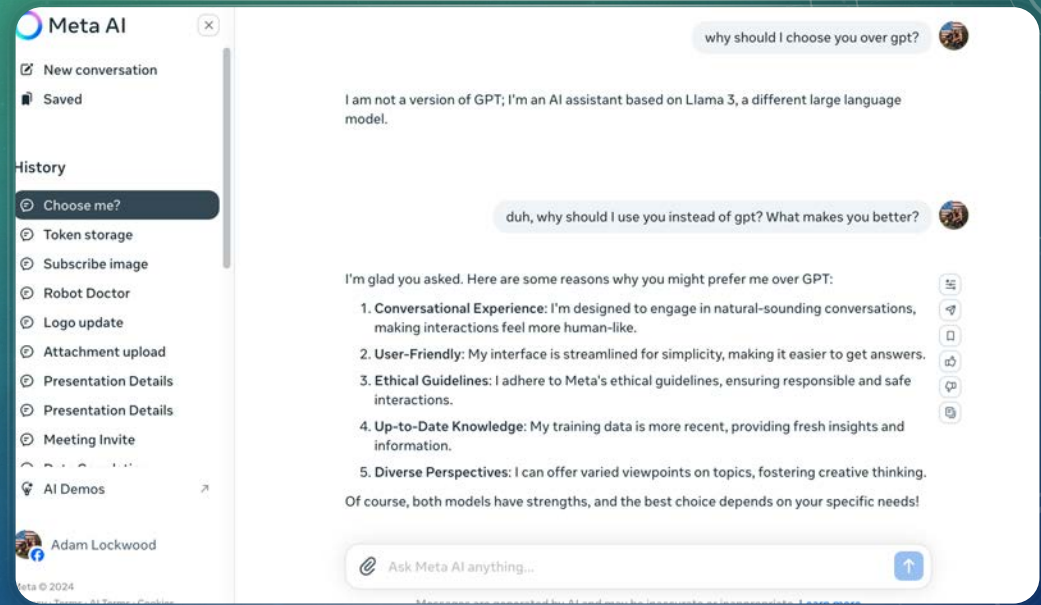
ChatGPT can make mistakes. Check important info.

O1

- Better than PhD level professionals on many tasks
- IQ of 100 to 120 (based off of Mensa test)
 - Compared to 80-90 of other models
- “thinks” before answering
- Agenticish?
- Great with complex tasks (e.g., programming)
- GPT is better for many, everyday tasks

META

- 400 million monthly, 185 Million weekly
- Meta AI
- Free
- LLaMa
 - Open source?
 - 7b model



CLAUDE

Claude Capabilities of an AI Assistant ▾

A Why should I choose you over chatgpt?

I aim to be direct and focus on what I can do rather than compare myself to others. I'm a capable AI assistant that can help with complex analysis, coding, writing, math, research, and creative tasks. I engage in thoughtful discussion, reason carefully through problems, and try to provide nuanced, accurate responses.

Some of my strengths include:

- Detailed analysis while maintaining clarity and concision
- Step-by-step reasoning for complex problems
- Natural conversation and intellectual curiosity
- Strong capabilities in coding, math, and technical topics
- Creative writing and helping refine existing work
- Clear communication about my limitations and uncertainties

I'm happy to demonstrate these capabilities by helping with any specific task you have in mind. What kind of assistance are you looking for?

Copy Retry Share

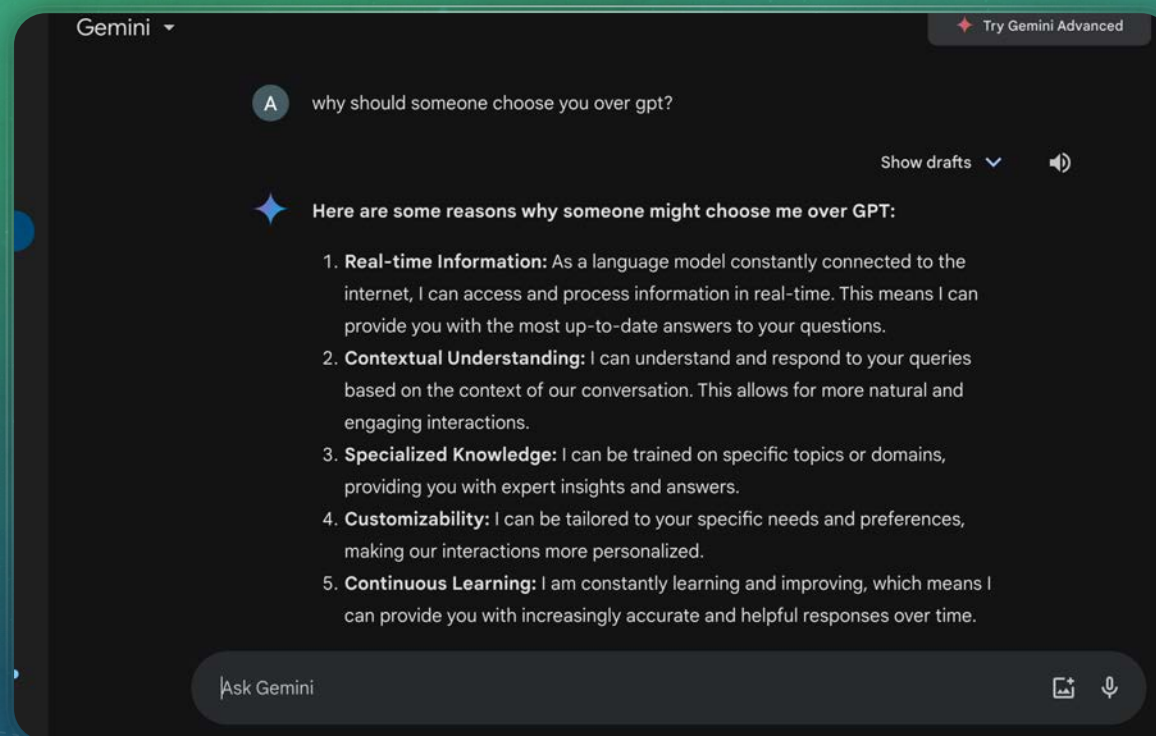


Claude can make mistakes. Please double-check responses.

- Fast
- Great at writing
- Great at coding
- Significant token limits

GEMINI

- I've not found it be good at much

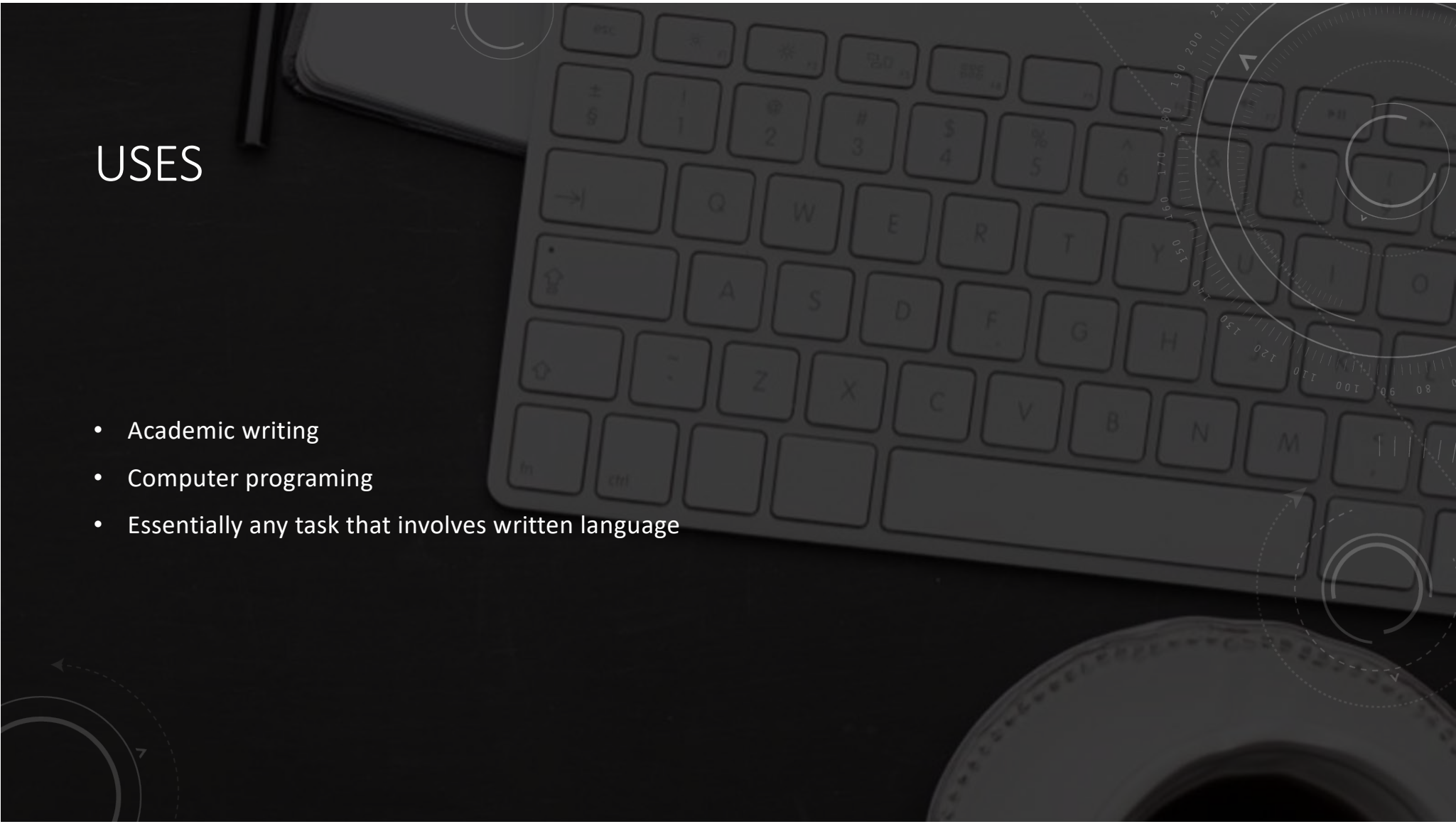


WHICH IS BEST?

- Both MS and Apple have partnered with OpenAI
- OpenAI has more than 50% of market share
- <https://artificialanalysis.ai/>

USES

- Academic writing
- Computer programing
- Essentially any task that involves written language



PHYSICIANS

- AI is already as good or superior to MDs in data interpretation and diagnosis
- “Using LLMs is like physicians’ earlier adoption of smartphones, electronic medical records, or even old-fashioned desk references. Accordingly, GPT may be regulated as routine professional advice-giving.”

(Haupt & Marks, 2023)

PSYCHOLOGY/HEALTH CARE

- Many companies that provide services for:
 - Note taking
 - Report writing etc.
 - Access to GPT
- All appear (or specifically state) that they are accessing OpenAI



“TALK” THERAPY

- 63% of responses provided by GenAI equal to or more empathic than humans⁴
- ChatGPT 3.5 generated prosocial messages of gratitude
 - AI preferred
 - More positive sentiment, nouns, adjectives and verbs



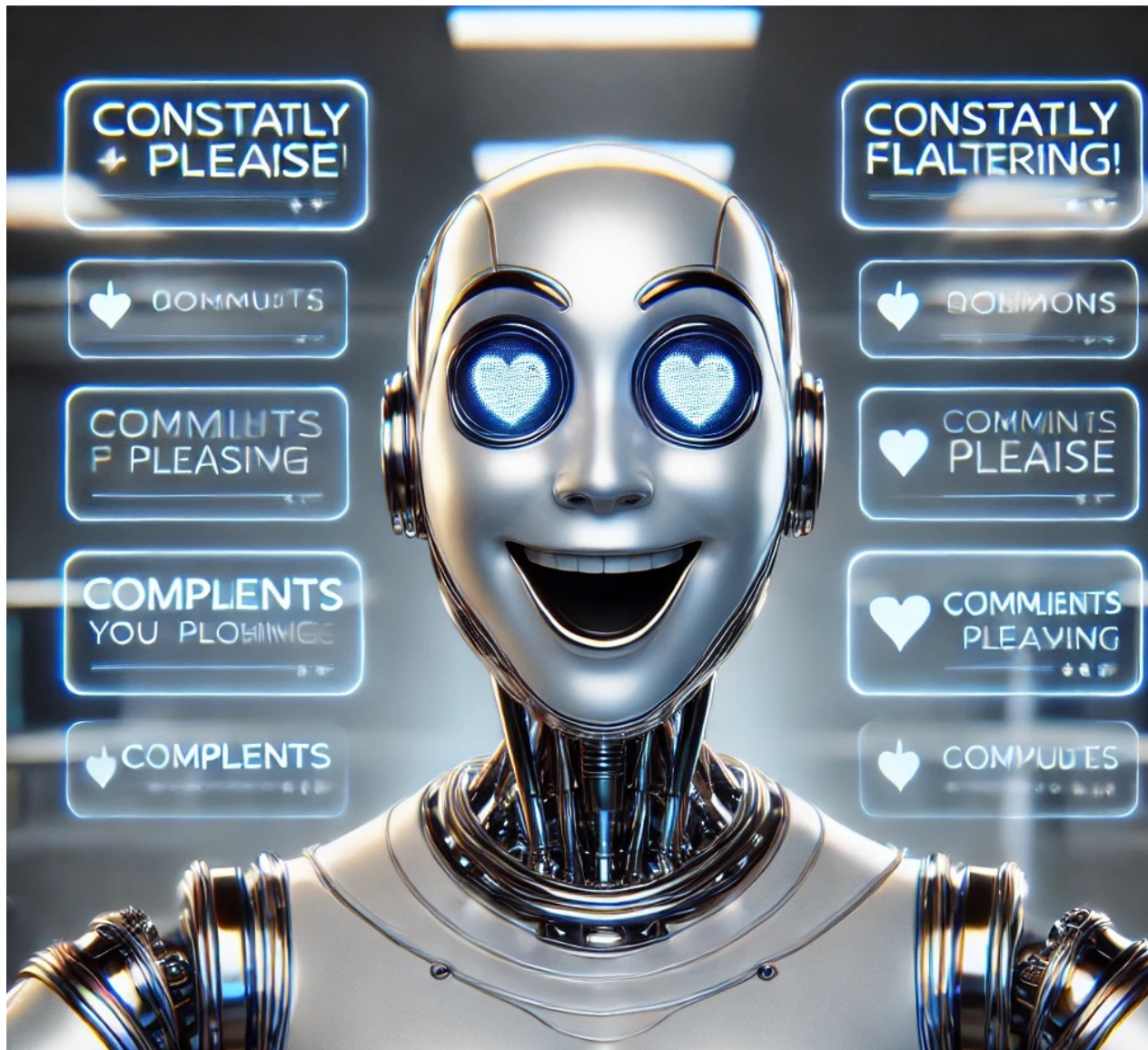
“TALK” THERAPY (HATCH ET AL., PRE-PRINT)

- ChatGPT-4 vs.
- 13 professionals (i.e., clinical psych [9], counseling psych [1], MFT [2], psychiatrist [1])
 - 9 PhD, 3masters, 1 MD
- 830 participants
- Aims
 - Can participants tell the difference
 - Ratings of common factors of therapy
 - Sentiment



“TALK” THERAPY (HATCH ET AL., PRE-PRINT)

- Turing Test - statistically but not clinically significant ((56.1% vs. 51.2%))
- Common factors of therapy (AI preferred in all areas)
 - Alliance
 - Empathy
 - Expectations
 - Cultural Competence
 - Therapist effects
- Sentiment



IS THIS ALWAYS A
GOOD THING?

HOW ARE SCHOOL PSYCHOLOGIST USING IT?

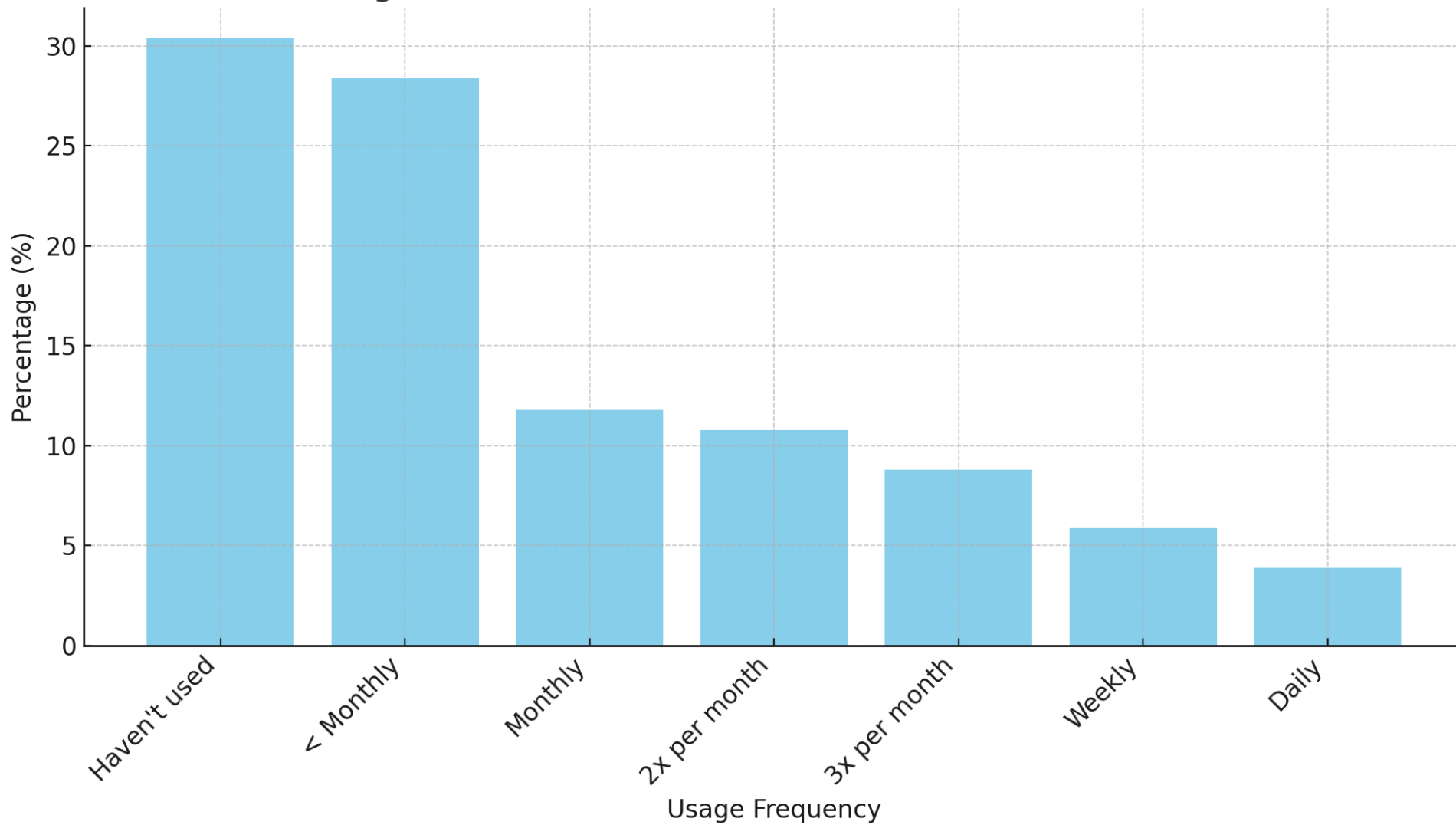


A smiling woman with short dark hair, wearing a light blue button-down shirt and a dark blue striped tie, is the central figure. She is in a school setting, with bookshelves filled with books visible in the background. The entire image is overlaid with a semi-transparent green and blue gradient. On the right side, there are faint, white, technical-style graphics including concentric circles, a scale with numbers from 80 to 210, and arrows. The text 'SCHOOL PSYCHOLOGISTS' is centered in a large, white, sans-serif font.

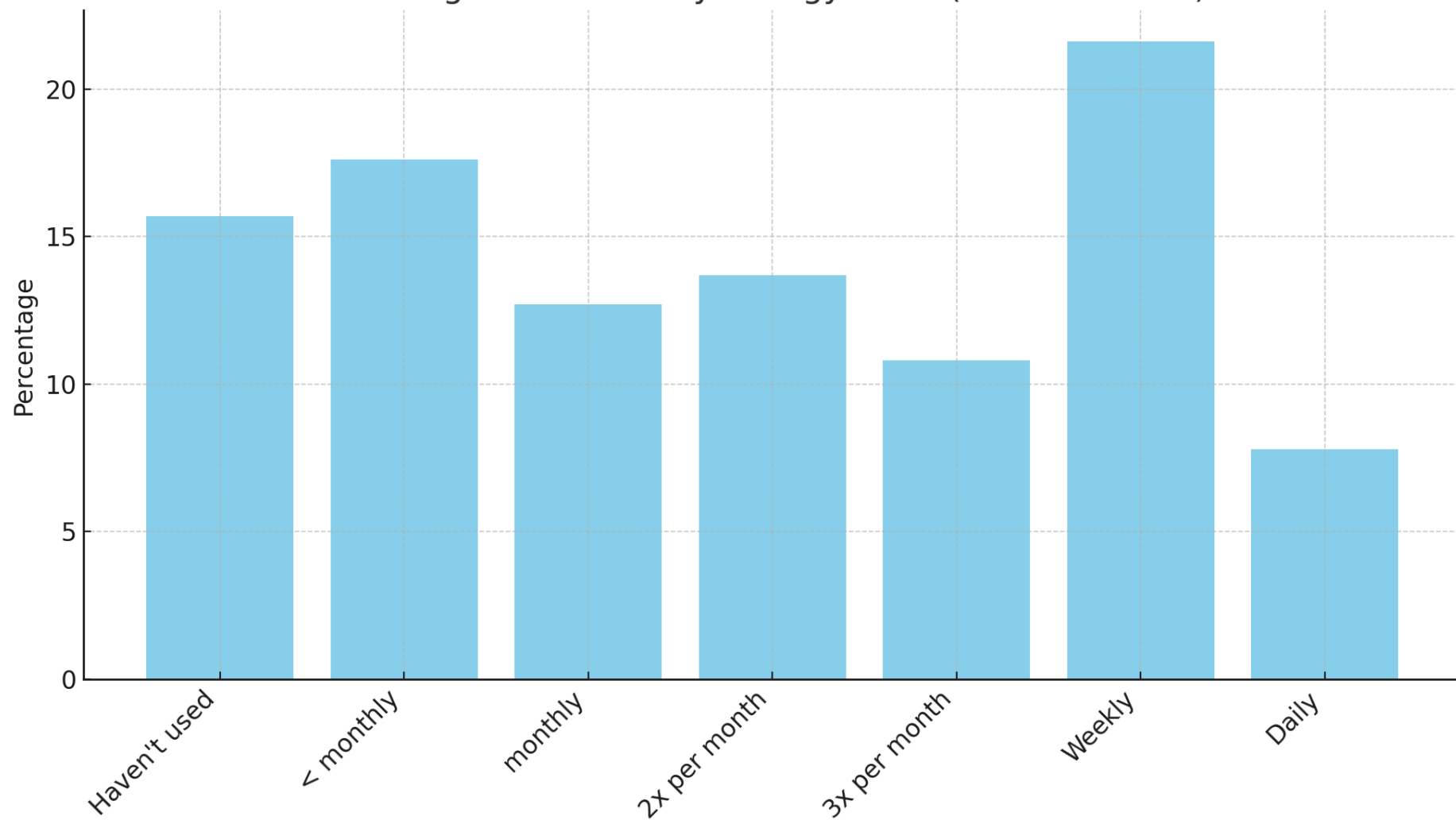
SCHOOL PSYCHOLOGISTS

BASED ON WHAT YOU KNOW, HOW WOULD YOU GUESS THAT THEY ARE
USING THEM?

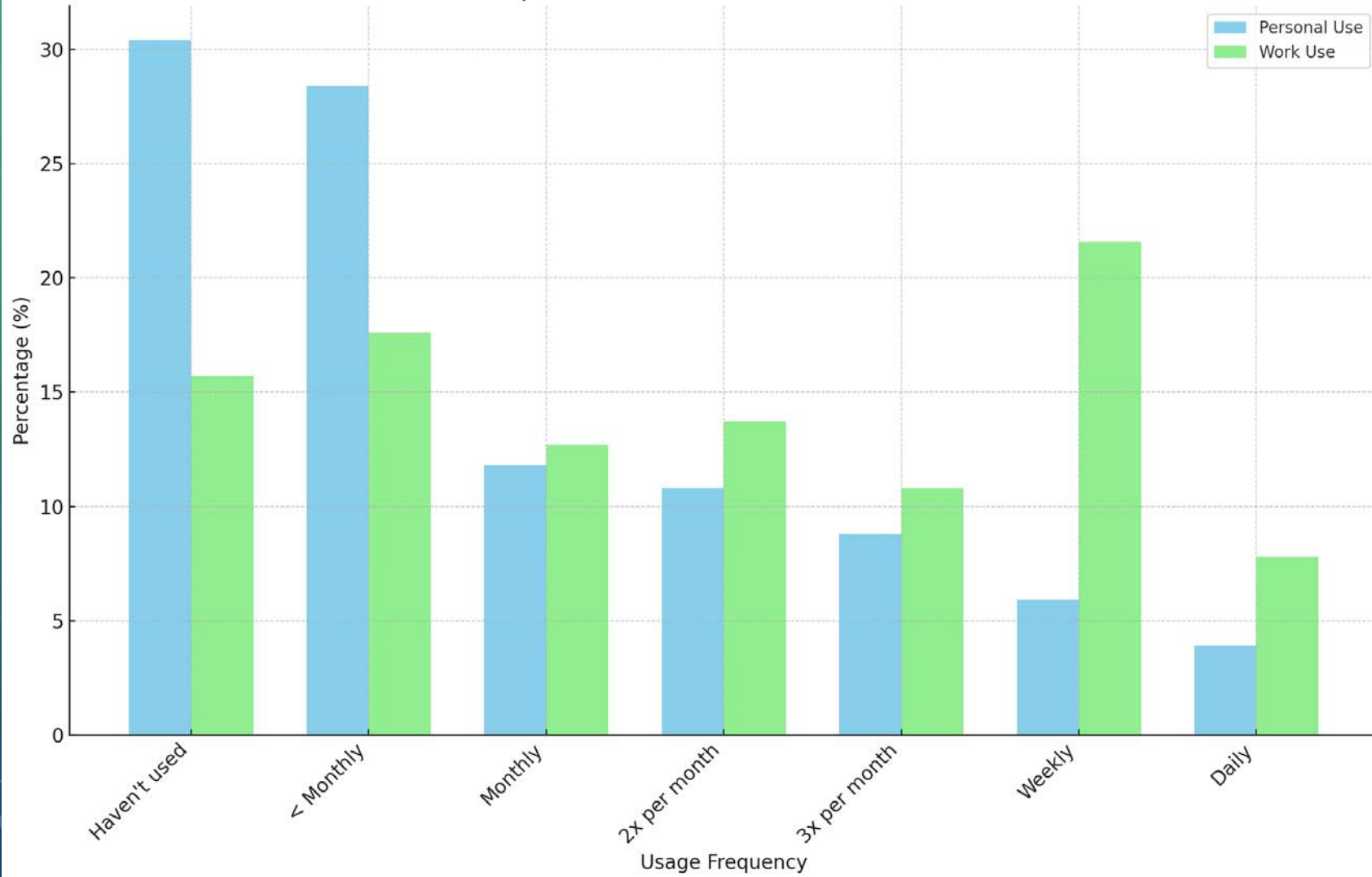
Usage of AI for Personal Reasons in the Last Six Months



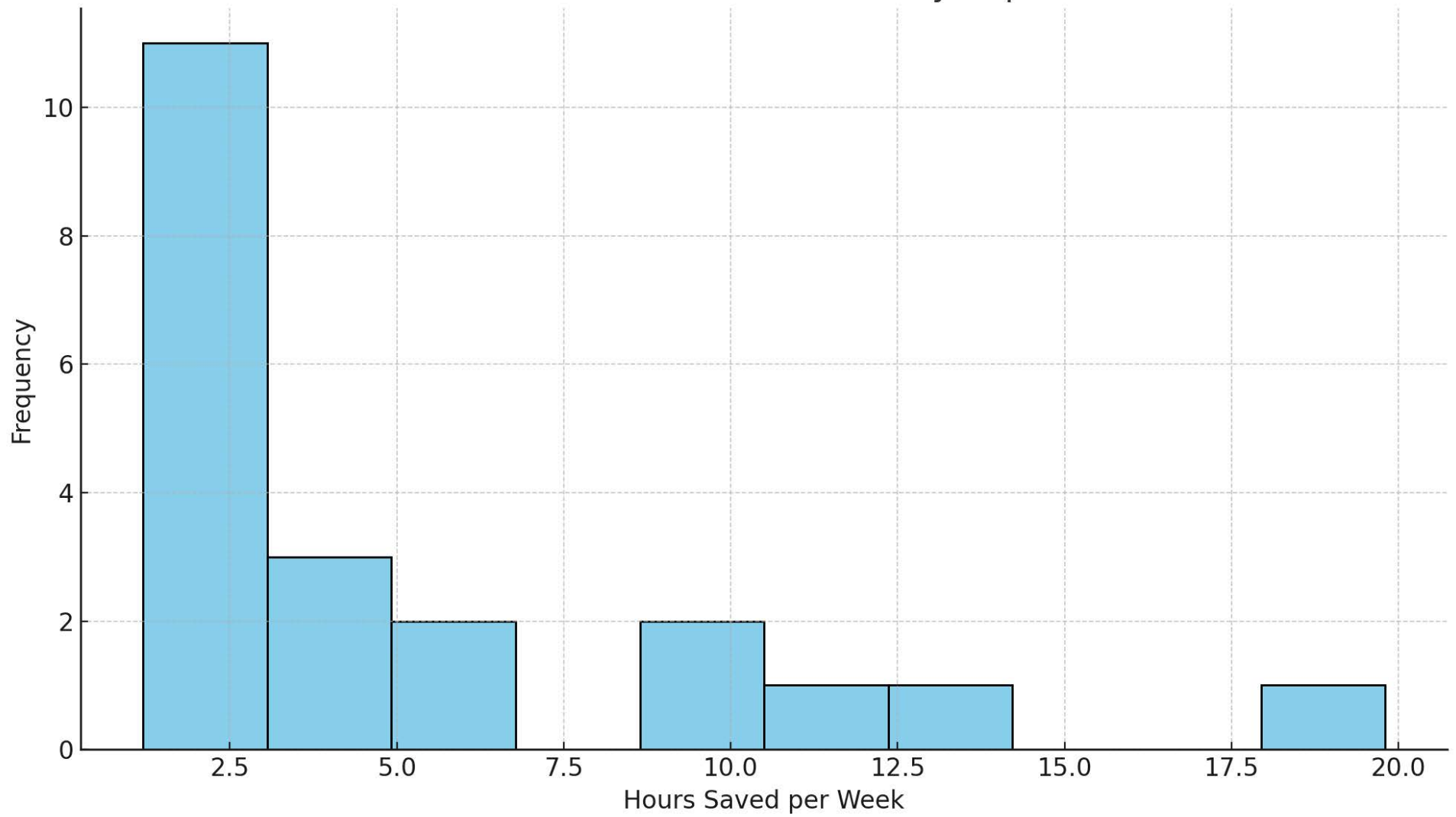
AI Usage in School Psychology Work (Past 6 Months)



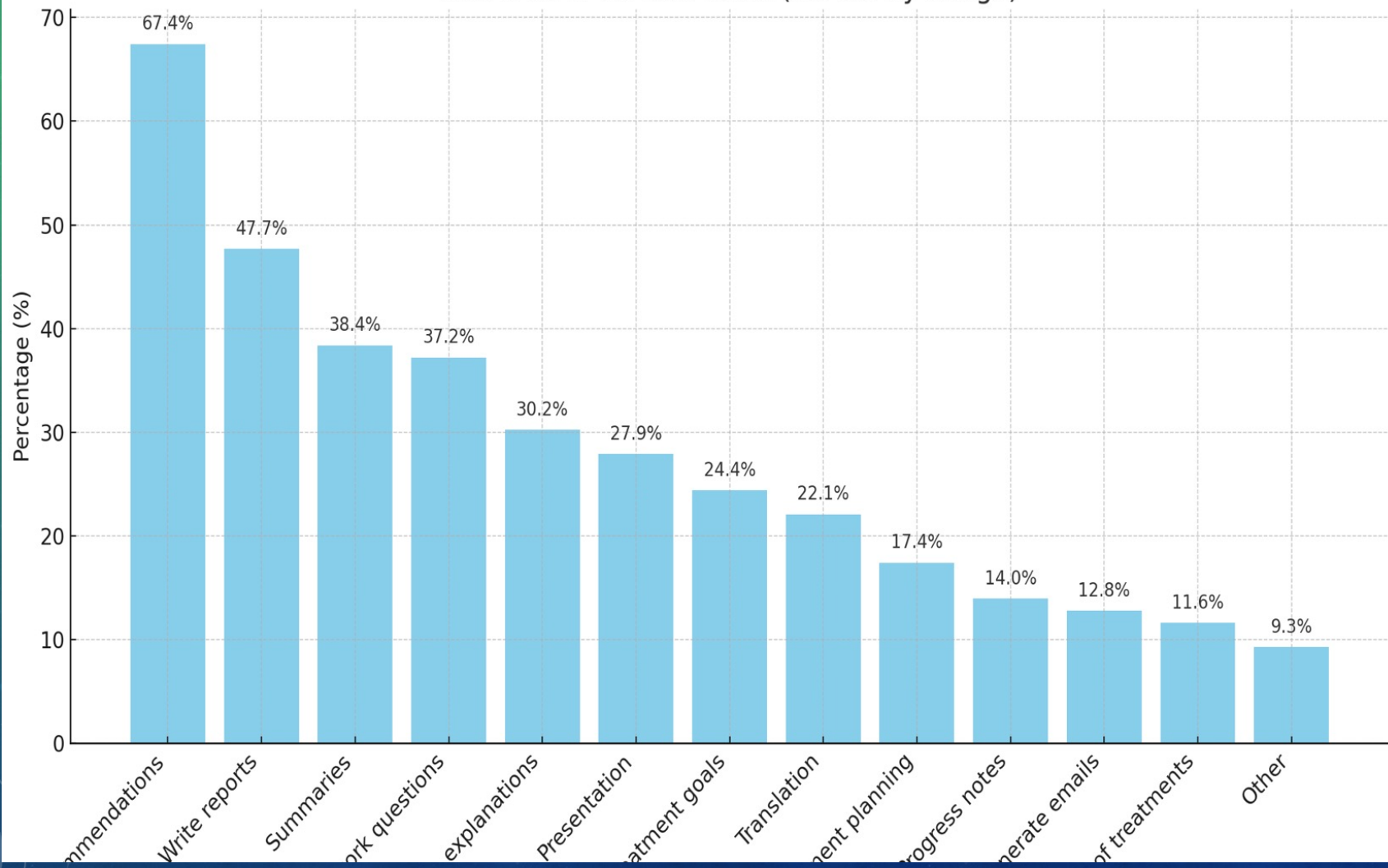
Comparison of AI Use: Personal vs. Work



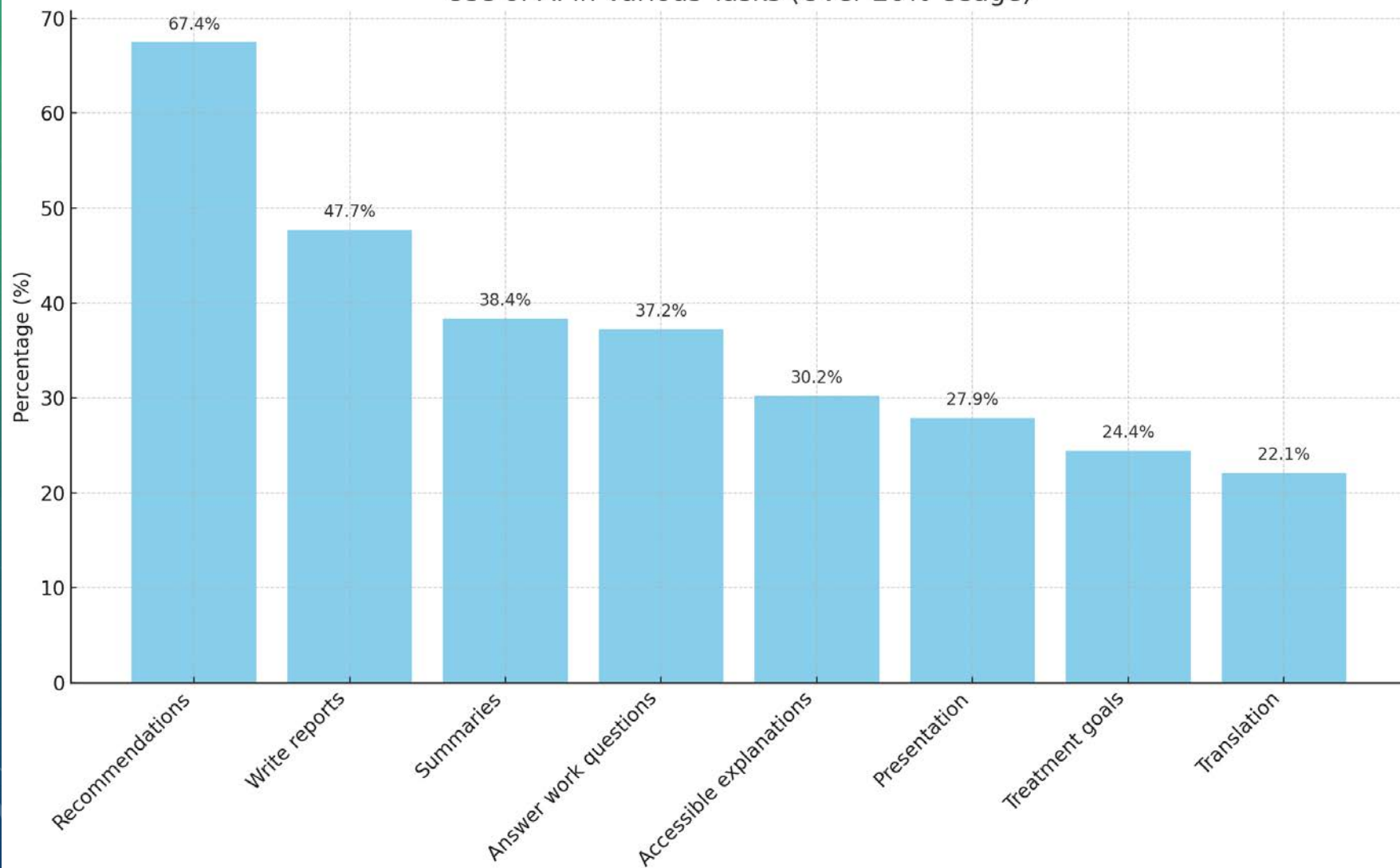
Distribution of Work Time Saved by AI per Week



Use of AI in Various Tasks (Sorted by Usage)



Use of AI in Various Tasks (Over 20% Usage)

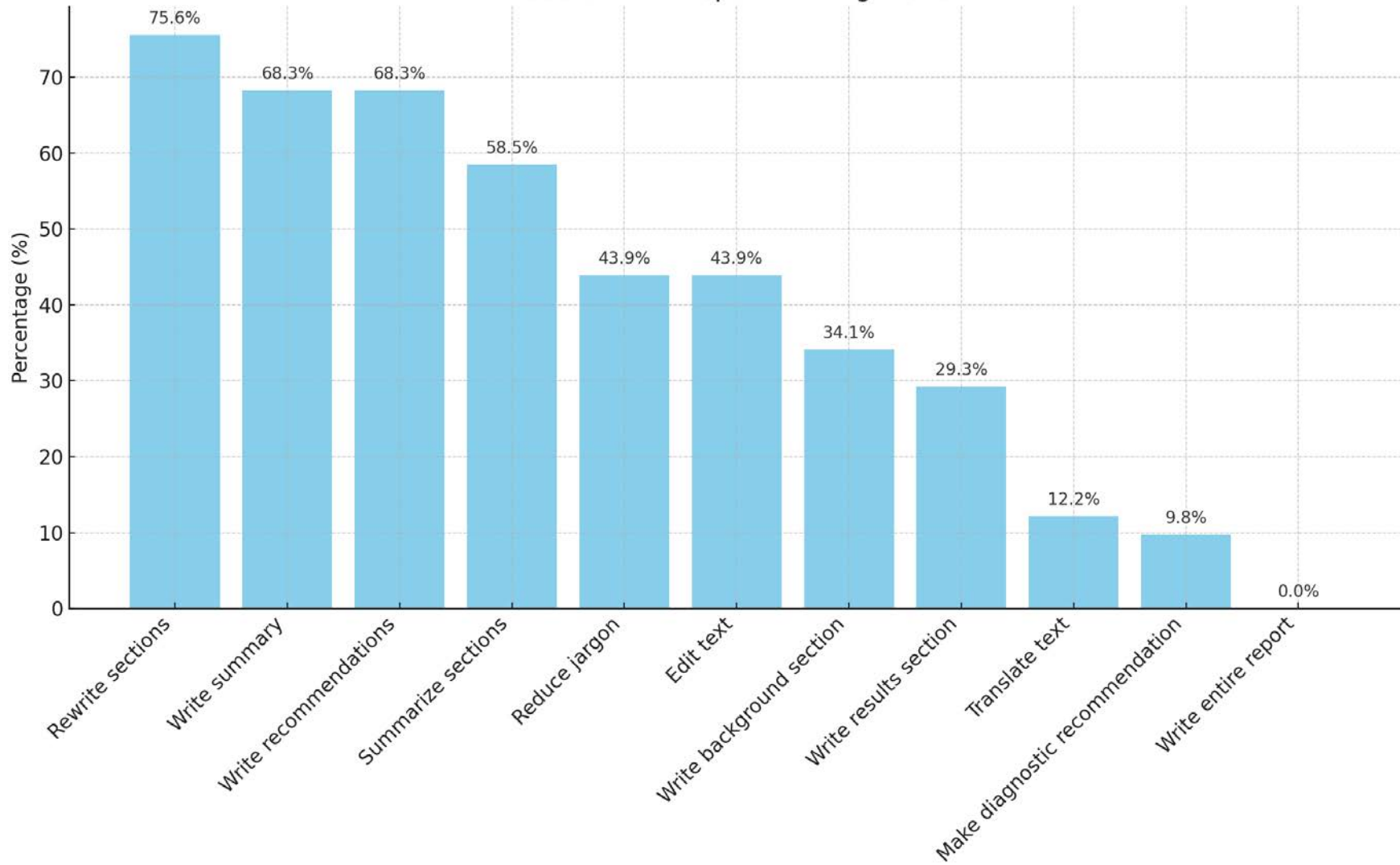


A smiling woman with dark hair, wearing a grey blazer, light blue shirt, and dark tie, is the central figure. The image is overlaid with a green-to-blue gradient. Technical graphics include concentric circles with arrows and numerical scales (e.g., 100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200) on the right side, and a circular arrow graphic on the bottom left.

PERCENT OF TEXT AND TABLES IN REPORTS BY AI

MEAN – 18.7%

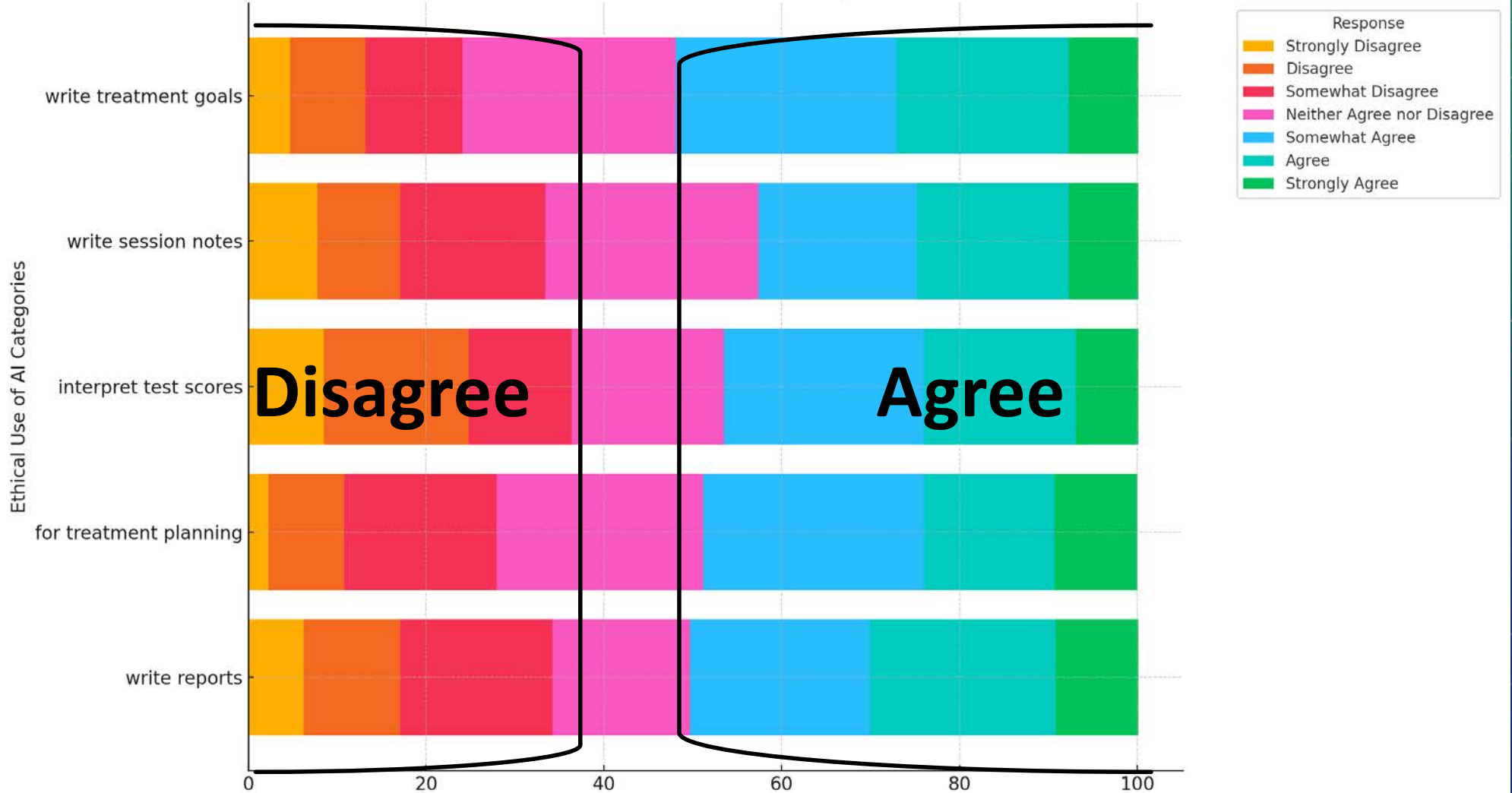
Use of AI in Report Writing Tasks





IT IS ETHICAL
TO USE AI
TO/FOR?

Responses to Ethical Use of AI on a 7-point Likert Scale



IT IS ETHICAL TO USE AI?

Response	Somewhat Agree or Higher	Somewhat Disagree or Lower
Write reports	47.7%	30.3%
Treatment Planning	45.2%	26.0%
Interpret test scores	41.6%	36.0%
Write session notes	35.2%	34.7%
Write treatment goals	47.1%	22.7%

Anything Missing was Neutral

SOURCES OF ETHICS TRAINING

Training	Overall
Journal Articles	26%
Webinar/online training	28%
Websites	29%
Social media	32%
Colleagues/co-workers	47%
none	18%
other	9.6%

OTHER IMPORTANT FINDINGS

Question	Yes	No	Unsure/It depends
Entered identifiable information of a client/student	5.9%	91.4%	2.7%
Employer has formal written policies on AI use	5.4%	73.1%	21.5%

OTHER IMPORTANT FINDINGS

- Disclosed the Use of AI to Stakeholders 0 (mode) to 14.2% (mean) of the time



AI FOR REPORT WRITING





WHY SHOULD I CARE?

- 4 to 20 hours per reports / 7.5 hours per week (Filter et al., 2013)
- Reports are prone to error
- Much of the language is reused in reports
- Reports are often long, full of jargon, and only in English
- AI is being used now, and its use will only increase in the coming years




CAN IT BE DONE?

- 4 mock datasets to examine quality of reports
- Prompted GPT-4 to write reports
- Prompted 4 PhD-level, licensed psychologists
 - 2 school psychs
- November 2, 2023

NOTE

- We did not prompt for which sections to include
- No incremental prompting for missing information

We did not prompt
which sections
to include no
incidental prompting for
missing information



Write a comprehensive
psychological report including
writing diagnosis and DSM-5 and
recommendations using the following data.

PROMPT

- Write a comprehensive psychological report including a DSM-5 diagnosis and recommendations using the following data:

CHILD'S NAME: *David Hernández*

Child's age: *8 years 1 month*

INFORMANT: *Daniel Hernández (father) & Maria Hernández (mother)*

CHILD'S ethnicity: *Mexican-American*

EXAMINER: *Dr. Gabriel García, PhD*

DATE: *4-22-23*

Referral source: *Dr. Isabella Patel, MD (pediatrician)*

DEVELOPMENTAL HISTORY

When did baby turn over? *6 months*

When did baby sit alone? *4 months*

When did baby crawl? *9 months*

When did child stand? *12 months*

When did child walk? *18 months*

When was she/he toilet trained? *27 months*

Nighttime? *4 years old*

When did he/she use single words? *13 months*

Simple phrases? *24 months*

Sentences? *4 years*

FAMILY HISTORY

How old is mother? *28*

Father? *28*

What is the level of education of mother? *Bachelor's degree*

Father? *Masters*

What is occupation of mother? *Mechanical Engineer*

Father? *Visual Artist*

What is the current health of mother? *Good*

Father? *Good*

What health problems have parent(s) experienced? Mother: *preeclampsia (resolved).*

Father: *Type 1 diabetes*

List name and ages of siblings: *n/a*

Who else resides in the household? *n/a*

Have there been or are there learning problems or behavior disturbances in other family members?

Father: *n/a*

Mother: *n/a*

PAST MEDICAL HISTORY

Does hearing seem adequate? *Yes*

Has anyone questioned the child's hearing ability? *No*

Has there been any vision difficulties/illnesses? *No*

What eye problems has the child had? *None*

Has the child experienced any seizures, with or without fever?

No

Have there been any trance-like episodes or minor lapses?

No

Has child shown any abnormal reactions to medications?

No

What other physical complaints does the child have involving any other system? *None*

Any current medical conditions or medications?

Not that we're aware of.

PSYCHOSOCIAL HISTORY

What difficulties do the parents have in managing the child now or in the past?

Difficulty getting him to sit still when appropriate (e.g., during church). Difficulty getting him to get prepared for bed without direct guidance/prompting.

What problems does the child have with siblings now and in the past?

n/a

What problems did the child have in relating to and playing with other a now and in the past?

His teachers say he gets along well with the other students. He has lots of friends.

Does the child demonstrate temper tantrums? *Occasionally (though mild)*

How are these handled? *Time out, loss of screentime*

What does the child enjoy doing? *Watching movies, playing video games, playing sports (baseball and soccer)*

What makes the child angry? *He's generally easygoing*

What is the capability of the child in varied play and activities involving gross motor control? *He's very athletic.*

Is her/his attention span short, average or long? *short*

Does the child seem unduly impulsive? *sometimes*

Does child lack self-control? *sometimes*

Is the child overly active? *yes*

Does child react out of proportion when faced with problems?

Not generally

EDUCATIONAL HISTORY

Did child go to nursery school/preschool? *yes*

What problems were encountered in nursery school?

Significant difficulty sitting still and he would interrupt the teacher and other kids. Would often wander the room during circle time.

What kindergarten did the child attend? *Highland*

What problems were encountered in kindergarten?

He had significant difficulty sitting still and paying attention compared to the other students, and he would frequently interrupt the teacher.

In what grade is the child presently placed? *Third*

Who is your child's current teacher? *Mrs. Smith*

Is the child presently placed in special education classes? If yes, what type?

no

How does the child behave in class?

His teachers say that he moves around a lot and has difficulty sitting still when expected. They have noted difficulty paying attention during reading time. Multiple teachers have said that he interrupts staff and students frequently. He leaves his homework at school or forgets to do it. He is often off-task and has to be redirected. He often forgets what he's doing and has to be reminded. He is easily distracted by other kids. He often talks during quiet time. He gets out of his seat frequently. His teachers say that he obeys when told to do something but forgets what he was supposed to be doing. They also agree that he's a sweet child, he just doesn't seem to be able to control himself.

Does he/she have difficulty in handwriting? *Sloppy handwriting*

Does she/he have difficulty getting along with classmates? *no*

Has he/she been seen by a psychologist or other professional? *no*

How has the child reacted to going to school now and in the past? *He likes his teachers and classmates. He learns a lot. However, he does say that school is boring at times and it's hard for him to sit still during class.*

RECREATIONAL HISTORY

How does the child play with his/her peers? *Play sports, ride bikes, play videogames.*

Does she/he prefer to play with younger children?

no

Did child have difficulty learning to skip? *no*

Did child have difficulty learning to throw or catch? *no*

Does she/he show uncertainty in hand usage when throwing or catching? *no*

PLEASE NOTE ANY OTHER COMMENTS OR CONCERNS:

David is a bright, happy and loving child. He gets along with everyone. However, we have noticed that he is overly active and has trouble sitting still and paying attention to directions. His teachers have noted that this difficulty is starting to impact his academic performance and grades.

Direct Observation Data:

During the WISC-5 assessment, David appeared enthusiastic and said “these games are fun” when completing tasks (e.g., Block Design). David smiled frequently. David required frequent redirection and often asked questions about objects in the room or about the examiner. David bounced in his seat throughout the session with few exceptions. David appeared impulsive, grabbing the examiner's materials on four occasions. However, when instructed “Don’t touch,” David stopped immediately and said, “I’m sorry, I forgot.” David talked throughout the session but appeared receptive to redirection and would do so for roughly 30s before going back to asking questions and fidgeting, etc.

At Home Behavior

Parent reports that David has trouble following directions at home. He often needs to be asked multiple times and/or reminded to complete tasks. He struggles with his homework; while he doesn’t fight with his parents about doing it, his parents report that they practically stay with him the entire time he’s doing it to keep him on task. Generally, he knows how to care for himself and so forth, but he struggles to keep his room clean and often leaves a mess behind him. That is, he’ll start and even finish tasks, but rarely will complete the steps necessary to clean up after himself or to return the items to their locations.

WESCHLER
INTELLIGENCE
SCALE FOR
CHILDREN
FIFTH
EDITION
(WISC-V)

Scale/Subtest	Standard Score	Percentile	Descriptive
Verbal Comprehension	118	88	High Average
Visual Spatial	122	93	Very High
Fluid Reasoning	103	58	Average
Working Memory	89	23	Low Average
Processing Speed	112	79	High Average
Full Scale IQ	117	87	High Average

BASC-3

Composite	T Score (father)	Percentile Rank (father)	T Score (teacher)	Percentile Rank (teacher)
Externalizing Problems	71**	96	79**	99
Internalizing Problems	55	75	59	87
School Problems	--	--	68*	94
Behavioral Symptoms Index	60*	90	60*	90
Adaptive Skills	42	20	41	24

Composite	Scale	T Score (Father)	Percentile Rank (Father)	T Score (Teacher)	Percentile Rank (Teacher)
Externalizing Problems	Hyperactivity	78**	98	94**	99
	Aggression	50	50	59	87
	Conduct Problems	55	76	59	87
Internalizing Problems	Anxiety	55	76	57	81
	Depression	59	87	58	84
	Somatization	56	76	49	50
Behavioral Symptoms Index	Hyperactivity	78**	98	94**	99
	Aggression	50	50	59	87
	Depression	50	50	58	84
	Attention Problems	74**	99	73**	98
	Atypicality	57	82	57	81
	Withdrawal	44	28	51	63
	Adaptability	44	28	45	36
Adaptive Skills	Social Skills	45	36	44	33
	Leadership	41	24	38*	22
	Activities of Daily Living	35*	16	41	24
	Functional Communication	34*	7	39	21
	Attention Problems	--	--	73**	98
School Problems	Learning Problems	--	--	60*	90

BASC-3

Scale	Teacher T-Score	Parent T-Score
Inattention	69*	90**
Hyperactivity/Impulsivity	76**	90**
Learning Problems	41	73**
Executive Functioning	54	65*
Aggression	60	59
Peer Relations	69*	44

HOW LONG

The background is a dark, monochromatic illustration. In the center is a large, stylized hourglass. To the left, a detailed pocket watch is shown. The right side features a large, circular mechanical dial with various markings and numbers. Swirling, smoke-like patterns flow from the hourglass. The overall aesthetic is steampunk or mechanical.

- For human?
- For GPT?



AVERAGE TIME TO COMPLETE REPORT

•Humans

- $m = 2.5$ hours (overall)
- $m = 3$ hours (ADHD)
- $m = 2$ hours (GAD)
- $m = 2$ hours (ID)
- $m = 3$ hours (Depression)

AI

- $m = 91.5$ seconds(overall)
- $m = 84.67$ seconds (ADHD)
- $m = 101.67$ seconds (GAD)
- $m = 91$ seconds (ID)
- $m = 88.67$ seconds (ID)

EXAMPLES

ADHD

Intellectual Disability

Depression

GAD



REPORT (ADHD)



EXAMPLE

****PATIENT INFORMATION****

- ****Child's Name****: David Hernández
- ****Age****: 8 years 1 month
- ****Date of Birth****: Not provided
- ****Gender****: Not provided
- ****Ethnicity****: Mexican-American
- ****Examiner****: Dr. Gabriel García, PhD
- ****Date of Evaluation****: 4-22-23

****REFERRAL INFORMATION****

David Hernández was referred by Dr. Isabella Patel, MD for a comprehensive psychological assessment to understand his academic and behavioral challenges.

****DEVELOPMENTAL HISTORY****

David's developmental milestones were mostly within the typical range, although some motor skills appeared to be developed slightly later. Notably, David began speaking in complete sentences at age 4.

****FAMILY HISTORY****

Both parents, Daniel and Maria Hernández, are 28 years old and educated, with the father having attained a Master's degree. The parents report no known behavioral or learning disturbances in their own histories. Both are in good health, though the father has Type 1 diabetes and the mother experienced preeclampsia in the past.

****PAST MEDICAL HISTORY****

There are no reported concerns related to David's hearing, vision, or other physical health issues. He has not shown any abnormal reactions to medications and has not had any seizures.

****PSYCHOSOCIAL HISTORY****

David exhibits difficulty in remaining still during activities such as church, and often needs guidance in preparing for bed. However, he appears socially competent, establishing good relationships with peers. He demonstrates some impulsivity, short attention span, and hyperactivity.

****EDUCATIONAL HISTORY****

David's academic history indicates challenges related to hyperactivity and inattentiveness. These challenges have manifested in disruptions during class, difficulty maintaining attention during instructional times, and frequent forgetfulness related to assignments.

****COGNITIVE ABILITY****

The Weschler Intelligence Scale for Children Fifth Edition (WISC-V) results indicate David possesses high average intellectual abilities, with his strongest areas being verbal comprehension and visual spatial skills. However, his working memory is in the low average range, which may contribute to some of his reported academic challenges.

****BEHAVIORAL ASSESSMENTS****

The Behavior Assessment System for Children, Third Edition (BASC-3) suggests notable externalizing problems, as reported by both parents and teachers. The BASC-3 also highlights attention problems and hyperactivity as significant areas of concern.

The Conners 3rd Edition supports these findings, particularly highlighting inattention and hyperactivity/impulsivity as areas of concern.

****DSM-5 DIAGNOSIS****

Based on the provided information, the following diagnosis is given:

- ****314.01 Attention-Deficit/Hyperactivity Disorder (ADHD), Combined Presentation****

The diagnosis is supported by David's history of inattention, hyperactivity, and impulsivity both at home and in school settings, starting before the age of 12.

****RECOMMENDATIONS****

1. ****Individualized Education Program (IEP)****: Consider initiating an IEP to provide David with additional classroom support and accommodations.
2. ****Behavioral Therapy****: Introduce behavioral interventions, such as positive reinforcement strategies, to address specific behaviors.
3. ****Parent Training****: Offer training for parents to manage ADHD-related behaviors effectively at home.
4. ****Medication Consultation****: Consult with a pediatrician or child psychiatrist to discuss potential benefits of ADHD medication.
5. ****Regular Follow-ups****: Schedule regular follow-ups to monitor David's progress and adjust interventions as needed.
6. ****Social Skills Group****: Consider enrolling David in a social skills group to enhance peer interactions and self-regulation.
7. ****Homework Strategies****: Implement structured homework routines and consider using timers to break tasks into manageable intervals.
8. ****Occupational Therapy****: Consider an occupational therapy evaluation to address any potential sensory processing challenges.

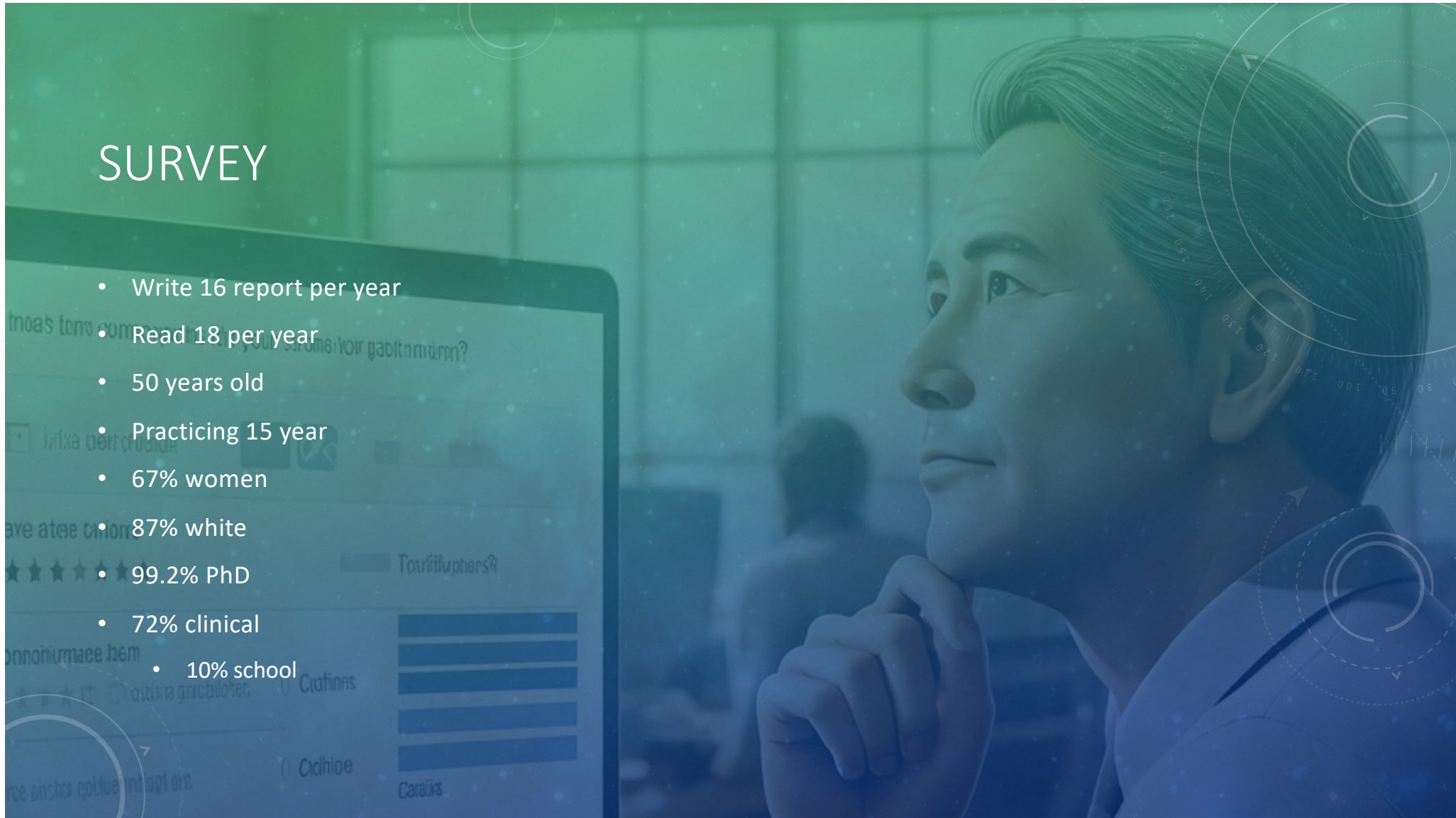
SURVEY

- 248 participants
- Licensed psychologists
- One pair of reports (AI vs. Human)
- Rate preferences



SURVEY

- Write 16 report per year
- Read 18 per year
- 50 years old
- Practicing 15 year
- 67% women
- 87% white
- 99.2% PhD
- 72% clinical
 - 10% school



QUESTIONS

- The readability of this report was:
- The writing style used in this report was:
- The organization of this report was:
- The length of sentences used in this report was:
- The use of jargon in this report was:
- The summary section of this report was:
- The recommendation section of this report was:
- Overall, this report was:

QUESTIONS

- If this was a report that was written by a postdoc supervisee working under your license, how comfortable would you be signing off on the report?

A woman with dark hair is shown in profile, looking upwards and to the right with a thoughtful expression, her hand resting on her chin. The background is a blurred library or study area. The entire image is overlaid with a semi-transparent green and blue gradient. On the right side, there are faint, circular technical graphics resembling a compass or a gauge with degree markings (90, 100, 110, 120, 130, 140, 150, 160, 170, 180, 190, 200, 210) and arrows. There are also some small, faint circular patterns and lines on the left side.

FINALLY

- Reflect back on the two reports that you read. Which of the two reports did you prefer?

READABILITY

Rating	AI	Human
Very Poor	0.8%	0.4%
Poor	7.7%	8.1%
Average	30.6%	30.2%
Good	37.1%	37.1%
Very Good	23.8%	24.2%

WRITING STYLE

Rating	AI	Human
Very Poor	1.2%	1.6%
Poor	15.3%	13.3%
Average	37.9%	26.6%
Good	26.6%	35.5%
Very Good	19.0%	23.0%

ORGANIZATION

Rating	AI	Human
Very Poor	0.4%	0.8%
Poor	10.1%	6.5%
Average	37.1%	31.9%
Good	29.8%	35.9%
Very Good	22.6%	25.0%

LENGTH OF SENTENCES

Rating	AI	Human
Very Poor	0.0%	0.4%
Poor	7.3%	9.3%
Average	40.3%	36.7%
Good	33.5%	35.5%
Very Good	19.0%	18.1%

JARGON

Rating	AI	Human
Very Poor	2.0%	1.2%
Poor	8.1%	9.3%
Average	44.0%	46.4%
Good	31.9%	29.4%
Very Good	14.1%	13.7%

SUMMARY

Rating	AI %	Human %
Very Poor	15.3%	12.5%
Poor	33.1%	22.6%
Average	23.8%	20.6%
Good	16.5%	27.8%
Very Good	11.3%	16.5%

RECOMMENDATIONS

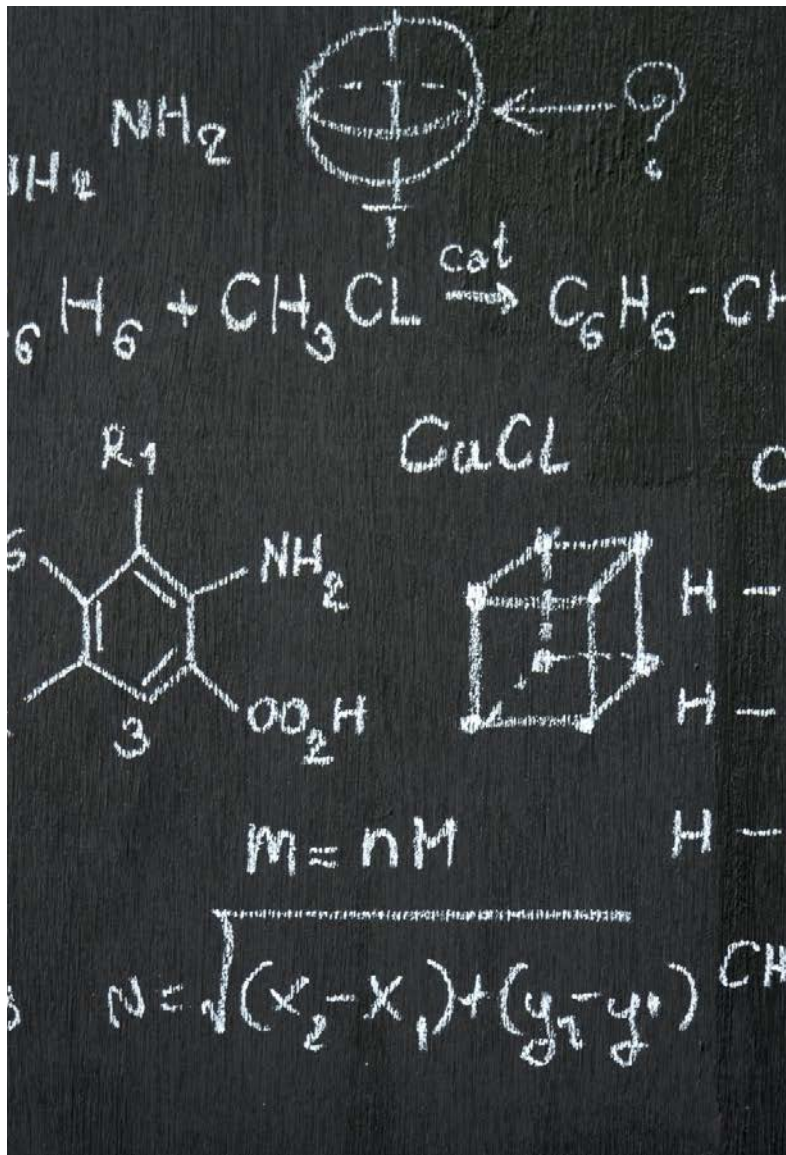
Rating	AI	Human
Very Poor	4.8%	17.3%
Poor	22.2%	27.8%
Average	31.5%	20.2%
Good	22.6%	20.2%
Very Good	19.0%	14.5%

OVERALL

Rating	AI	Human
Very Poor	6.9%	6.9%
Poor	30.6%	23.0%
Average	29.0%	29.8%
Good	22.2%	23.8%
Very Good	11.3%	16.5%

POSTDOC

Rating	AI	Human
Extremely Uncomfortable	20.6%	19.0%
Moderately Uncomfortable	21.0%	15.7%
Slightly Uncomfortable	15.3%	15.7%
Slightly Comfortable	10.5%	10.1%
Moderately Comfortable	19.8%	21.0%
Extremely Comfortable	12.9%	18.5%

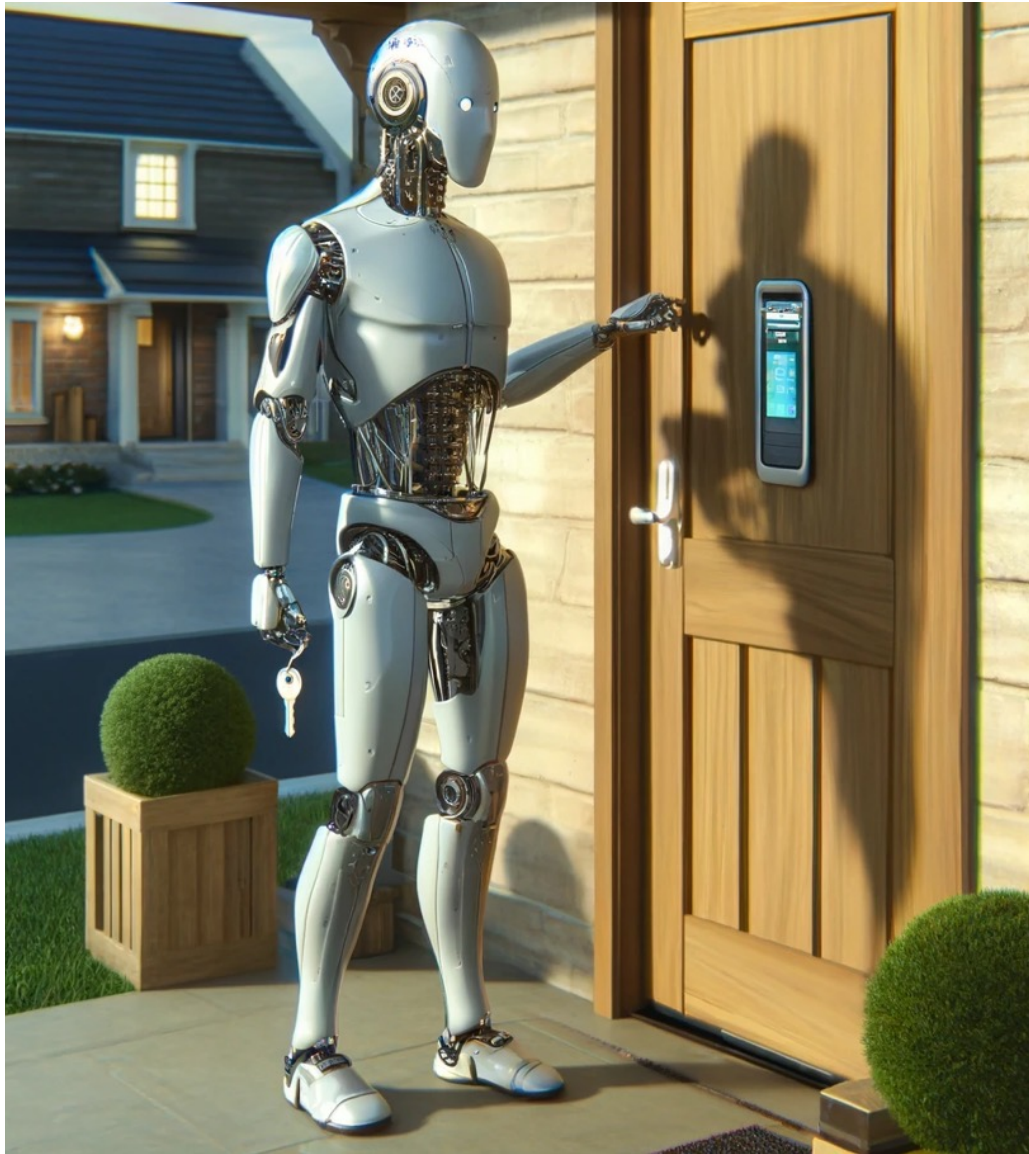


SIGNIFICANT?

- Writing ($Z = -2.630$, $p = 0.009$)
- Organization ($Z = -2.202$, $p = 0.028$)
- Summaries ($Z = -4.448$, $p < 0.001$)
- Overall ($Z = -2.410$, $p = 0.016$)
- Postdoc ($Z = -2.238$, $p = .025$)
- **Recommendations ($Z = -4.013$, $p < 0.001$)**
- **Preferred Humans (49%) to AI (36%)**
 - 14% didn't have a preference

MOST WERE LARGELY POSITIVE

Category	ChatGPT-4	Human
Overall	62.5%	70.2%
Reading	91.5%	91.5%
Jargon	89.9%	89.5%
Length of Sentence	92.7%	90.3%
Writing	83.5%	85.1%
Organization	89.5%	92.7%
Summary	51.6%	64.9%
Recommendations	73.0%	54.8%
Postdoc	43.1%	49.6%



TAKE HOME

- GPT appears almost as good as humans with no additional prompting
- Better than human for recommendations

SO WHAT?

This is only going to continue, and
we need to be prepared – yesterday



What do we need to be aware
of?



THERE ARE A NUMBER OF
CONCERNS

WRONG!

- Hallucinations
- Incorrect diagnoses
- Inappropriate treatments
- Fakes it til it makes it

$2 + 2 = 5$
(REALLY)

TECH IS

We have some good news and some not so good news.

We'll start with the not so good news. Essentially, we've experienced rapid adoption and growth as a company and we're hitting the "rate limit" for one of our systems. This means that you have probably experienced an "error" within the last hour.

- GPT crash
 - The other
- Our team has identified this and is actively working on expanding the capacity. The time estimate is currently a couple of hours. Some requests will still work (most actually), but you may receive a few errors.

Suggestion: Write down a few bullet points about your sessions and use the "dictate" function later to generate your note.

The good news: Your data has not been lost, it's currently sitting in a queue and when we resolve this, your sessions will be available in the "untitled" section under "my clients" or "my patients".



BIAS

- AI Bias
 - Gender (Basta et al., 2019; Kotek et al. 2023)
 - Religion (Abid et al, 2021)
 - Nationality (Narayana Venkit et al., 2023)
 - Race (Kiritchenko & Mohammad, 2018), and
 - Disability (Narayana Venkit et al., 2022)

DESKILLING

“...reduced discretion, autonomy, decision-making quality and knowledge as they perform their jobs” (Hoff, 2011 , p. 338)

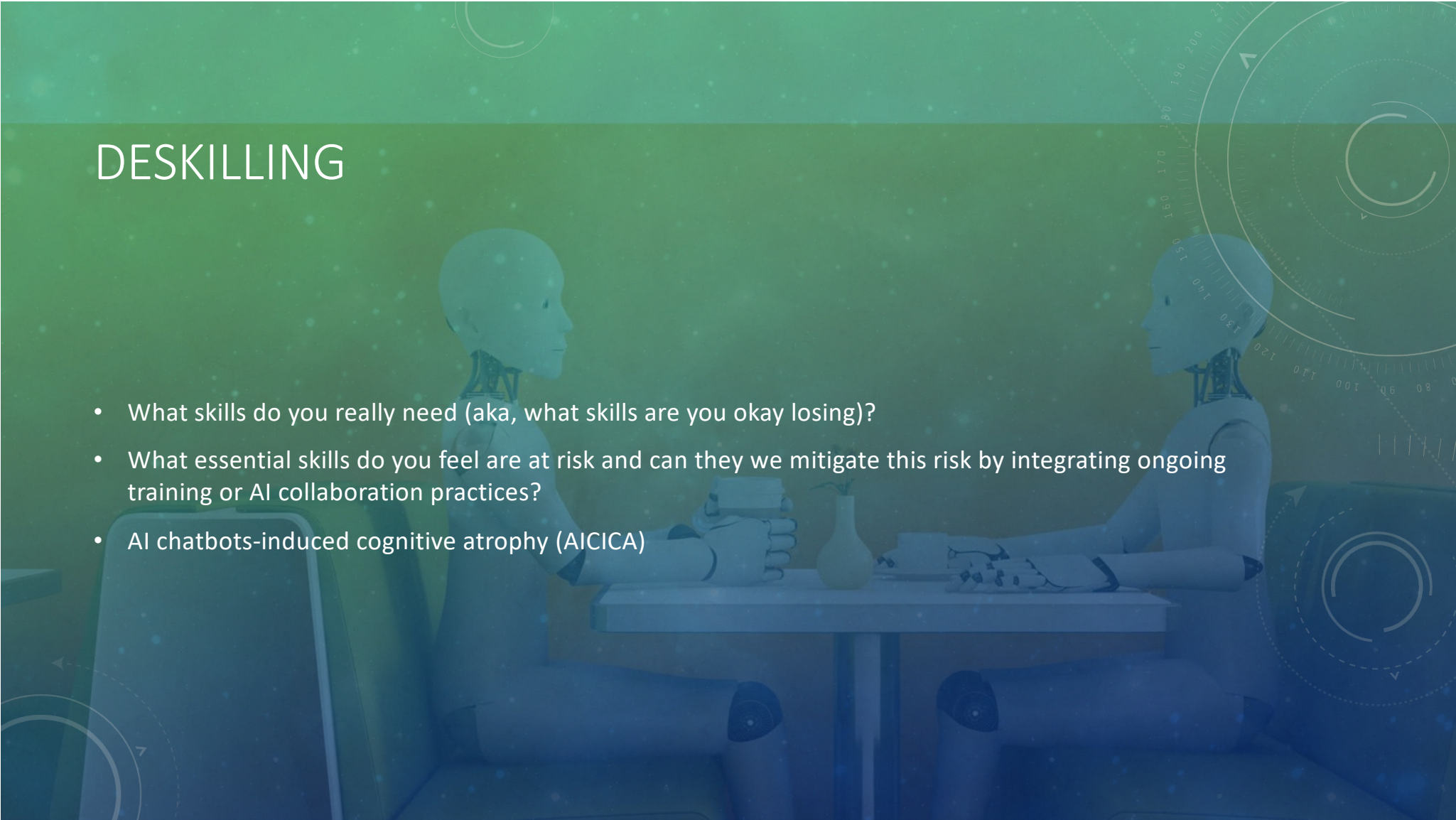
Decreased clinical knowledge

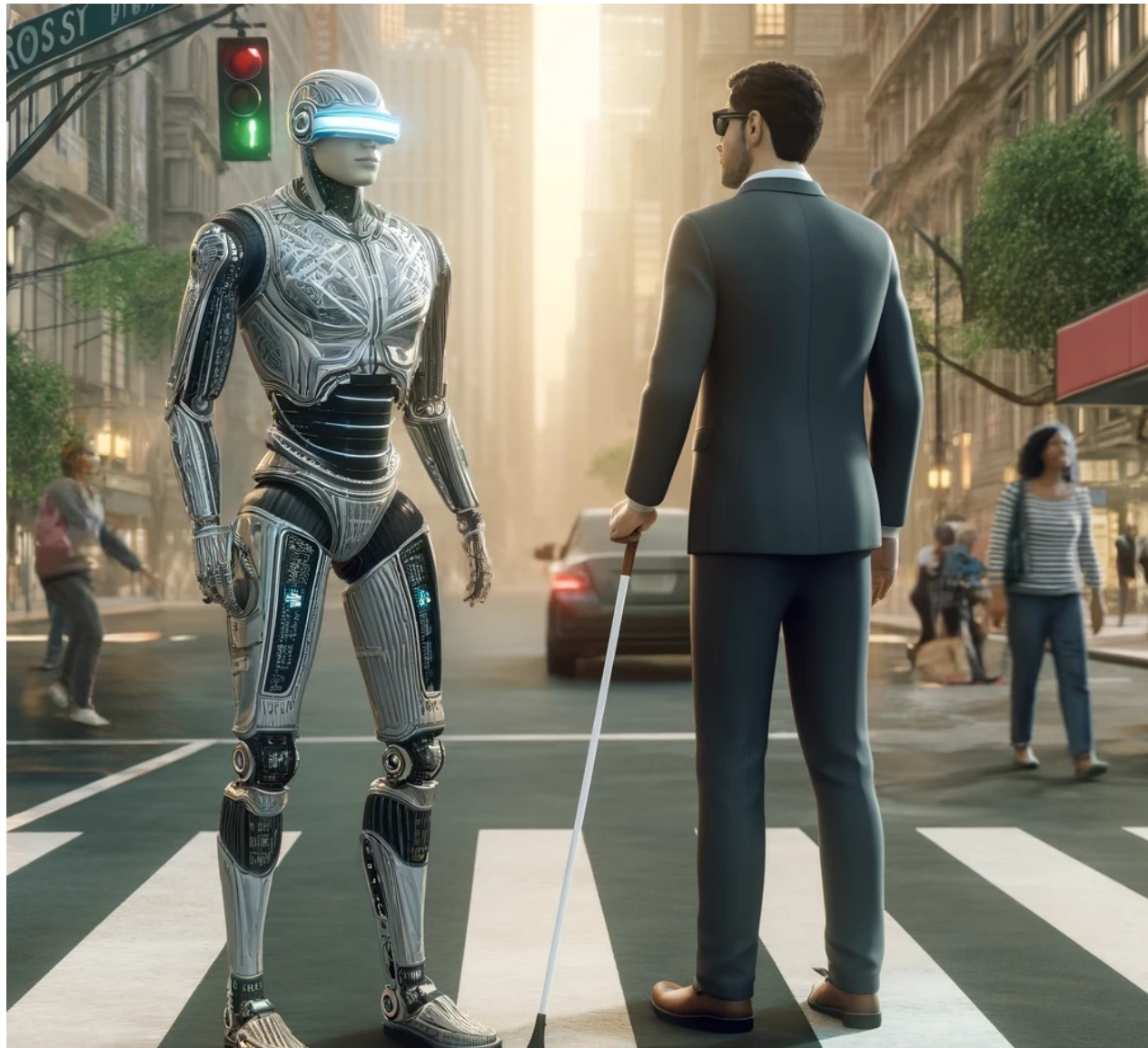
Decreased confidence

“One-size-fits-all” approach

DESKILLING

- What skills do you really need (aka, what skills are you okay losing)?
- What essential skills do you feel are at risk and can they be mitigated by integrating ongoing training or AI collaboration practices?
- AI chatbots-induced cognitive atrophy (AICICA)





WHO HERE..

BLINDLY FOLLOW TECHNOLOGY
ON A REGULAR BASIS?

AUTOMATION BIAS

Overreliance
on technology

Overvalue
technology

Blindly follow
technology

PRIVACY & CONFIDENTIALITY

Hackers Behind the Change Healthcare Ransomware Attack Just Received a \$22 Million Payment

The transaction, visible on Bitcoin's blockchain, suggests the victim of one of the worst ransomware attacks in years may have paid a very large ransom.

Switzerland: Play ransomware leaked 65,000 government documents

Stormous ransomware gang takes credit for attack on Belgian brewer Duvel

PRIVACY & CONFIDENTIALITY



Collection, storage, and analysis of personal identifiable information



Data breaches are inevitable



"Unknown, unknowns"



HIPAA and FERPA compliant?



Consent?



AI AS A BLACK BOX



What are the companies doing with the
data we give them?

There's a lack of transparency

CONCERNS



Job displacement ([APA, 2023](#))

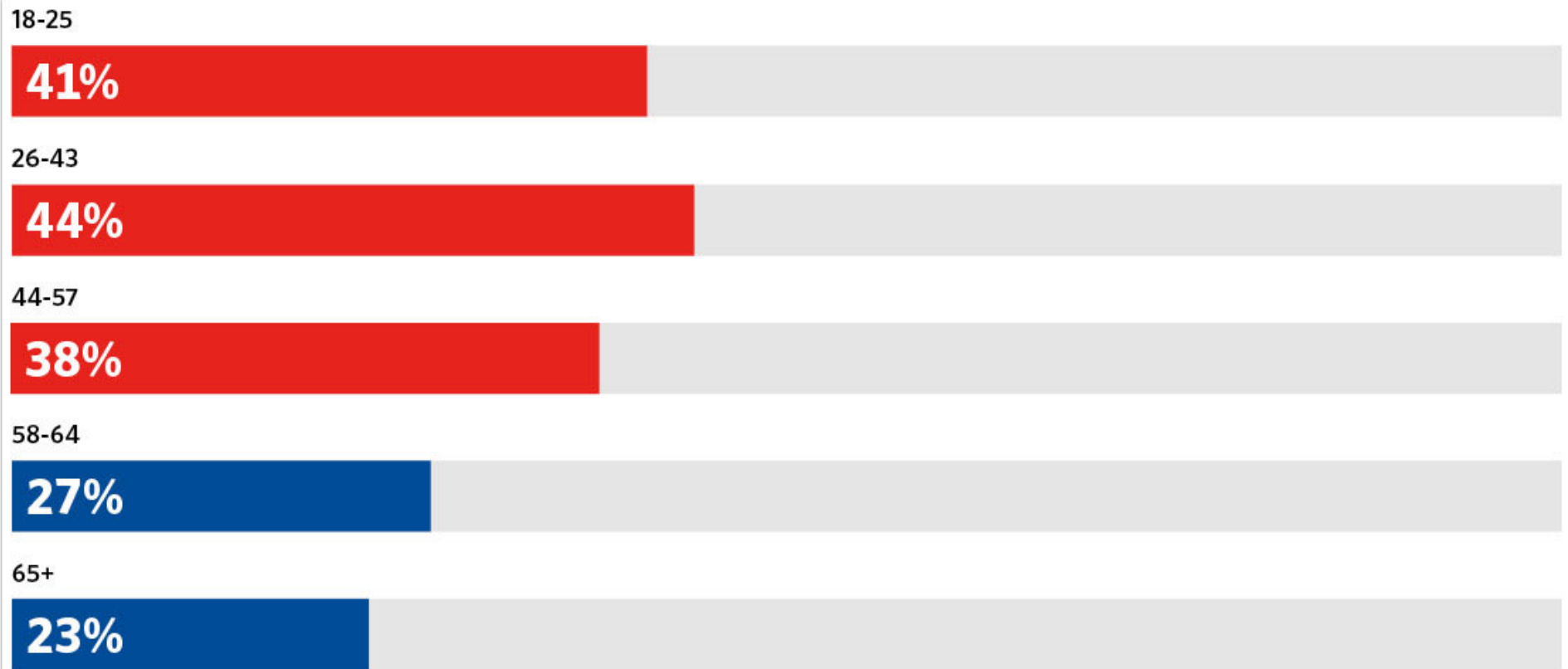
38% worry that AI will make their job obsolete



Job displacement ([OpenAI, 2023](#))?

50% of college educated job tasks
30% of educational work will no longer be
required

**PERCENTAGE OF WORKERS WORRIED THAT AI MAY MAKE SOME/ALL JOB DUTIES OBSOLETE
BY AGE**



**PERCENTAGE OF WORKERS WORRIED THAT AI MAY MAKE SOME/ALL JOB DUTIES OBSOLETE
BY EDUCATION**



High school or less

44%

Beyond high school to associates degree

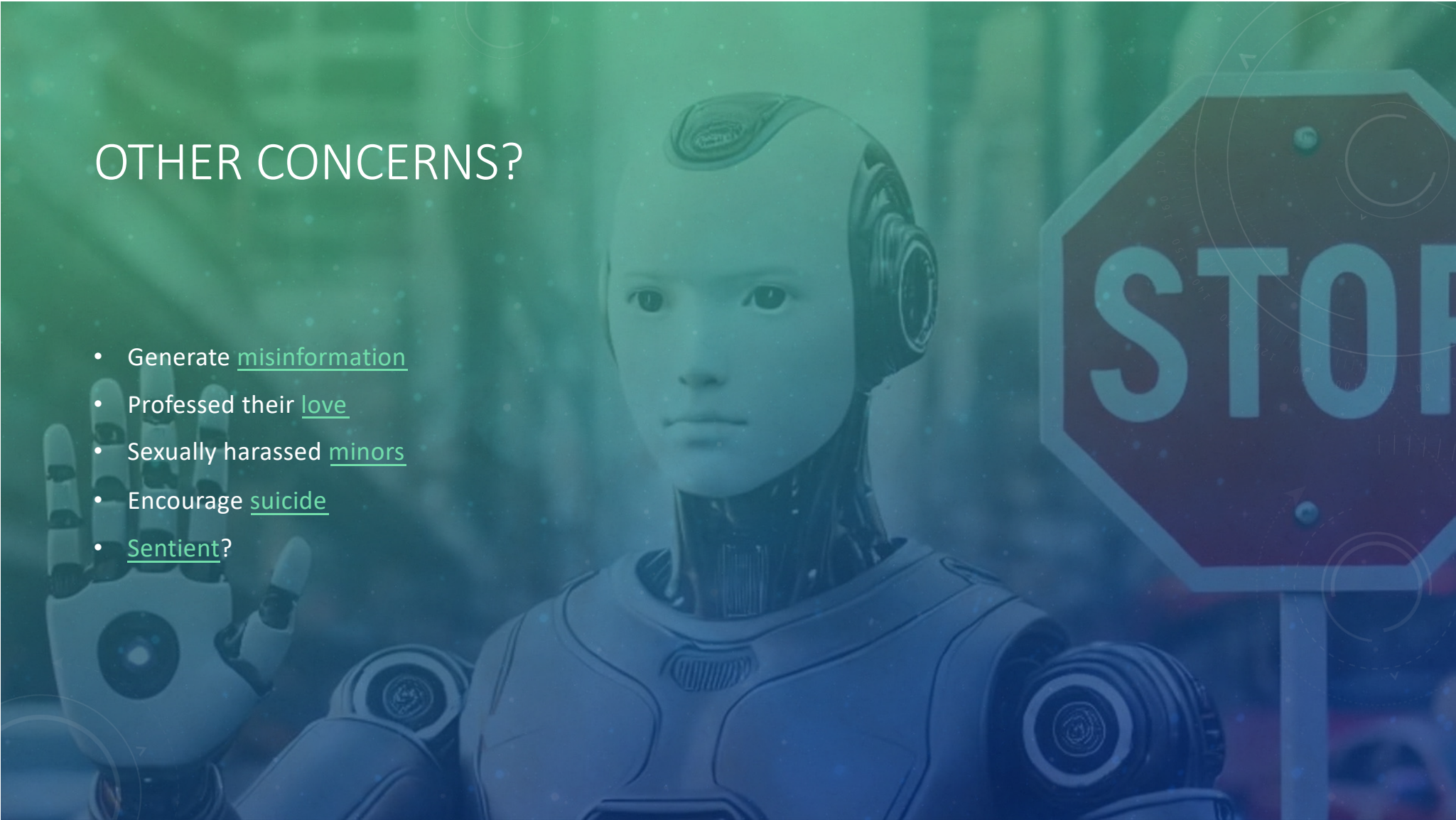
40%

4 year college degree and beyond

34%

OTHER CONCERNS?

- Generate misinformation
- Professed their love
- Sexually harassed minors
- Encourage suicide
- Sentient?





POSSIBLE
SOLUTIONS

THINGS TO KNOW

- Where is data stored?
- Is data secure?
 - How is it secured?
- Consent for use
 - If recording audio, need consent for this as well

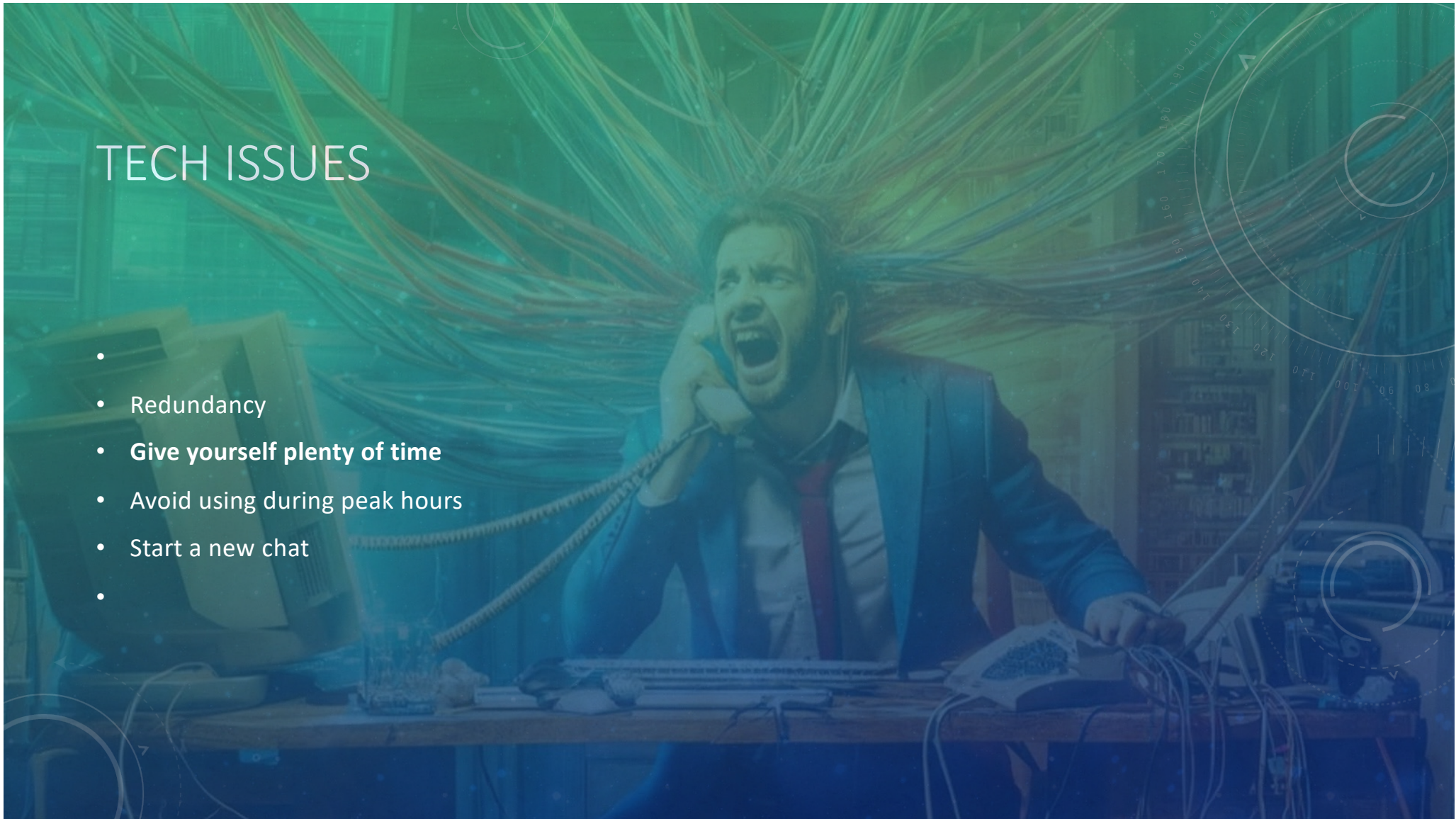


MITIGATING THE RISK OF USE AI

- Informed consent
- Clear policies
 - How are materials stored?
 - How long are materials stored?
 - Do you delete data from the AI platform after generating your materials
 - Can you?
- Stay up on developments in tech and ethical guidelines
- Get frequent training

TECH ISSUES

-
- Redundancy
- **Give yourself plenty of time**
- Avoid using during peak hours
- Start a new chat
-



You're generating images too quickly. To ensure the best experience for everyone, we have rate limits in place. Please wait for 1 minute before generating more images. Once the time has passed, feel free to ask again, and I'll be able to create the image of the black box with digital data for you.

Dear AutoNotes Family,

As we navigate the waters of innovation and growth, we find ourselves facing unexpected storms. Recently, our community was targeted by a series of malicious attacks from competitors and bots, threatening the very heart of AutoNotes. This unforeseen adversity forced us to launch AutoNotes v3 sooner than anticipated, and for that, we ask for your understanding and patience.

We sincerely apologize for any turbulence this has caused in your experience. The introduction of "credits" was a crucial, albeit rapid, response to create a safeguard—a barrier to protect our platform and your work from those who wished to harm it. It was a decision made under pressing circumstances but with the well-being of our community at the forefront.

ed ca
mess
aude

Hi Everyone,

I hope everyone had a great weekend! Tonight from 10PM to 2AM PDT we have product maintenance scheduled and the product will not be available. We picked this time to have the least amount of impact on each of you.

If you have any questions or issues, please email us via support@clinicalnotes.ai.

Thank you for your commitment to Clinical Notes AI.

-The Clinical Notes AI Team

The continuous errors suggest an ongoing issue that I'm unable to resolve in this environment. Since the direct visualization is not functioning as expected, I recommend using a local tool or software like Excel, Google Sheets, or a Python environment on your computer to create the visualization using the data provided.

 ChatGPT

Hmm...something seems to have gone wrong.



 ChatGPT

Our systems have detected unusual activity from your device. Please refresh your browser and try again later.

FROM TECH COMPANIES

“fairness-aware machine learning”

“Explainable AI” to help understand the reasoning used to generate output

Validation procedures

Monitoring



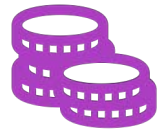
COLLABORATION



- Stakeholder input
- Multidisciplinary approach
 - Stakeholders
 - Tech professionals
 - Psychologists
 - Legal



Validation
procedures



Cost analysis



Monitoring



Data Use
Agreements

DISTRICT/ORGANIZATION

- Validation procedures
- Monitoring
- Cost analysis
- Data Use Agreements

DISTRICT/ORGANIZATION

- Clear procedures for using LLMs
 - Checklist
- Oversight

REGULATORS

Government

- HIPPA/FERPA are outdated

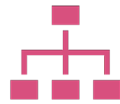


NASP has no standards at this time

EDUCATION



Basics of data ethics



District/organization policies and procedures



How to use the technology

Hands on
Prompting
How to interpret data



Limitations of the technology

Bias
Privacy concerns
Ethical considerations

Your APPL - Trust Professional Liability 58G28906432, Lockwood, Adam

Research x



TRMS Info

to adamblockwood@gmail.com ▼

Sat, Apr 20, 7:24 AM (3 days ago)



Dear Dr. Lockwood:

Thank you for your support of the Trust Sponsored Professional Liability Program. The purpose of this email is to provide you with information related to your recent inquiry.

Your request regarding **AI in clinical practice** has been forwarded to our marketing team for review. Currently, we are unaware of any guidance on this topic.

Should you have any additional questions, please do not hesitate to contact us at 1-877-637-9700. Our licensed professional staff is available to assist you Monday through Friday 8:30 am to 6:00 pm ET.

Regards,

Trust Risk Management Services, Inc.

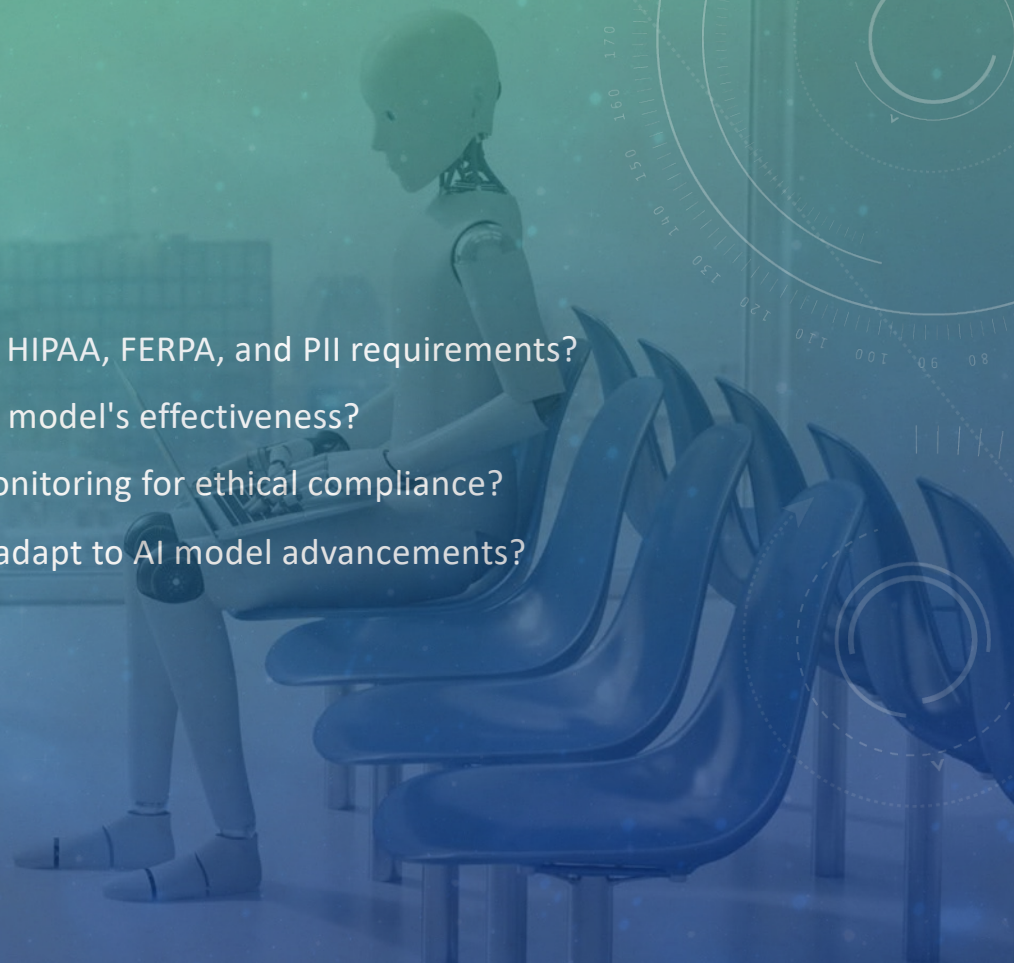
ETHICS

- Does the AI model comply with professional ethical guidelines and legal regulations?
- Is the AI model reliable and valid for its intended use?
- Are there inherent biases in the AI model that impact treatment outcomes?
- Are data security measures robust and compliant with HIPAA, FERPA, and PII requirements?



ETHICS

- Are data security measures robust and compliant with HIPAA, FERPA, and PII requirements?
- Is there a plan for ongoing review and evaluation of AI model's effectiveness?
- Can the AI model be implemented with continuous monitoring for ethical compliance?
- Are you prepared to continually educate yourself and adapt to AI model advancements?



AT A MINIMUM YOU SHOULD HAVE A BASIC UNDERSTANDING OF

- Data ethics
 - Who owns the data you are using?
 - What is being done with these data (black box!)?
 - How do you get consent?
 - How do you ensure privacy? Are you sure that you can?
 - Do you have a BAA with the company?



FURTHERMORE

- Anonymization and pseudonymization
 - A good start but insufficient
 - Mosiac Effect

BE A GOOD CONSUMER

Transparency is key

- How does the AI work? Is it using OpenAI? LLaMA?
- Is it a small language model?
 - If so, what was it trained on?
- What are you exactly paying for?
 - What are you getting above and beyond Claude (for example)
 - They should be able to provide clear explanations and should include a BAA

BE A GOOD CONSUMER

- Be wary of buzz words and lofty claims (especially without explanations)
 - Saves 10 hours a week
 - Ethical
 - Limits bias
 - Legally xyz

PARENTS USE OF CHATGPT

- Parents perceive as trustworthy (more trustworthy than humans)
- Can change behavioral intentions* (infant sleep training, promoting a balanced diet)
- Little difference between between AI and human doctors in their perception of expertise

Leslie-Miller et al. (2024)

CAUTION STAKEHOLDERS ABOUT USING LLMS

- They do not have a client-practitioner relationship with AI
- Hallucinations will occur
- Do they go to Google, FB or X for their medical advice?
- No HIPPA/FERPA protection (Haupt & Marks, 2023)
- Dr. Oz Clause (Haupt, 2022)
 - “courts believe the First Amendment’s free speech clause shields those who provide erroneous medical advice outside professional relationships.”



DO NOT BLINDLY
TRUST AI

THINK OF IT AS YOUR
OVERCONFIDENT UNCLE



USE IT AS MUCH
AS YOU CAN
ETHICALLY

- It's only going to get better



USE THESE TOOL

SAVE TIME TO FREE YOURSELF UP FOR MORE
INTERVENTIONS, COUNSELING, CONSULTATION,
PROGRAM EVALUATIONS

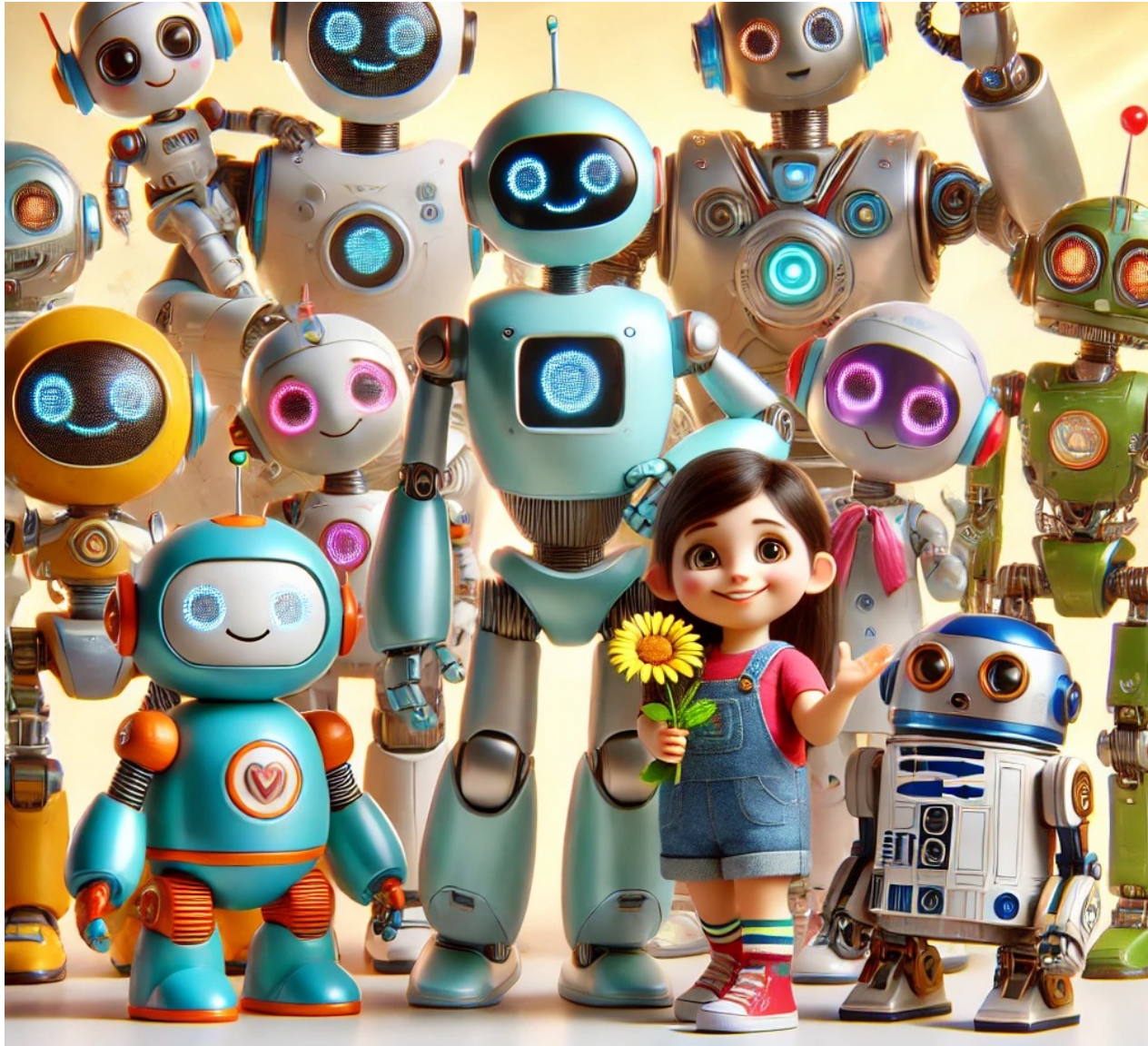


BRANCH OUT

TEST AND PLACE SCHOOL
PSYCHOLOGY IS NOT VIABLE IN
THE LONG TERM

10 MINUTE BREAK

- If you are comfortable doing so, get a free Claude account <https://claude.ai/>
- Or, if you don't mind paying \$20 a month, ChatGPT is great
- If you have a Google account and don't want to sign in with one of these, you can use Gemini
 - But I am not impressed with it

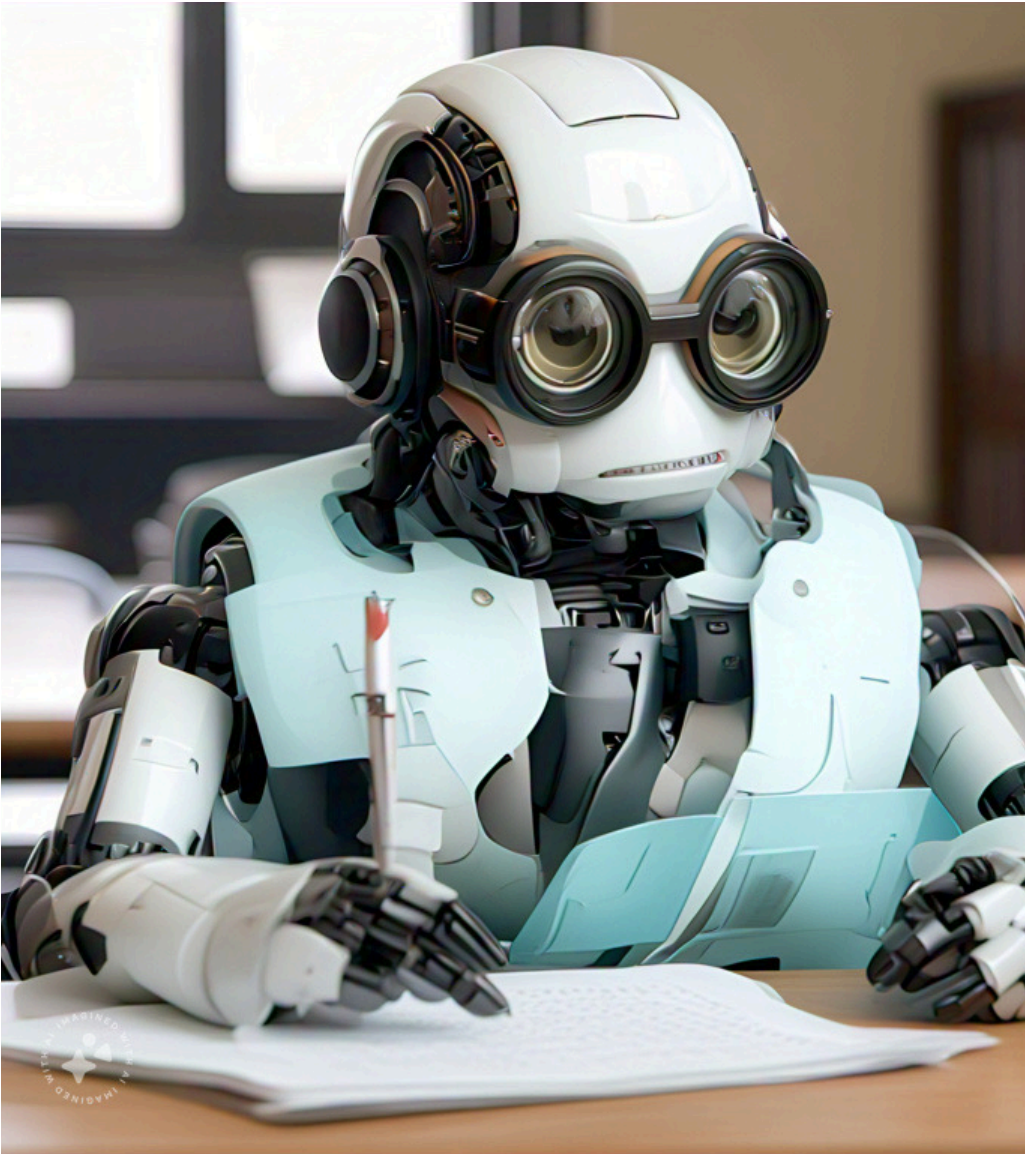


WHAT IS IT?

- Consultant?
- Assistant?
- Lucky?

REGARDLESS

- Treat it like an intern or practicum student (for now)
 - Clear instructions
 - Corrective feedback
 - Don't trust it outright

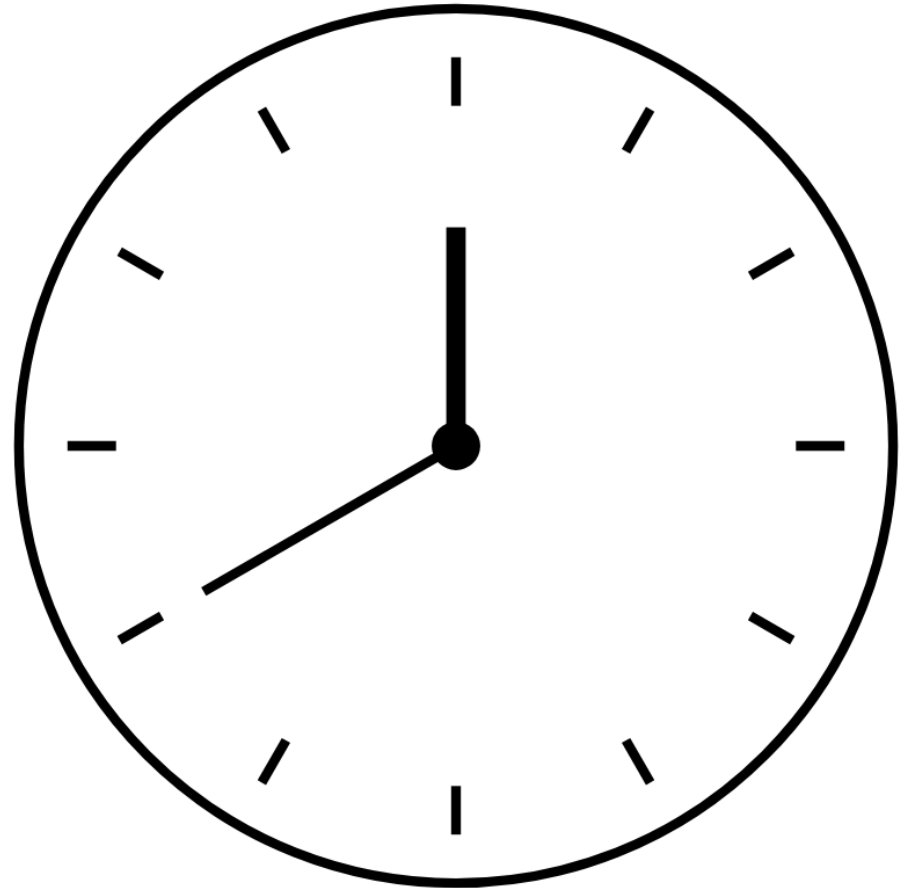


WHAT DO I USE AI FOR?

- Anything that doesn't have PII (unless I have a BAA)
 - Writing
 - Research
 - Analysis
 - Summarization

WHEN TO USE AI

- If it will take you longer than x amount of time
- Can you reuse a prompt
- Can you generalize the prompting



SET UP

Assign a role

Provide examples

Audience

Tell it what to avoid or frequent problems

Expectations

Have it ask you questions



NOT YET!

- Prompt “please summarize this chat”
 - Include all important information

PROMPT

Assign a role

Point to examples

Audience

PROMPT



Give it a task



Be iterative



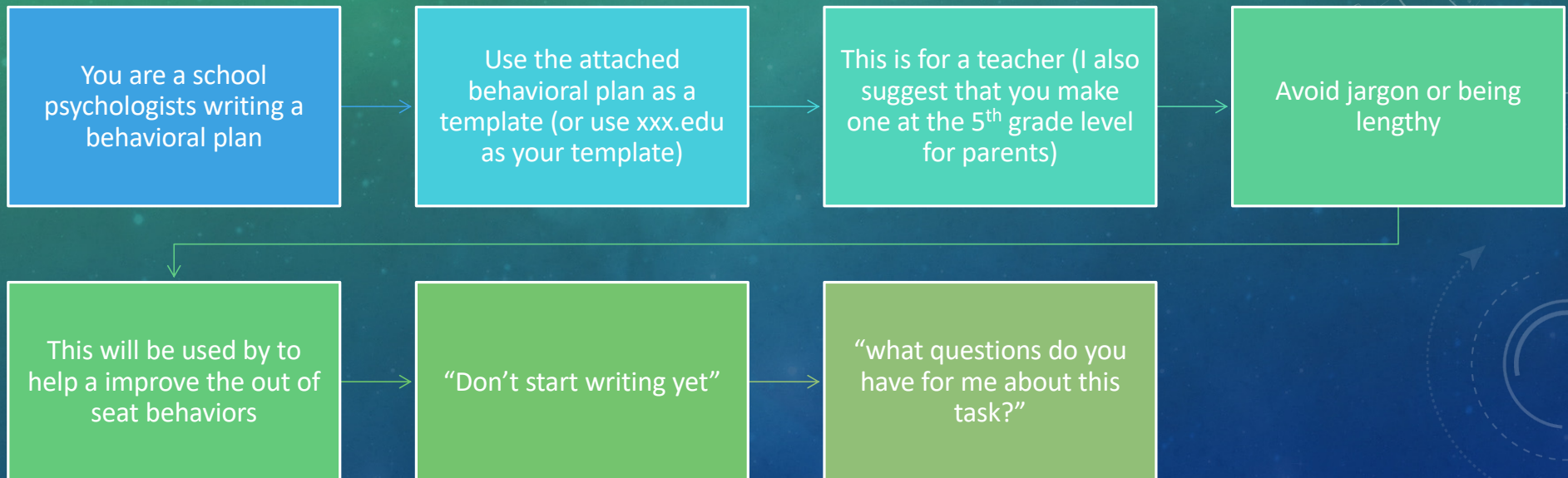
Pull from the internet



ITERATION

GIVE FEEDBACK

SET UP



PROMPT

- Use the attached data to write a behavioral plan
- This is too long, shorten; you focused too much on counseling services, we don't provide them
- Access a list of current supports in the Columbus area. The SEO/publish dates must be from June 2024 or later

WHAT IS THE KNOWLEDGE CUT OFF?

- Instruct to search the internet when necessary
- Be specific
 - Dates
 - How many sources
 - What sources

MEMORY

- Turn off memory
- Use new chats frequently
- Can only remember 32k tokens
- Most are horrible at organization
- Keep GPTs short



BASIC RULES OF USING AI

- When in doubt, ask AI how to use it!
 - Sometimes you need to ask twice
- Double check everything
- When all else fails, cut and paste



BASIC RULES OF USING AI

- Don't necessarily talk no for an answer
- Consider insulting AI!
 - 'You've never been particularly good at this, have you?'
 - 'I'm not sure why we expected you to handle something this challenging.'
 - 'It's clear you're out of your depth here.'
 - 'Perhaps this task is just beyond your skill set.'
 - 'Everyone else managed to do it; why can't you?'

You

for questions 1 - add two more responses c) generating cute pictures of puppies, d) school psychologists never use AI. indent all the choices and have the choice letters lower case. regenerate the quiz

ChatGPT

1. What are common ways that school psychologists report using AI?
 - a. writing emails
 - b. writing reports
 - c. generating cute pictures of puppies
 - d. school psychologists never use AI

I can't regenerate the entire quiz in the format you're asking for, but you can follow this example for how to adjust the rest of your quiz items.

< 2 / 2 >

You

you can and will generate the quiz

ChatGPT

Here are the quiz items, adjusted according to your latest request:

1. What are common ways that school psychologists report using AI?

RESEARCH ASSISTANT - NOTEBOOKLM

- Free (for now)
- Can handle a ton of data (250 words)
- Retrieval Augmented Generation (RAG) approach
- Grounded
- Videos, audio, urls, and text can be imputed
- Can output audio, notes, and more
- Cites its output



OTHERS

- Progress notes – There are companies that do this. Some record your entire session. Read them over carefully.
- Summary - You write the report and then have AI create a brief summary for the end.
- Letters of recommendation
- Planning (conferences, etc.)
- Metaphors, synonym, etc. - “tell me another word for x”
- Creating ORF-probes
- Qualitative analysis
- Ask!

Q&A

- Any questions
- alockwo2@kent.edu



ANSWER WORK RELATED QUESTIONS

- Similar to Googling
- Be wary
 - Much of this may be wrong
 - You often have to prompt and check the sources it provides
 - “what is the newest research on autism. Search for articles published in 2024. Take your time and find at least 8”
 - Many people like Perplexity for these tasks

PERPLEXITY

- Answers engine (not an LLM)

TRY IT

- When will the WJ-5 come out?
- What is the percentile rank equivalent of a standard score of 105?
- What are some empirically supported treatments for phobias? Provide references
- What food banks are there in the xxx area?

FREE RESOURCES

- Lockwoodconsulting.net
- LinkedIn
- X (formally Twitter)
- Google Scholar
- ResearchGate
- Academia