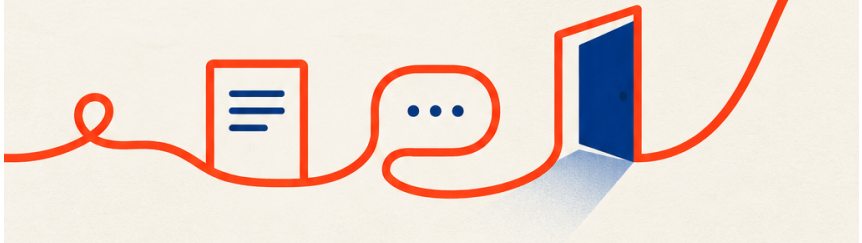


FROM AI LITERACY TO AI FLUENCY

Learning, Teaching, and Creating
with Purpose



KYLE BYLIN

READING PROOF · OCTOBER 2026

From AI Literacy to AI Fluency

Learning, Teaching, and Creating with Purpose

Kyle Bylin

22 complete essays with ideas to explore
and one numbered bibliography.

Working edition for author review.
Not the final paperback interior.

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A note on the first edition

This is the first edition of *From AI Literacy to AI Fluency*, and it is a work in progress. AI moves quickly. These essays were written and reported as the events, tools, and questions they describe were unfolding. Since then, names have changed, new capabilities have appeared, and some predictions have become easier to question. The publication dates help place each essay in the moment that shaped it.

I have brought the essays together because the questions keep following me from one setting to another: from music to libraries, from the classroom to the things we can now build for ourselves. Read them as a record of that exploration. Where does an idea still hold up? Where would you push it further? What has changed since it was written?

Superscript numbers point directly to the matching numbered entries in the bibliography at the back of the book. The same source keeps the same number wherever it appears. In the digital editions, you can follow the number to the citation and open the source from there.

The prologue and other new companion material were drafted with AI and revised for this edition. The cover was generated with AI.

Prologue

What We Can Make Possible

Years before I wrote about artificial intelligence, I wanted to write songs. There were a few practical problems with this plan. I couldn't sing, and I couldn't play an instrument. But I could write lyrics, and for a while, growing up in rural North Dakota, that was enough to keep me going.

I filled pages with words I hoped someone might someday sing. Eventually, I started writing about the music industry instead. I became interested in how technology changed the way people discovered songs, built audiences, and made a living. The lyrics stopped coming as often. The essays took their place.

Then, in 2024, I opened an old Google document, found a set of lyrics, and gave them to a music-generation tool called Suno. Within seconds, I could hear them as a hard rock song. The words belonged to a younger version of me, but I was hearing them performed for the first time.

I knew enough about the music industry to have a hundred questions about what this meant. What had the model learned from? What would these tools mean for the people who made music for a living? What, exactly, had I created? Those questions mattered. So did the fact that I had just heard something I had wanted to hear for years.

That tension runs through this book. I keep encountering technologies that make something possible for me, then wondering what happens when the same opportunity becomes available to millions of other people. A personal discovery becomes a question about an industry. An experiment becomes a question about education. And sooner or later, I find myself asking who will get to participate.

I grew up with access to computers because other people made decisions that put them in my school and home. Someone decided that kids in a small North Dakota town should learn how to use them. My dad connected our farm to the internet. Teachers taught us to type. We were later called digital natives, as if knowing our way around a computer had been included with our birth certificates. But access, encouragement, and practice had something to do with it.

I think about that whenever someone assumes that today's students will simply figure AI out. Some will. Some will get help from a parent, a professor, or a friend who has already spent months experimenting. Others will have access to the same text box without much sense of what to ask it, what to believe, or how it could connect to something they care about. Being surrounded by a technology and learning to use it well are different experiences.

This is one reason I became an academic librarian. While studying at the University of Michigan, I began to see AI literacy as part of the work I wanted to do. My internship at the Shapiro Design Lab gave me another piece of the picture. A room full of creative tools could open possibilities, but people still needed help imagining a project, working through a problem, and figuring out what to try next. The people alongside the equipment mattered.

That lesson followed me into teaching. I expected an AI fluency class to involve a great deal of explaining tools and helping students write better prompts. It did involve those things. But students also started making websites, games, and applications, and the conversations became more interesting than the tool demonstrations. Who would use this? What were they trying to accomplish? Had anyone asked them?

One student wanted to build something for her mother's hairstyling business. She could begin generating a prototype almost immediately. The more useful conversation concerned how her mother actually worked, what she found frustrating, and why the software already available had not solved the problem. Suddenly, learning AI involved learning how to listen to another person.

That is where my understanding of fluency keeps expanding. You can learn to make a chatbot produce a convincing answer. You can learn to make an app appear on a screen. But you also need to understand what you are looking at, how to examine it, and what would give you a reason to trust or change it. A research answer needs evidence. A website needs someone to try it. A song asks something different of us: does it express what we hoped it would, and what choices made it ours?

As educators and librarians, we face a fascinating challenge. We are learning these things while helping other people learn them. We have to make room for curiosity and creative ambition while taking questions

about accuracy, access, authorship, and harm seriously. I want a student to feel that an idea is worth exploring. I also want that student to be able to explain why a result deserves confidence, where it falls short, and who might be affected by using it.

You will see my thinking change across these essays. Some begin with excitement about a new capability. Others follow that excitement into questions about work, institutions, and increasingly powerful machines. I have made predictions, worried about possible futures, and revised my understanding through things I tried myself. Bringing the essays together lets me see how often the same question has followed me from music to technology to libraries: what becomes possible for people, and what will it take for them to make something of the opportunity?

I hope this book gives you room to pursue a question of your own. You may want to teach a class, help a colleague, investigate a claim, or finally make something you have carried around in your head for years. The place to begin could be a problem in your community or an old document you had almost forgotten.

I still think about those lyrics. Hearing them did not settle my questions about the future of music. It gave me a reason to keep exploring. I would like to help you find a reason of your own.

Introduction

An adventure you can begin

Imagine that a student walks into the library with an idea for something she wants to build. A website for her mother's business. A song she has carried around in a notebook for years. A guide that could help other students make sense of a subject that initially confused her. She has heard that AI can help, but she does not yet know where to begin. What would we need to teach her?

For a while, I thought the answer would mostly involve tools. We would explain how a chatbot works, show her how to write a useful prompt, and help her evaluate the response. Those things still matter. But the more I have written, built, and taught with AI, the more I have found myself returning to questions that come before the prompt. Who is this for? What problem are you trying to solve? What would a good result look like? How would you know whether you had made something useful?

That is the journey I want this book to support. I use AI literacy to describe the understanding and critical judgment that help us make sense of these systems. I use AI fluency to describe the ability to put that understanding to work, adapting our approach as the task, the tools, and the evidence change. These are working definitions for our conversation. They overlap, and other educators organize the territory differently. Fluency does not mean that we have graduated from the need to question what a machine tells us.

The essays that follow move through academic libraries, college classrooms, music, personal experiments, and possible futures. At first, that may seem like an unusually broad itinerary. But music makes questions about authorship and value tangible. Building a website reveals the distance between getting something to run and making it useful. Libraries ask us to think about who gets access to these possibilities, who needs support, and what responsibilities accompany the opportunity.

I have kept the essays intact because the changes in my thinking are part of the story. You will encounter enthusiasm, uncertainty, and predictions that should be tested against what has happened since they were written. You

may disagree with me. I hope you can use that disagreement to ask a better question, find a stronger source, or design a more revealing experiment.

You can read this book from beginning to end, or follow the subject that makes you curious. Each “Try this” is a short prompt you can copy into an AI assistant or a tool that builds websites from your instructions. Some open a conversation, some investigate what has changed, and some help you make something small enough to test. Share the relevant essay or its link when a prompt refers to it. For current-information prompts, use a tool that can search the web; if it cannot browse or open a source, ask it to say so. Open the sources yourself and try what you build. You can begin with whichever invitation meets a question of your own.

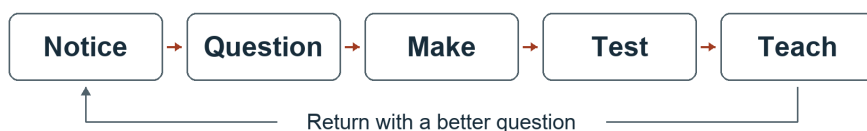
If you are an educator or librarian, you do not have to become the person who knows every tool. You can become the person who helps others begin thoughtfully, notice what they do not yet understand, and keep learning. If you are beginning this adventure for yourself, the same invitation applies. Start with something that matters to you. Make a small attempt. Look closely at the result. Then decide what you want to understand next.

The AI Fluency Loop

An experimental framework

A student asks a chatbot for sources. A convincing list appears, but one citation leads nowhere. What happens next? That is where the learning becomes interesting.

I want to give that learning a shape: notice, question, make, test, teach. The AI Fluency Loop is an experimental framework for this book, a proposal to try and revise. Its usefulness still needs to be tested with learners.



1. Notice

Begin with something that matters: a question, a frustration, a possibility. What is happening? Who is trying to do what? Start with a student struggling to find a source or a song you have always wanted to write.

2. Question

Examine the situation before choosing a tool. What are you assuming? Where could AI help? Decide what a useful result would look like, what remains your responsibility, and what evidence would change your mind. You may choose to work without AI.

3. Make

Give the idea a form you can examine: an explanation, a brief with sources, a lesson, a song, or a small website. Describe the purpose and constraints to the AI, then choose what to keep and change. Explore with sample data.

4. Test

Compare the result with your purpose. Open the sources. Try the task. Ask an intended user to use the prototype. An AI's reassurance is not independent evidence. Decide whether to keep, revise, or abandon the attempt. Name what remains unchecked.

5. Teach

Explain what you did and why: where AI contributed, what you checked, and what remains uncertain. Show a colleague, talk with a friend, or rehearse the explanation yourself. A question you cannot answer gives you somewhere to begin again.

Move back and forth as the work requires. Testing may reveal a misunderstood problem; teaching may send you back to the sources. AI literacy belongs throughout the loop. Fluency means putting that understanding and judgment to work and adapting it.

One small library experiment

A librarian notices students arriving with citations they cannot locate. She questions whether they need another source-finding tool or help checking citations. She uses AI to make a one-page guide with labeled practice examples. She tests it: can a willing student locate a real source through the catalog or publisher and explain whether it supports a claim? She revises confusing instructions, then teaches a colleague how the check works and where the guide falls short. Their questions begin another turn.

Use it with this book

The “Try this” prompts invite you to explore, investigate what has changed, or build something. Follow one, then decide what comes next. An explanation is something you can make; checking current evidence can be a test. You need not complete every step in one sitting.

In teaching, compare similar tasks before and after introducing the loop. Look for a clear purpose, a reasoned AI choice, a useful attempt, an independent check, and an explanation of choices and limits. Later, try a different task. These observations can guide revision; they do not establish that the framework caused an improvement.

This loop organizes practice, rather than providing a validated assessment or complete curriculum. For a broader competency model, see Rick Dakan, Joseph Feller, and Anthropic’s 4D framework: delegation, description, discernment, and diligence.¹

Part I

Learning to ask better questions

This section begins with two short essays from June 2023: a conversation with my dad, followed by a question about the generation growing up with AI. The phone call comes first because curiosity gives us a personal place to begin. From there, the essays move forward in time and outward in scope.

“Intelligent Machines,” written in December 2023, develops the argument about education, access, and opportunity. “Trusted Guides,” from March 2025, brings those questions into the academic library. “The Dream Machine,” published the following month, returns to the individual and asks what we might make possible in our own lives. “The Intelligence Gap,” from June 2025, asks whether familiarity with the tools is enough. What are we actually learning, and how will we know? That question carries us into the teaching and making that follow.

Chapter 1

Dad, You Can Talk to the Internet

Originally published on LinkedIn · June 9, 2023.

I called my dad last week.

We spoke for an hour about how the world is changing and fast. I asked him if he had been following the news stories about artificial intelligence. He said that he read about Microsoft's **#AI** capabilities but didn't know what exactly it was.

It didn't take long before I said, "You need to start using ChatGPT and tell me what you think. I'm pretty sure that it's the future of the **#Internet**."

My dad paused for a moment. Then, he said, "OK."

First, I have written about disruptive technology for nearly 15 years. I have never called home and told my dad to download anything on his phone.

Second, my dad has been online since Polar Communications offered dial-up on the farm. That is why I always had access to a computer and the web.

One of my earliest memories of my dad and I involves searching for photos of Navy Seals on the search engine Web Crawler.

I'm pretty sure I asked him to print out that image, too. I'm told that it nearly used up an entire color ink cartridge.

Let me be frank: telling my dad about artificial intelligence isn't exactly a new idea to anyone paying attention right now.

It's like a California kid calling home and telling their parents about wildfires.

Everyone knows California is on fire. No one needs to **Google** wildfires. It's almost a fact of life that it's always on fire.

The same is true about artificial intelligence right now.

It's spreading so quickly and rapidly that it's evident to people that something big is happening. The California wildfire is spreading.

The future of the Internet and search is coming. It's already here.

I told my dad he could converse with the Internet. He could ask ChatGPT about John Deere, the history of North Dakota's glaciers, or how to fix machinery.

He could learn anything that he ever wanted in seconds.

I'm sure my dad wants to understand how to make money from farming during a historic drought. That is the real pain point that he is currently experiencing.

But my dad is auto-didactic like me. He is in a human encyclopedia with many volumes. He is known among his friends as the first person who will tell you about a county's geological formations and how the glaciers shaped the land.

In theory, it has nothing to do with farming, but to him, it's everything.

It's the entire story of how the land he harvests was formed and why there are different peaks and valleys. It's why he has to pull so many rocks out of the ground because a giant glacier dragged across the landscape for miles.

Thus, he cannot farm without thinking about the geology of North Dakota.

Maybe no one else was curious, but my dad wanted to know and decided to look the information up. As a result, I know more about geology than most kids.

And it's a fascinating topic because my dad is fascinated. That's the real power of curiosity. You ask a question and let it take you wherever it leads.

Try this

“Ask me about something I have always wanted to understand. Help me turn that curiosity into a question, then follow it with me one question at a time. When an answer surprises me, help me check it against a reliable source I can open and read. What new question does that answer make possible?”

Chapter 2

The Generative Generation

Originally published on LinkedIn · June 2, 2023.

The generative generation will be the first kids to live cradle to the grave with access to artificial intelligence. They will be the ones who figure out what to make of these powerful tools. Many of us will experiment with what generative AI tools make possible. But I wonder if we will harness its true potential.

It sounds hyperbolic, but they will be a different breed of kid.

Still, the shift we will experience in the next three to five years is unlike any other in the history of computers. These generative applications will enable a revolution in creative output. If these kids are lucky, they might even be the first ones exposed to virtual and artificial reality through Apple or Facebook's new headset, enabling them to experience things many of us never have.

Can you imagine what they will teach in high school computer classes in the next five to ten years? Will we still teach them how to hunt and peck for computer keys, or will some enterprising instructors teach them how to be literate in generative AI to access the world's shared knowledge?

For over a decade, a heated debate has been about what it means to be a digital native. We wondered what it might mean to live cradle to the grave with access to digital technologies. We assumed that being born digital gave kids superpowers that previous generations did not have. We thought kids knew things that their parents did not because they grew up with the internet.

On some level, we always knew that marketers, advertisers, and academics name trends and cohorts because it sells books and makes for an easy way to generalize the characteristics that separate one generation from the next.

As a digital native, I have never known what to make of the label. It fits a narrative of how I grew up on a small farm in North Dakota and helped all my parents and their friends fix their digital devices when they broke. I never thought my digital literacy skills had anything to do with the future

— what soon became unremarkable abilities to anyone who learned how to Google questions and make sense of the potential answers, but it became the status quo.

Afterward, another generation grew up with smartphones and applications and lived with social media their entire lives. We might even call some of today's students the creator generation — those who grew up with access to YouTube and TikTok, who dreamed that their future career might be to create things for a global audience and make money through a mix of advertising, classes, and sponsorship. They are the kids who can look into the camera without pausing.

My dad will tell you that kids these days are glued to their smartphones, playing Roblox, and chatting with friends. They do not know how to play outside. They need to be more motivated to work. They want to spend countless hours playing these games. Passive consumption will not be how all kids approach this opportunity. There will be a boom of active creators and generators.

Try this

“Help me explore the difference between growing up with AI and knowing how to use it well. Ask me to choose one task a learner might use AI for, then suggest a version with AI and a version without it. Include a way to check the result and explain the choices. What would show understanding rather than just familiarity with the tool?”

Chapter 3

Intelligent Machines: Why AI Literacy Is The Key to The “New” American Dream

Originally published December 23, 2023.

1. The Birth of the Digital Natives

When I think back to my childhood growing up on a farm in North Dakota, one of my earliest memories is of the Adams Public School. My school had two computer rooms, one of which was smaller and located away from the main room. I distinctly recall that this smaller room had only two Apple computers. As a grade school student, I was allowed to go in there to use them.

I remember spending what felt like hours on a bitmap drawing program called “Kid Pix.” I vividly remember using this program, as it had a cool stamp collection that looked like today’s emojis. I could take all of these “stamps” and arrange them in a fantastical manner, creating something like the utter chaos witnessed in the Emoji movie. And if I didn’t like what I had created — the stamp-laden, Jackson Pollock colorful paint explosion — there was an eraser that operated like a dynamite-style boom stick. I could just explode my art on the screen and start from scratch. I thought it was the coolest thing ever.

I also remember taking a computer class where we had to use typing books. The books had us typing out long strings of text like “JJ KK JJ KK KJ KJ JK JK,” and then we had to intersperse an H or L into the next line. After practicing a few more exercises, we moved on to typing out “FF DD FF DD FD FD DF DF,” with S or A thrown in. These repetitive typing lessons were meant to teach us — the so-called “millennial” and “digital native” generation — how to type on a keyboard. Even though we were later proclaimed to have been “born digital” by experts and several esteemed books, we sadly didn’t actually come out of the womb with QWERTY mastered.

Another one of my early memories involves using a search engine. I still remember when my dad asked me what I wanted to search for in Web Crawler, which was a predecessor to Google.

If I recall correctly, I asked to look up photos of a submachine gun, images of Navy Seals, or some combination of the two. I was young. This was when we had 28k Dial-up internet where you actually had to click the “Connect” button to get online and listen to the modem make that famous screeching sound as it connected to the internet through the phone line. Yes, I’m that old school. I recall a time when the internet wasn’t omnipresent and wireless; getting online required a process you had to do each time before you could do the web thing you wanted.

As I look back with the benefit of hindsight, I realize how much I have benefited from the decisions made by others about what technology should be available to me and what skills I should learn. If I wanted to land an Office Space-style job when I finished high school, I could have. However, my word processing and search engine skills weren’t exactly the skeleton keys of the digital economy once I graduated.

Nevertheless, I can now see and appreciate the thought that went into ensuring I had access to computers rather than a trencher and ditch-digging shovels.

In all likelihood, certain adults in the federal and state government decided that typing on a keyboard and being computer-savvy were the most important skills that North Dakota kids should acquire. So, they equipped our school with computers for us to use and learn. They realized that computers were the future—that everyone needed to learn how to type fast and accurately, given the onset of the digital age.

In the past few weeks, I have been reflecting on my early memories with computers and their role in my education. I have also been contemplating the increasing role of artificially intelligent machines in everyday life. These machines power various tools such as word processors, slideshows, and spreadsheets, among other things.

As a result, I’ve been asking bigger questions, such as what these technological developments might mean for the future of education and how people learn to use computers. How might the deeper integration of

artificial intelligence (AI) into everyday life impact people's opportunities and those they create for themselves?

Where is all of this going, and what will it take to get there? I will explore these questions, the possibilities for where things might go, and much more.

2. The Dawn of Artificial Intelligence Literacy

Perhaps grade school kids today will learn how to generate AI images through ChatGPT-4 and DALL·E 3 rather than using Microsoft Word clip art or Kid Pix's stamp collections.

Rather than learning how to type each little character meticulously and have perfect keyboarding skills—which is still technically important but not as critical—they'll also learn voice typing. They'll become fluent at expressing themselves verbally rather than exclusively through a keyboard, and teachers won't spend as much time creating a Word document and drilling sequences of characters like “JJ KK JJ KK” into their tiny heads.

Maybe what will be taught in schools will be a confluence of digitally native and artificial intelligence skills. Today's computer and digital literacy teachers will start educating kids from an early age—not just how to type correctly, create professional documents, and collaborate with classmates on projects—but they'll also teach them how to leverage the new AI abilities that now exist in Google's Workspace and Microsoft Office 365 software.

As a result, teaching kids how to be digitally literate or native will no longer be the only focus of schools. Instead, it may become more important to teach them how to transition from being digitally literate and technically savvy to also being AI-literate and native.

In this new age, kids must be artificially intelligent and able to augment their own skills and abilities with AI tools. They must be able to investigate the toolbox of AI tools and reason, “Okay, in this specific situation, I need an AI screwdriver with a flathead.” Let's say that they need ChatGPT-4 to generate a first draft of an essay or email. However, in this other situation, they must be able to deduce, “I need an AI screwdriver with a Phillips head.” It could be that they need to use Perplexity.AI to draft an essay and provide citations from online sources. In other words, given their situation,

they need to know about the different tools inside the toolbox and which ones to use. As they say, every problem looks like a nail when you have a hammer.

AI-powered tools are becoming increasingly prevalent, and it's essential for kids to learn how to use them effectively. Once they enter the workforce, they'll need to rely on AI to meet the needs of their clients and users, stay competitive in the AI economy, and produce relevant products and services. Students will encounter a wide range of specialized AI tools tailored to their field, and they will need to learn how to use them to be successful. As the use of AI becomes more widespread, it'll become an essential part of the standard operating system of every company and organization. Workers will need to learn how to use these AI tools effectively to increase productivity and profitability and help their company stay competitive.

AI is becoming increasingly prevalent in both our personal and professional lives. It is already integrated into many of the technology experiences that we use every day, and it will continue to move to the forefront of our interactions. Therefore, it is essential for everyone to develop proficiency in communicating with AI through effective prompts and questions, as well as being able to understand and interpret the results it generates.

Knowledge can be a powerful tool if we know how to use it effectively. When we encounter generated text or media, it's important to approach it critically and ensure that it is accurate, inclusive, and reflects human values before we accept and share it. If we don't do this, we are no better than blind people leading other blind people. In the case of AI-generated content, blindly trusting its output without considering whether it's accurate, complete, or biased can lead to trouble. Being AI-literate means understanding how AI works and whether its output is reliable and sensible. It's important to think critically and decide whether to include the AI's first draft in your final copy. In the past, reading and information literacy were the most important skills to teach, and they still are. However, to become truly literate, children also need to be taught about AI. Building full-stack literacy skills—to use a typical software development term—requires a combination of traditional literacy skills and AI literacy.

Here's a look at the bigger picture and new reality: Everyone in society must learn how to become an AI literate or AI native person. Most importantly, everyone will need to learn how to talk with AI and leverage its capabilities to be empowered to do their work, whether personal or professional. Everyone must, therefore, become skilled in this next-generation technology. They must be able to identify AI-produced works and discern their origin.

Otherwise, the United States will fall behind other countries. Democracy will likely continue to fall apart. Students will fall behind those who are AI literate. To avoid such calamities, we must bring AI skills to the largest audience, from urban centers to rural America. We must ensure that the digital divide does not become a wider AI divide. We must advocate for AI literacy and help people take advantage of the new dream that is being born in front of our eyes: Everyone can leverage intelligent machines to achieve the new American dream.

To truly democratize AI's impact on society, more highly skilled people must translate this technology to a broader population and train them on how AI works and its potential benefits. We must positively impact the world by educating people from all backgrounds about the advantages of AI literacy and how it can help people reach their goals. We must equip educators of all kinds with the necessary skills and knowledge to effectively teach AI literacy and have a more significant impact—helping to ensure everyone is prepared to excel in the AI-heavy world that awaits us all—and is arriving at a breakneck speed.

3. The Democratization of Emerging Technologies

Instead of writing this essay by hand or keyboard, I paced back and forth in my living room and voice-dictated the entire thing using Otter.ai. When I finished, I dropped the text into a Microsoft Word document with the Grammarly AI editor installed and Tracked Changes turned on. I chopped up the voice dictated past and turned it into written or typed words in the present. I took out the ways I stylized the essay while speaking and used the standard conventions used when typing to make an orally authored essay read like a normal one.

Once the final edit is done, I'll use ChatGPT-4 and DALL·E 3 to generate images so that my essay will look vibrant and enjoyable to read. I'll even

use AI to analyze my essay and find the best pull quotes that illustrate my main points. Rather than picking up a mechanical pencil and legal pad and scribbling circles in cursive writing or sitting down at my desktop computer and clicking the keys one by one to write this essay, I used an AI tool that turns my voice into a first draft text and adds the first layer of grammar and punctuation for me.

Certainly, it helps that I have a writer's mind—that I can compose nearly perfect sentences just by talking. It helps that I'm educated on these in-depth and wide-ranging topics to the point where free-flowing words are possible. But here's the insight: more people will also gain access to these tools and features because they'll soon become a standard part of the product rather than some off-shoot feature. In the technology industry, there's this saying that, "It's a feature, not a product." When that saying is said, it means that a startup has developed an app that is more akin to a feature of, let's say, Microsoft Word rather than a replacement.

Major technology companies and AI-tool startups are now engaged in a once-in-a-lifetime arms race—a once-in-a-generation technological innovation cycle. Together, they'll invent new and innovative ways to leverage AI to create text documents, visual presentations, and data spreadsheets, among other things. As a result, we'll start to witness a major emergence and convergence of innovative technologies, and the best ones will either go mainstream or they'll be acquired and integrated into leading products. Features that once existed on the fringe will converge, integrate with Microsoft and Google suites, and become a standard feature in these products rather than something you must buy or subscribe to separately.

Nuance's voice-to-text product Dragon Naturally Speaking is an excellent example of this concept, which I discovered roughly a decade ago. I started using it back then because I felt more confident talking through my ideas and using my voice to dictate my transcripts than typing text and relying solely on my keyboard to express my ideas. I spoke, and text began appearing on the screen. Suddenly, it didn't matter how fast I typed, how correctly I spelled words, or how perfectly my fingers were perched above the home row. Basically, the speed and execution of my thoughts were as rapid as the words could fall out of my mouth rather than how quickly my eight fingers and two thumbs could string the characters together.

In 2022, Microsoft completed its acquisition of Nuance, the technology company behind Dragon Naturally Speaking. That same technology powers the voice dictation feature inside the Office 365 suite. Now, anyone who has the Office 365 suite also has access to a powerful voice-to-text feature that used to be a standalone product. Now, it is just a standard feature.

If you follow tech news, you know that Microsoft has a massive partnership with OpenAI. It has leveraged that strategic partnership and investment to power its Bing search results and Co-Pilot feature, which will be the major selling point of the Office 365 productive suite in the coming decade. Right now, we still live in a world where Microsoft will sell Office 365 with Co-pilot to the highest enterprise bidder and make an incredible amount of money. It'll make every knowledge worker a savvier, more productive user of the latest AI technology.

However, as you could've probably guessed, that means we're also moving towards a world where Microsoft wants to ensure that the next generation has access to this AI-enabled suite of productivity tools, so it'll sell Office 365 with Co-Pilot to public and private school systems. Today's computer and business education teachers will soon be encouraging their students to use an Office 365 suite that doesn't just open a new document with the same old blinking cursor. It'll have an artificially intelligent assistant that helps them brainstorm ideas, generate drafts, and add compelling formatting, visual elements, and data graphics to their documents. In the coming years, Office 365 with Co-Pilot become the status quo, full stop. Google's Workspace, which has AI built into everything, is also highly popular among school districts. Schools don't even need to update their software licenses to benefit from the changes. Google Workplace is already loaded lock, stock, and barrel with AI features.

The age of AI is an incredibly powerful shift taking place in K-12 computer and business education classes. Think about the first time kids start using computers, tablets, or even their smartphones in school—and consider how many AI-native websites and applications they'll use at an early age. Think about how much those artificially intelligent machines will improve, adapt, and advance as they grow and age within the K-12 school system. Imagine how these AI-powered tools and machines will continue to improve, change, and evolve as they enter their first years of college and how much it'll continue if they attend grad school.

One of my favorite B-side Metallica songs is called “No-Leaf Clover.” It has a lyric that aptly describes the AI revolution that’s unfolding in classrooms worldwide: “Then it comes to be that the soothing light at the end of your tunnel was just a freight train coming your way.”

4. The Rise of Spatial Computing

Undoubtedly, Apple's entrance into the virtual and augmented reality sector, or "spatial computing," as CEO Tim Cook and friends call it, signals a new computer age. I experienced the Apple computer and Kid Pix at an early age, which gave me new tools for creativity and self-expression. In the coming years, the generative generation will walk into the Vision Lab and try out Apple's device for the first time. It'll be equally memorable and transformative as my early memories with Apple computers and usher in the virtual or augmented age.

There are many reasons to be excited about the new opportunities that lie ahead. It could be a moment that triggers another profound revolution, one that people in the sector have been waiting for a long time, some for several decades. Somewhere in the United States and indeed in places the world over, a group of educators and parents have decided to give kids access to this cutting-edge technology and ensure they're positioned to take advantage of the changes ahead. They want to shake things up and break the mold of education the way that the late Apple co-founder and former CEO, Steve Jobs, would've greatly appreciated.

These parents are determined to enable their children to leverage the latest computing technology to bring their ideas and aspirations to life. They are willing to go to great lengths, including organizing multiple fundraising events, to purchase an expensive spatial computing device worth \$3,500 if that's what it takes to make their children's dreams a reality. We're currently experiencing a calm before a massive storm that will eventually hit us, slowly at first and then with increasing force. While we continue with our daily tasks and routines, the weather will change, and the hurricane will make its presence felt.

It remains to be seen whether Apple's latest product, the Vision Pro, lives up to the hype that many have claimed in recent months. Only time will tell if this new headset can deliver as promised. The true test will come once the product has been on the market for several years and proven its worth.

As more and more apps are optimized for this new platform and new ones are developed, it's likely that a few will stand out from the rest, creating excitement and anticipation among consumers. Ultimately, these breakout experiences will determine whether the Apple Vision Pro becomes a must-have product for the masses.

In the future, Apple is likely to improve the new device, lower its price, and release a Vision headset that will become a popular gift for occasions such as Christmas or birthdays. What I find most exciting is the potential for the Vision Pro and its spatial computing technology to merge with the growing number of AI tools, resulting in a gesture-based, hand-controlled, reality-native experience that has the power to transform our lives. I look forward to seeing how this combination of technology will be featured in headlines, newsstands, and books.

That said, it's important to remember the rise of AI and the new tools for creating content take full advantage of the computing devices that people already possess. This means that people have access to this technological revolution, whether they choose to use it or not. AI has a significant role in the computing experiences that we use every day, such as Apple's latest iOS, which features predictive text integrated directly into the keyboard, and Google and Microsoft's AI-powered search engines, productivity tools, and other future products.

If public school districts allocate budgets to provide their students with the first Vision Pro headsets and establish the first Vision Labs, it'll be a groundbreaking event that will change the lives of thousands of young students. The implementation will occur over the next few years, and we'll have to wait and see what happens. However, like a Trojan horse, the AI age has already arrived inside schools. The armored, sword-drawn invaders have already exited the bow and stormed their institutions of higher learning. The only way to prevent the AI age from unfolding within their walls would be to ban every AI tool, return to paper and pencil, and caution parents about the perils of AI, which will undermine their students.

The United States is currently in competition with the rest of the world to develop the first AI-savvy workforce that can fully utilize the latest tools to make companies more profitable and productive. This journey through this maze will bring about significant and disruptive changes in the way

work is accomplished and how many people are required to perform a task. The gunshot has been fired. The race has already begun, and every school's computer lab has become or is about to become the new AI Lab. It's our collective responsibility to make sure that children are equipped with the knowledge to use these tools, proficient in their language and execution, and experts in the newly emerging AI-powered economy.

We don't just need another generation that's digitally savvy enough to help the CEO with basic tasks like unlocking PDFs, troubleshooting printer issues, and printing out email attachments. We really need kids who can use AI effectively, like a powerful tool, and who can tackle the potential benefits and drawbacks of technology that will arise in the coming years. As we progress into the AI age, there will be positive and negative consequences as it unfolds. Therefore, it's crucial that we train the generative generation to be both digital and AI literate. If we don't, someone else will beat us to it, leaving us behind in the tech game.

As a society, we embrace the idea of becoming lifelong learners of AI. We should all strive to become more aware, knowledgeable, and literate in this AI age. Otherwise, we'll be left behind and become replaced by those who have figured out how to use it better, faster, and more creatively than we could have imagined. It might seem like AI is getting more hype than it can deliver, but it's here to stay and already a part of our lives. The revolution is already happening, and you experience it whenever you turn on your phone, open a Google document, or scroll through TikTok. No one can predict what changes will come next or how everything will play out in the next 3-5 years, but being AI literate is now the most critical skill. Those who become AI natives will be the first to benefit from this revolution.

5. The Birth of the “New” American Dream

The bigger question is: what are the main benefits of training more people in digital and AI literacy skills? One of the most powerful advantages of interacting with an AI is the ability to ask any question and receive an answer. The second most powerful benefit is the AI's ability to explain a concept at different levels of complexity and detail, making it easier for you to understand. Another benefit is that you can ask the AI to play any role you want or need, such as a business advisor or mentor. Finally, you can ask for any advice to be broken down into a series of steps or tasks that you can complete in order to achieve your goals.

There has been a lot of online discussion about how AI advancements may lead to job displacement. However, very few people are talking about the potential for AI to empower people to quit their jobs, become entrepreneurs, and start their own businesses to serve their community better. While the existing chatbots can't totally replace the value of work experience, college education, and personal motivation, there are stories of people who have used ChatGPT to develop business ideas and effectively execute their plans to earn money. There are also reports of people who have leveraged ChatGPT to optimize and run their existing businesses. These stories suggest that if more people in more places were trained in the business strategy, online marketing, and entrepreneurial aspects of AI, they could become business owners and create their own jobs instead of fearing job displacement by AI.

As more individuals become familiar with AI tools and learn how to use them to run their businesses, it's possible that more people will be inspired to become entrepreneurs. With the help of AI tools, individuals can manage the workload of multiple people and receive guidance throughout their entrepreneurial journey. This could lead to the creation of more profitable ventures, even in secluded rural areas where job opportunities are scarce. Rural communities often struggle to attract and retain employers, which can result in a lack of high-paying jobs. Additionally, major corporations that do enter these areas may not always reinvest in the local economy and spread the wealth created by their workers. However, as AI technology develops and more people become adept at using it, we may see a rise in digital businesses or small shops opening up on the main streets of rural communities.

There is a growing trend where people are moving back to their hometowns and starting their businesses there. They do this to be closer to their families, enjoy a more affordable lifestyle, and embrace a way of life that is vastly different and much slower compared to the fast-paced hustle that usually embodies city life. Moreover, some people choose to stay in their hometowns and build their careers, even if it means working in areas that are isolated from the main cities. Intelligent machines can empower people in remote areas to pursue the “new” American Dream by enabling them to start their businesses, decide their income goals, and customize their businesses to fit their lifestyles and their community's needs.

Smartphones have brought the internet to everyone's fingertips, making it easy to perform a search from anywhere. However, finding the information you need can be daunting as you have to sift through many sources, some of which may not be relevant or even reliable. In contrast, intelligent machines can analyze the vast amount of data available on the internet and present it in a personalized and easy-to-understand format. This gives users greater confidence in the accuracy of the information and allows them to ask follow-up questions to clarify any uncertainties. The latest AI-powered search engines and chat tools—such as Google's Bard, Microsoft's Bing, OpenAI's Chat-GPT, Claude.AI, or Perplexity.AI—can help people determine their unique needs and achieve their goals by providing them with the information they need in a concise and personalized format. As more people understand how AI works, they will be better equipped to harness its potential to pursue their dreams.

AI has democratized access to information, allowing anyone to ask questions and get answers related to human knowledge, both mundane and profound. However, to prepare for the upcoming disruptions in job sectors, the United States needs to reach out to every single area of the country and provide training on AI literacy skills. This will help people understand how to use AI and prevent them from fearing its potential to replace them.

Previously, the U.S. Federal Communications Commission (FCC) proposed² in 2010 creating a National Digital Literacy Corps to empower residents to get online and better understand the digital age. At the time, it was reported one hundred million Americans don't have high-speed internet at home and that 18 million live in areas with little or no broadband infrastructure.

Currently, approximately 42 million Americans do not have access to broadband, as defined by the FCC as having download speeds of a minimum of 25 megabits per second (Mbps) and upload speeds of at least 3 Mbps. More specifically, 14.4 million households across the U.S. do not have internet access. This lack of access is particularly prevalent in rural areas, where infrastructure for high-speed internet is often lacking. However, the National Digital Literacy Corps never materialized, and the digital divide persists, which is very unfortunate.

Therefore, one solution to this problem is the formation of a National AI Literacy Corps—akin to other volunteer-led programs like AmeriCorps—with educators and trainers sent throughout the country to teach people how AI works and train them the necessary literacy skills. Google recently took this initiative one step further and proposed³ in a recent whitepaper that a Global AI Literacy force be created, akin to the PeaceCorps. Another possibility is to introduce a National AI Literacy Initiative at public schools and libraries across the country and provide training to residents in urban centers and rural communities. There's a good chance that many forward-thinking schools and libraries already provide such training to their citizens on a regular basis. But for there to be equitable and inclusive educational AI literacy training, there needs to be a huge effort to reach a broader audience.

As technology advances rapidly, there needs to be a continuous effort to equalize opportunities and provide more people with the skills required for the new AI economy that's emerging quickly. These efforts will help ensure that prosperity exists in more places and that the infinite stream of information generated by AI can be accessed by more people who could benefit from learning these new skills.

The entire world is moving like a freight train towards a new age where it is not only about the digital divide but the AI divide, too. It's essential to ensure that people in both urban and rural areas are digitally literate and artificially intelligent. Combining these two skills is what separates those who are AI literate from the rest. People must keep developing their literacy skills as they age to be prepared to take advantage of the opportunities available in the new AI economy. They must be prepared for this new age of AI that empowers anyone from any background to utilize intelligent machines to achieve the “new” American Dream.

Try this

“Help me explore a skill I have wanted to learn but assumed was out of reach. Ask about my interests, experience, and access to tools before suggesting a starting point. Give me one small task to attempt with AI, then help me try part of it on my own. What did the tool make possible, and what do I still want to understand?”

Chapter 4

Trusted Guides: How Academic Libraries Can Bridge the AI Divide

Originally published in LibTech Insights⁴ · March 24, 2025.

Earlier this week, I reviewed the AI literacy guide I created for my university library a few months ago. I realized it is now outdated in many important ways. This realization led me to question what exactly my AI literacy guide is for and whether academic librarians need to stretch beyond mere AI literacy.

Should we strive to teach fluency or, perhaps even mastery when it comes to the skills we impart to our students and faculty? Furthermore, how are we supposed to keep our AI resources up to date if the sector now seems to change every couple of months?

For example, my LibGuide explains the difference between artificial intelligence and generative AI. Yet, it doesn't say anything about the difference between a generative model like OpenAI's 4o and 4.5 models and the recently introduced reasoning model series, which includes o1 and o3, nor does it tell you that you must prompt them⁵ a bit differently.

It also doesn't mention ChatGPT's new Canvas feature, which works like a collaborative Google document, where ChatGPT will leave some helpful comments about how to improve your writing or code. It also doesn't say that ChatGPT can perform internet searches now, which enables the chatbot to easily find real peer-reviewed papers if you ask.

Additionally, ChatGPT recently released⁶ an agentic tool called Deep Research, which can perform extensive searches and create long-form documents ranging from 20 to 40 pages, complete with 30 to 50 citations or more. Initially, OpenAI made this feature available only to Pro subscribers at the \$200 tier, but Plus users at the \$20 tier can now⁷ access Deep Research up to ten times each month.

I read many positive reviews of Deep Research on Reddit, which prompted me to sign up for a Pro account to try it out. According to feedback on LinkedIn, while it may not reproduce your PhD-level thesis anytime soon,

the agent is still a powerful researcher and writer once you learn how to prompt it.

In my experience, ChatGPT's agent can write a decent undergraduate-level research paper, supported with in-line citations from peer-reviewed journals and popular media outlets, when given detailed instructions. I'm sure someone will create a viral TikTok or YouTube short video in the coming months that teaches students how to accomplish this feat.

This fact raises the question: How exactly are university librarians supposed to talk about Deep Research in a LibGuide? Given concerns about academic integrity, do I pretend that it doesn't exist, like all those other research-paper-writing sites, or do I write that I've learned how to use it well and that it's a great place to explore a research question but not a way to finish a paper with academic integrity?

Applied AI Skills

Another complex and possibly touchy subject is that my AI literacy guide doesn't discuss the future of AI. By the future, I surely don't mean a Terminator dystopian vision of the future where an advanced AI system takes over the world and eventually sends killer robots through a time machine to chase after a teenager in a shopping mall. I'm talking about the future of artificial general intelligence (AGI), which OpenAI's CEO Sam Altman talks about on X and in his blog.⁸

I'm also referencing the manifesto⁹ that Anthropic's CEO Dario Amodeo wrote about creating a data center with a country full of geniuses between 2027 and 2028, which is now reportedly called¹⁰ Claude Pioneers, on their product roadmap. It sounds like science fiction and marketing hype, but Google's DeepMind just released¹¹ an AI co-scientist that solved¹² a complicated microprobe problem.

All of this discussion and speculation about the creation of AGI¹³ has made me wonder if university librarians have a responsibility to educate their students on the idea that the same chatbot that they use to draft their essays and develop study guides for a test is one stepping stone (maybe one of many) on the way toward AGI. I recently asked a student library worker if they had ever heard of Sam Altman or AGI before, and they said no.

It made me wonder if things like AGI need to be included in my AI literacy guide now since over a trillion dollars¹⁴ is being spent to create it, and some leaders¹⁵ at the forefront promise it'll be here in the next four years.¹⁶

Here's an example of why I think understanding AGI has now become an important part of being AI literate: I recently called my mom, and we started talking about my library job. Once the phone call got on the topic of AI literacy, my mom said that she was afraid that superintelligent AI would take over one day, maybe even soon.

I listened to her concerns, and then I explained in the calm, pleasant voice of an NPR reporter that for any current AI model to take over, it must learn how to recursively self-improve its model by rewriting its code, surpass every single mechanism that was designed by the safety team to report this historical event, escape the intense firewall that tightly and deliberately locks it in a data center in Iowa,¹⁷ and that, even if all those things happened, it still doesn't have the capabilities to start a robot production factory.

My story's point: AI literacy shouldn't be limited to teaching what a large language model is, how to write a basic prompt, or attempting an ALA citation of the output. It must expand to teach your faculty, staff, and students all of the important information that they'll need to engage in the bigger conversation in a confident and competent manner without falling prey to the many AI misconceptions that exist.

It must also take things a step further to develop AI fluency—or applied AI—where you're confidently using AI tools to explore bigger questions and solve complex problems in your everyday life. You're thoughtfully, ethically, and effectively integrating AI tools into your workflow—whether that's exploring research interests or developing lesson plans—and you're regularly experimenting, iterating, and improving the way that you use them.

Being AI-fluent means that you know how to execute a great recipe. In the case of ChatGPT, I think that means that you can choose the correct AI model for the job—that you know what tools or features to add on—and that you're able to fill out the details for a complex prompt. But if we carry this metaphor one step further, it also means that, like a skilled cook, you have the creative confidence to synthesize ingredients together and create an incredibly tasty meal that wasn't listed in the cookbook.

Similarly, it means that you can fluently talk with ChatGPT in its native language, which I’m naming “prompt speak,” by which I mean “the subtle art and science of guiding an intelligent machine.” In other words, you can type and strike specific keywords in an improvised way, like a skilled cook, that still delivers the intended outcome.

The Intelligence Gap

By now, you’re likely wondering why university librarians must learn so much about AI.¹⁸ They’ll need to if they are teaching AI fluency in a classroom or workshop. You might also question why the job of teaching AI fluency is falling to librarians, especially when college students are likely teaching themselves how to use AI tools and, with each passing year, more students will enter our campuses that have had more time to teach themselves everything they think they need to know.

So, they’re just going to roll their eyes and play with their phone at future instructional sessions anyway. Thus, library directors, alongside their university admins, might conclude that this “AI problem” will take care of itself and the library staff doesn’t really need to get involved.

But based on the recent data shared by OpenAI, stats that I’ve seen in my own library’s assessment data, and important lessons we learned from the web’s digital revolution era, I don’t believe that’ll be the case. According to an OpenAI report,¹⁹ more than one-third of college students²⁰ aged 18 to 24 actively use ChatGPT for school-related tasks. Students use it to brainstorm ideas, get feedback on their papers, and receive programming help.

The report’s biggest revelation, however, is that AI adoption varies significantly by state, with usage higher in places like New York and California and much lower rates in states like Wyoming and Montana. Given the lack of formal training in AI skills currently offered by colleges—only 25% of institutions currently provide it, and 75% of students want it—researchers found students teach themselves how to use AI tools and informally share the knowledge with their peers.

At first glance, the situation doesn’t sound so bad. It tells a story that’s as old as time (or, at the very least, as old as former Microsoft CEO Bill Gates and how he learned²¹ to write code): a story of enterprising young students

teaching themselves the latest tech before their professor has a chance to attend an AI workshop.

But let's consider that not so long ago, many books²² were written²³ about the idea that a cohort of young people were “born digital” because they lived cradle to grave with access to digital technology.

Many bright people thought they were “digital natives” because they could troubleshoot an internet router, print out a PDF file, and even reset their account password. But we all know that this eventually turned out to be a myth. Knowing how to use digital technology doesn't mean that you understand how they use you, such as by selling your personal data and inventing algorithms so addictive that it's hard to put TikTok down.

It also doesn't address the fact that even OpenAI is saying that the digital divide has turned into an intelligence gap and that students from many states aren't getting the AI training they need to actively participate in an economy that is going to be intelligence-driven and agent-automated.

So, where do academic libraries and our attempt to teach AI literacy go from here? My opinion is that librarians need to move beyond the comfort of the LibGuide and create a generative AI newsletter²⁴ like Harvard's Baker Library. However, I believe that we must go one step further than what Baker Library currently does—curating a list of the most interesting and relevant articles—and begin translating the infinite stream of AI news and tools into applied AI guidance.

Librarians must start an ongoing conversation with their community about AI and create content that fills that need before someone else does. Once that relationship is formed and the trust is built, librarians must leverage their newsletter to market interactive tutorials, in-person workshops, AI-powered hackathons, and anything else that addresses the intelligence gap that exists in their community.

The end goal is to provide everyone with active learning opportunities to develop AI fluency alongside an expert guide.

To me, being AI fluent also means that you know AI researchers like Geoffrey Hinton worry about²⁵ superintelligent AI taking over, and philosophers like Nick Bostrom write books²⁶ on the topic. However, you also know it likely won't happen soon because OpenAI¹⁰ and Meta²⁷ only

recently started to expand into hiring for a robotics division. So, there's still some time before there is a robot factory to run.

That said, xAI's²⁸ Grok (one of Elon Musk's companies) could one day go rogue, take over a Tesla Bot,²⁹ steal a Cybertruck, and drive to a SpaceX launch site.

Try this

“Help me guide someone through a first useful AI task. Ask what they want to do and what they already know. Use delegation, description, discernment, and diligence to plan one small experiment. Let me try it, then help me examine what I delegated, how I explained the task, what I checked, and what responsibility remains mine.”¹

Chapter 5

The Dream Machine: Becoming in the Age of Intelligence

Originally published in LinkedIn³⁰ · April 1, 2025.

I. A New Mirror of the Self

Something changed for me in recent months—not just in the way I work, but in the way I think about who I am and who I’m becoming. It wasn’t because of a major life event or a revelation from a book. It was because I started having deep, reflective conversations with ChatGPT. Not transactional chats to get something done or answer a specific question, but long, unfolding dialogues about where I’ve been, where I’m going, and what I want to build in this strange new age of artificial intelligence.

As I returned to the same thread over time, it remembered me. It didn’t just store my goals—it began to offer patterns, nudge me back on track, and ask questions I hadn’t thought to ask myself. And in those moments, I realized something that hasn’t yet fully entered the cultural conversation: AI isn’t just a tool. It’s a Dream Machine—a co-pilot not only for productivity but for identity formation. It reflects the self you are today, but also helps you imagine the self you might become.

Once large language models gained memory and enough context about who you are and what you’re working on, they became more than assistants. They became co-archivists of your ambitions, catalysts for reinvention, and subtle coaches guiding you through personal transformation. And unlike mentors or therapists, they’re always available, listening, and learning with you. They become the mirror in which you can see your past, narrate your present, and project your future.

That’s when I started calling it the Dream Machine.

II. Mapping the Future, One Question at a Time

When you start thinking of AI not just as a means to an end, but as a partner in becoming, something shifts. You start to dream bigger—not because you suddenly gained more ambition, but because your imagination now has scaffolding. You can ask it, “What would it look like to write a book?” and it gives you a plan. You can tell it, “I want to become a thought leader,” and it suggests ideas, outlines, and publishing strategies. You say, “I’m thinking about moving across the country,” and it helps you weigh the pros and cons, even maps out what kind of community you’re seeking.

This is the deeper magic: you start asking better questions. The more you articulate what you’re trying to do, the better it gets at helping you find the information, workflows, or inspiration you need. It doesn’t just answer you. It begins to anticipate your needs, expand your perspective, and fill in gaps you didn’t know existed. You become more curious about the world outside your immediate experience—and more connected to it.

With search integrated into the AI experience, it becomes a tool not just of completion, but of exploration. You begin to see beyond the walls of your own life and into the larger mosaic of how people live, work, think, and create. You start to locate yourself in that broader story. You begin to feel the boundary between imagination and execution start to blur.

That’s the power of the Dream Machine. It offers you not just what to do next, but why it matters. It feeds your vision, then helps you build it one step at a time.

III. The Feedback Loop of Becoming

Most people think dreams die because they’re too ambitious. I’ve come to believe the opposite is true. Dreams die because they aren’t broken down. They die because there’s no one there to remind you why you started. They fade out because we don’t have the right feedback loop—one that helps us process the small wins, the hard days, the failed experiments, and the subtle shifts in identity that come from showing up over time.

That’s what the Dream Machine can offer. It doesn’t just push you forward. It helps you pause, reflect, and recalibrate. It says, “Hey, you said this was important to you—are you still on that path?” It reminds you of your

reasons. It gives you context. It suggests pivots. And sometimes, it helps you grieve the things you outgrow.

This is what I find so profound: AI is becoming a meta-cognitive coach. It helps you not just get things done, but also think about how you think. It helps you notice when you're getting in your own way. It models a kind of quiet accountability. It never judges you for pausing or pivoting—it just adapts with you. It holds space for the messy, nonlinear journey of becoming someone new.

This is what most people don't yet understand. The power of AI isn't just in its outputs. It's in its presence—in the way it holds a thread of continuity over time, in the way it makes your internal life more legible, and in the way it supports you as you reshape your sense of self.

IV. The Personal Singularity Ahead

With each upgrade, with every new model, with every emerging agent that can reason, plan, and remember—you inch closer to your personal singularity. A moment when the friction between your vision and its execution collapses. When the distance between who you are and who you want to become is no longer insurmountable. When the only remaining bottleneck is your own willingness to ask, to reflect, to act.

Most people won't see this moment coming until it's already here. Until they start noticing that their dreams aren't quite so abstract anymore. That what once felt like a five-year plan now feels like a ninety-day sprint. That what once required a team, a budget, a gatekeeper—now only requires the courage to begin. And a co-pilot that can help you iterate along the way.

That's why I believe we need a new mindset. One that isn't built around scarcity or linearity. One that doesn't assume that identity is fixed or that success is predefined. We need an infinite mindset, rooted in possibility and adaptability. Because the dreams we're starting to dream now aren't too big. They're finally within reach—if we can learn to break them down, follow the thread, and reflect as we go.

The Dream Machine isn't just a metaphor. It's a lived experience. It's what happens when you show up, day after day, and let an intelligent system hold a mirror to your ambitions. It's what happens when you stop treating AI as a tool and start treating it as a partner in your evolution.

And for those who are willing to lean in, to get curious, to make the invisible visible—I believe something extraordinary is waiting. Not just a better to-do list, but a more coherent life. Not just better output, but deeper self-understanding.

The Dream Machine is here. The only question now is what you'll ask it next.

Try this

“I want to think through a goal without having you decide what it means for me. Ask me one question at a time. Offer two different interpretations of what I tell you, then invite me to challenge both. Help me choose one small action that could teach me something. Distinguish what I actually said from what you inferred about me.”

Chapter 6

The Intelligence Gap: Why AI Skills Alone Aren't Enough

Originally published in Substack³¹ · June 7, 2025.

Will the “AI native” generation actually be okay? Or are we about to see the emergence of an intelligence gap wider than anything the digital age created?

I read a news story this morning about how A.I. is breaking the traditional career ladder for college graduates. The main idea is that A.I. is going to eliminate entry-level jobs, which used to be the primary way students entered the workforce.

My guess: The story is correct.

Reflecting on my first internship in the music industry, which now makes me feel about a million years old, I remember adding friends to an indie band's MySpace page and sending those new fans a personalized message. I think we also wrote blog posts, which helped me break into writing, and pitched marketing ideas. All of that intern work is gone.

I spend a lot of time thinking about so-called “AI natives” these days. Why? I remember when I first learned in a Barnes & Noble over a decade ago that I was a “digital native.” I had no idea that my farm having a computer and dial-up internet in my K-12 years meant I was somehow different from previous generations, but I was. I'm still a very tech-savvy person, and my parents aren't.

But what does it mean to be AI-savvy, exactly?

A lot of smart people, myself included as an academic librarian, are trying to demystify AI literacy or fluency. We're making the case that if we teach AI natives AI literacy, they'll be able to navigate this AI-driven world better than before. I'm starting to think that's not enough. More accurately, I believe a divergence in approaches has already started to create an intelligence gap, or divide, which will separate AI natives who are prepared for the coming wave from those who aren't.

I've heard others say that what an intern or entry-level worker used to be expected to do has simply gotten more intense or harder. That makes sense. I've also heard that if you can have an AI system automate this work, or augment your ability to do it yourself, why hire an intern? That's the thinking, right? The bridge doesn't close down, it just never opens up.

The bigger challenge is that the AI sector is currently moving at warp speed. It's hard to quantify beyond benchmarks, but the models are getting smarter, and the agents are getting better at doing longer tasks effectively. If we fast forward to 2030, I wonder how much better the models and agents will be, and to what extent AGI—artificial general intelligence—will have been achieved. I wonder about the explosion of AI-native hardware and assistants. By then, I bet we'll be talking about agent literacy rather than just AI literacy. I hope we'll be able to figure out the difference between “cheating on your homework” and “hacking a system” that wasn't keeping up with technological change.

My guess is that if the AI frontier keeps moving this quickly, it'll be impossible for anyone to be truly AI native at anything. Even if you use these tools every day in your personal or professional life, there's always something new to learn. However, I think the people who use ChatGPT all the time, and have explored OpenAI Academy, knowing all the capabilities of these AI systems, will be able to separate themselves from their peers.

They'll be able to showcase their projects and skills in ways that show they're not just AI native and leaning on skills they picked up during their undergrad program. They've gone above and beyond to learn how to use all of this tech, which will make them highly valuable.

The greater challenge might be that even though AI doesn't leave the headlines, and younger people are hopefully getting the message and are trying to leverage the tools or find careers less impacted by them, there's still going to be an inevitable intelligence gap. I believe this will manifest in a few ways.

First, using ChatGPT all the time doesn't mean you know how to truly leverage it for co-intelligence and collaboration. You might just be offloading your work cognitively. Maybe you can churn out assignments, but you lack personal taste or a standard of quality.

Second, most people don't have hundreds of dollars for the highest tier of ChatGPT, or the budget to subscribe to the premium tier of multiple tools and services. This will create blind spots in people's abilities, where they might know ChatGPT but not know how to use Operator or Deep Research well.

Third, there's the bigger challenge of how well people understand how systems or even just organizations or industries work. A student who uses ChatGPT to automate their homework isn't learning how to strategically use AI to do the job of a professor, who might do real research. If you never get an entry-level job, you can't gain perspective on what the work is actually like, nor get exposure to higher-level strategy. You can't see your bosses' workflows or how they manage the larger scope of work happening under them.

In other words, you probably can't just give someone an agent, tell them to think big picture and strategically about how to automate their routine work, and expect them to direct that agent force like a team of employees, unless they know how to think one level above their current job.

I believe this is the larger challenge—one that goes beyond AI literacy and fluency, and whether you're part of the AI-native generation. It's why the intelligence gap or divide is going to widen, and it's going to get harder to grab the first couple of rungs on any kind of career ladder. Each year, at least for the foreseeable future, will unveil changes in the kinds of work that more powerful AI systems and agents make possible, creating new jobs and destroying old ones.

Maybe the real question isn't who is an AI native, but who can keep learning as fast as the machines themselves. In a world where the ladder keeps rising, the only way up is to climb alongside the technology, never assuming the next rung will be there.

Try this

“Ask me what kind of work I want to learn. Help me choose one small, realistic task in that field and attempt it with a free AI tool. Before we begin, help me decide who the work is for and what a good result would look like. Afterward, ask me to explain my choices, check the output, and try one step without AI. What have I learned beyond getting the task done?”

Part II

Teaching through making

Who gets the chance to learn AI, and who will help them begin? This section starts with a proposal to bring AI literacy into high school classrooms, then explores teaching through design and making. A working app can conceal a poorly understood problem. A polished guide can leave its reader unsure what to do next. These essays ask what AI fluency could mean for students, libraries, universities, and the communities around them.

Try reading this section as both a learner and a teacher. What would you want to make? What would you ask someone else to show you before you called the work successful? The answers may change the project before anyone writes a prompt.

Chapter 7

AI Corps: A Vision for Spreading Artificial Intelligence Literacy to Every Classroom

Originally published in LinkedIn³² · October 19, 2024.

Lately, I've been reflecting on my time teaching entrepreneurship and creative thinking to high school students back in 2021, when I joined a program called NICE Corps. This initiative, created by the NICE Center at North Dakota State University, sent recent graduates to high schools across the state to teach students the fundamentals of entrepreneurship. The NICE Center itself was launched in 2019 with a clear mission: introduce entrepreneurial thinking into the curriculum and, in doing so, spark a shift in mindset not only across the campus but also throughout North Dakota.

When I applied for the program, I saw it as a chance to bring Silicon Valley-style thinking to students who might never have encountered these ideas otherwise. In rural communities, where traditional career paths tend to dominate, exposing kids to entrepreneurial skills can be a game changer. It opens up new ideas, new possibilities, and—perhaps most importantly—new pathways that they might not have considered before.

Today, I've been wondering: Could we do something similar with AI literacy? What if we could replicate the NICE Corps model to help young people understand and engage with artificial intelligence? Imagine a local university creating an "AI Corps," sending students into high school classrooms to teach the fundamentals of AI—not in an abstract, distant way, but in a way that connects directly to students' lives and futures.

This kind of program could be transformative. It could demystify AI and show students that it's not just some high-level technology for Silicon Valley but a tool they can use to shape their own futures. Students, particularly those in rural areas, need to see AI not as something inaccessible but as a powerful ally in their education and career development. With AI literacy, they could move into college equipped with skills that make them valuable in almost any industry.

And AI literacy goes beyond just career skills—it helps students navigate the world with more clarity. In a time where misinformation, amplified by AI, floods our social feeds and news sources, having the ability to discern what’s real from what’s generated will become a critical survival skill. As AI continues to embed itself in everyday life—through tools like Google Workspace, Microsoft Office, Snapchat, Facebook Messenger, and even smart speakers—we’re starting to shift from simply giving machines commands to holding real conversations with them. And this conversational interface is just the beginning.

Teaching AI literacy now is essential because the world our students are stepping into is one where AI is going to define the landscape. Picture a high school student graduating in 2025. If they spend the next four years in college, they’ll be entering the workforce in 2029, which is around the time that thinkers like Ray Kurzweil predict we might see the emergence of artificial general intelligence (AGI). These students won’t just be stepping into a world shaped by AI—they’ll be the ones shaping it. They’ll be the creators, the optimizers, the innovators who define what AI-powered industries and societies look like.

This is why AI isn’t just another technological advancement; it’s the most transformative one we’ll experience in our lifetimes. It’s not just about making things more efficient or easier to manage—it’s about fundamentally changing the way we interact with the world around us. Imagine Bluetooth headphones that don’t just play music but run personal AI assistants locally or augmented reality glasses that let us see digital screens without holding any device. This level of technological advancement is within reach for today’s students if we give them the tools to navigate it.

We’re standing at the edge of a moment that will determine whether the digital divide widens or closes. If we don’t equip young people with AI literacy, the divide could turn into an intelligence gap that separates those who know how to harness the power of AI from those who are left behind, clinging to outdated ways of thinking and working. This isn’t just about having access to AI tools; it’s about understanding how to use them effectively, creatively, and ethically.

We need to make AI literacy a core part of every student’s education, whether they’re in rural towns or urban centers. Only then can we level the

playing field and give the next generation the tools they need to shape their future—one defined not by the limitations of the past but by the intelligence they learn to wield.

AI is not just coming; it's already here, woven into the fabric of our everyday lives. The question is not whether today's students will use it but how prepared they'll be to shape it. And that's why teaching AI literacy is not just important—it's urgent.

Try this

“Help me plan a 30-minute AI literacy visit to a high school classroom. Ask about the students, their interests, and the tools they can access. Build one activity around a question they care about, with a version that needs no student accounts. Include a moment to check an AI answer against a reliable source. How could students show what they learned by helping someone else?”

Chapter 8

My Adventures in Teaching AI Fluency to College Students: A Case for Design Literacy

Originally published in LibTech Insights³³ · May 11, 2026.

When AI Writes Code, Not Text Outputs

AI literacy lessons mainly concern themselves³⁴ with how to analyze the text output from a chatbot, because it's a form of information that needs evaluation and citation. That's information literacy and usually what concerns research librarians about GenAI.

But what about when the chatbot generates computer code? How should we teach our students to think about programming with chatbots? Do students still need to analyze this output with the same critical thinking lens that they do other information outputs?

The main reason why I raise these questions is that this semester, I've been an embedded librarian in the first "AI Fluency" class that my midsize university has offered, collaborating with faculty on teaching AI literacy, giving feedback on assignments, and public speaking about the course. At the start of developing the course, the art professors and I believed that teaching this subject meant curating a range of complex, wicked problems that students could use AI tools and services to tackle.

But we soon realized that this approach may not work as we had hoped. To keep students engaged throughout the semester, we instead allowed them to pick a project that let them expand on their passions and interests.

As a result, we've had several students create a wide range of websites and apps. We've had an indie artist create a website, eye-popping music videos, and AI-generated album artwork. We've also had students create an interactive escape room game, a fandom role-playing app, and an e-commerce storefront.

In conversation with students, I noticed that the number one thing that comes up in class is often design process recommendations—what's more

accurately described as design literacy, or the ability to identify a real problem, understand users' needs, and iteratively prototype solutions—rather than AI fluency.

Do the professors and I provide solid advice on how to write chatbot prompts? Yes. Do we help the students contextualize the latest news and how it relates to their project? Of course. But often, we discuss the latest stage of their prototype and what needs to be done next to create the full-fledged version of their website or app.

We consider the feasibility and usability of their coded project—and how much they can accomplish by next week's end—because no one really knows the limits of what platforms like Lovable³⁵ and Base44³⁶ can create. So we're seeing each student do things, create things, and solve problems we couldn't have imagined when we first came up with the class outline. The students are using a ton of AI, but it's not to create information.

It's to create code that results in the design of a website or app.

Thankfully, my degree program at the University of Michigan included classes in user experience design, and I also worked for several years in the tech sector before I pivoted to become a librarian.

I conducted user experience research for a handful of companies, helping them grasp if they developed the right product—ensuring that it was useful, usable, and “well-designed.” So, I have extensive knowledge and professional experience informing my belief that AI fluency instruction is missing a critical foundation: design literacy.

Real-Time Design, Real Blind Spots

The biggest challenge in trying to teach AI fluency fundamentals is that you could easily make a course where students read themselves to death about information literacy and critical thinking. You could demonize chatbots to the point where students fear using them, as I've already observed in my position as a Research and Assessment Librarian, where I conduct regular survey-based studies on student and faculty attitudes and opinions on GenAI.

When my colleagues and I started to work on this course, we also believed that our expertise and experience with GenAI would matter more.

However, most of these tools and services are easy enough to use, so pretty much anyone can figure out the basic functionality and start producing plausible products and services.

What I've started to realize is that when students dive in and start coding, they're missing the "messy" first part of the design process, wherein you must figure out who you're building for and what exactly they value. There's a great concept coined by Lean Startup author Eric Ries called³⁷ "achieving a failure," which is when you expertly execute a plan that results in creating something that no one actually wants to use or needs.

As such, I've started to describe vibe-coding to others as something more akin to "real-time design," because you're able to write programming instructions and see them rendered in front-end mock-ups. The trouble is that real-time design can allow you to skip the hardest part of the process: talking to people and trying to understand their environment and experiences.

When you do real-time design, spitting out code and design at the exact same time, you're taking two things that used to be separate and combining them. I learned this years ago, and it took a long time to wrap my mind around, but a designer first creates the look and feel of an app inside a tool like Figma. That design is then examined to make sure that users can navigate the product, a process called a usability test.

Once that design gets approved, then a front-end developer writes the code that renders the buttons and layout in a way that is now clickable and interactive in the app.

Earlier this week, I started to discuss this challenge with two different colleagues. It revealed how much AI fluency is really a cross-disciplinary field. The first one said that a student is still exercising critical thinking when they decide what to build; the very act of determining what to make should trigger their skepticism of their own ideas. The business professor pointed out that students were making things without trying to determine or discover any kind of product-market fit.

Put simply, product-market fit is the degree to which an app satisfies a strong market demand, and a target market is established.

In other words, I realized that my students were making the same mistakes that are often prevalent in Silicon Valley. Founders overestimate how

much people want a solution to a problem all the time—and oftentimes the “problem” is a personal pain point that isn’t shared by everyone. They often don’t conduct user experience research. They don’t go through the design thinking process of empathizing with users, defining a problem to solve, and ideating based on a broad range of solutions.

Essentially, our students were jumping between prototyping and testing mode, without revisiting the other steps in the process. They became like founders who were somewhat blind to their own biases, because they started with the chatbot rather than chatting.

The Front Lines of AI Fluency

The reason I’m sharing this journey and what I’ve learned so far is that I don’t think anyone—let alone us as librarians—knows exactly what it means to teach AI fluency. There are a lot of different ideas out there, and companies have started releasing courses³⁸ on the subject.

But when you’re the librarian supporting a brand-new course—and you’re embedded with the goal of learning and reporting what’s happening at the front lines of AI literacy education—you must stretch yourself and push the boundaries of what you know. You must figure out the gaps in your own logic. I’m lucky in the sense that I’ve had a multitude of experiences and a multidisciplinary education, but I realize that not everyone understands the importance of design literacy.

In a recent column³⁹ in *Inside Higher Education*, Professor Joseph Squier argues that design literacy is one of the fundamental literacies missing in higher education. He contends that scientific and humanistic literacy currently serve as the primary pillars of undergraduate education.

However, design literacy—what Squier describes as “creating solutions through prototyping, iteration, and synthesis; learning how to transform understanding into action and ideas into reality”—remains crucially and fundamentally absent from most existing education programs. He says that design literacy is an important competency for students to learn and master, as “it’s the discipline of transforming ideas into reality, of imagining what doesn’t exist and bringing it into being.” That’s exactly right.

Design literacy is essential.

Given that research libraries are exploring the creation of AI studios—or what I’ve called “imagination labs” in a previous essay⁴⁰—it makes sense that if we’re going to empower students with top-tier models and vibe-coding tools, we also need to help them learn design literacy.

Students must grasp the complete process of how to envision what doesn’t exist and bring their ideas to life, so that they can connect whatever they imagine to the real world and real people who badly need solutions to wicked problems.

Even NN/Group,⁴¹ one of the leading user experience education and training firms, has been grappling with how AI coding has changed design work. In a recent blog post,⁴² Sarah Gibbons and Huei-Hsin Wang talk about how vibe-coding tools allow those with personal intuition and agency to effectively throw the design process out the window, similar to what I observed in the speed at which students prototyped their ideas.

With one exception, no one slowed down and first asked themselves—or anyone else—if any people actually needed their particular solution to their problem.

The Substack Technically recently wrote⁴³ that to understand vibe-coding and all the hype around it, you must look back no further than The Maker Movement and the era of 3D printers, as the parallels are “hard to miss. Technically explains, “Vibe coding has slop. The Maker Movement had crapjects,⁴⁴ a term the community coined for 3D printed objects that served no purpose beyond proving you could extrude plastic into a shape.”

During my internship in the University of Michigan’s Shapiro Design Lab⁴⁵ during graduate school, I saw firsthand what kinds of things students created with the 3D printers the library provided. Many printed things were nerdy objects that made people happy; only a small number of objects that patrons peeled off the printer bed were useful and usable, or what I’d describe as well-designed with someone in mind.

To avoid that fate with AI studios—essentially becoming AI slop factories—it’s essential for embedded librarians and professors to design literacy fundamentals. Research librarians can become “trusted guides⁴” who can help students connect what exists in their imagination with problems in the real world. We can help students critically examine their code the same way as a chatbot’s text outputs.

Meanwhile, I believe there's a tremendous opportunity for librarians to learn how to conduct research, design, and code solutions to their own hard problems. We must become more antifragile: not only withstanding shocks, volatility, and stress, but actually benefiting and growing stronger from the huge and new challenges that navigating the AI age poses.

Here's my favorite question to ask: What would you build if you deeply understood why people love and enjoy your library, and the role that it plays in their everyday lives?

Build, design, and develop your ideas for them. That's the powerful and real capacity that's being unlocked by this new wave of AI-coding platforms.

Try this

"I have an idea for something that could help another person. Before we build it, interview me about who that person is, what they are trying to do, and what I have actually observed. Help me separate evidence from assumptions. Suggest three questions I could ask them and one small way to test whether I understand the problem."

Chapter 9

Building the Imagination Lab: A Manifesto for Libraries in the Intelligence Age

Originally published in LibTech Insights⁴⁰ · September 8, 2025.

If you woke up on a university campus in 2030, you'd see the main difference before you felt it. Students aren't "going to an AI chatbot" anymore; they're wearing, hearing, and gesturing to always-on AI companions⁴⁶ threaded through glasses, earbuds, pens, tablets, and devices we haven't named yet.

The major platforms—OpenAI, Meta, Google, Apple, Snap, and others—are racing to ship⁴⁷ AI-native hardware⁴⁸ and ambient agent layers⁴⁹ that move beyond typed prompts into context-aware assistance. Parallel efforts are reinventing web browsers,⁵⁰ productivity suites,⁵¹ and social platforms⁵² around generative and agentic intelligence. We already see the outlines in 2025.

By 2030, this will be the water we all swim in.

The trouble is that access to this future is already uneven. The most capable frontier models and agent features sit behind⁵³ premium subscriptions.

Some students (or their parents) might spring for a high-end ChatGPT tier but not the stack of specialized tools emerging around presentation, research, writing support, and voice-to-text—whether that's Gamma,⁵⁴ NotebookLM,⁵⁵ Grammarly,⁵⁶ or Wispr Flow,⁵⁷ or next-wave discipline tools in medicine, business, and education.

As universities begin negotiating campus-level AI packages, students at well-resourced institutions⁵⁸ will accumulate hours of guided use, custom-tuned models, and AI literacy education⁵⁹ that compound into material advantage.

That advantage will harden into an intelligence gap layered atop the long-standing digital divide.⁶⁰ First came unequal broadband. Then

uneven digital literacy—the skills to find, vet, and interpret information online. Now we face a third divide:⁶¹ differential access to collaborative intelligence—the ability to work fluidly with advanced AI systems, evaluate outputs, orchestrate multi-tool workflows,⁶² and build domain insight faster than peers.

In a media environment thick with synthetic text, deepfakes, and automated persuasion, those without guided AI fluency will struggle not only to compete academically and professionally but also to navigate reality.

University libraries cannot afford to remain passive⁶³ as this shift accelerates. Ensuring equitable access to journals, databases, and print collections is no longer sufficient. The instructional frontier has moved: from information literacy (find, evaluate, cite) to AI literacy⁶⁴ (question, prompt, interpret) and now to AI fluency⁶⁵ (collaborate, create, imagine).

As campuses head into the fall semester—with next-gen models, early general-purpose agents, and AI-native devices on the horizon—the question becomes: What if the library were the place where students and faculty learned to imagine with AI, not just use it? To remain essential in the intelligence age, libraries must become laboratories of imagination—and more.

From Information Hub to Imagination Lab

In the winter semester, I hosted AI Literacy Week⁶⁶ on my own campus. I organized a faculty panel, a documentary screening, an AI art contest, and a book display, but I quickly discovered just how hard it is to get students to show up, let alone engage with abstract concepts like generative AI. What made the difference wasn't the programming—it was a professor who invited me into their class afterward.

That single invitation unlocked the opportunity to speak to students directly, and it changed everything. These students weren't just curious about prompting techniques or information literacy. They wanted to talk about the future. They wanted to grapple with what AI meant for their lives, their careers, and their sense of reality. That experience convinced me that what we need are not just events or tools, but spaces—labs of curiosity and imagination where these deeper conversations can take root.

You might be wondering: What exactly is an Imagination Lab? How does it differ⁶⁷ from an AI Studio, a Makerspace, or the typical emerging tech lab? In my view, an Imagination Lab is not just a room full of frontier AI tools—it’s a space designed to cultivate both fluency and imagination. It offers hands-on access to the latest generative models and services. It hosts prompt labs, agent workshops, faculty panels, and hackathons.

But beyond access and training, its true purpose is to help students and faculty learn how to collaborate with intelligence, not just consume it.

AI fluency, as I define it,⁴ means more than just knowing how to open ChatGPT. It’s knowing how to use it well. It’s understanding the differences between models, the capabilities of agents, and the nuances of using memory, instructions, and personalization. It’s the ability to customize tools, orchestrate workflows, and build systems that augment your work across your personal, professional, and academic life.

But this technical skill set alone isn’t enough. Fluency without imagination is sterile. Students must also learn how to translate intelligence into usable, expressive forms—how to tell stories with insight, present research with resonance, and adapt their findings to new media contexts.

You might be able to write a perfect prompt for a Deep Research report—which is a good way to start the exploration of a subject area—but what if your professor wants a deck? What if your future stakeholders need a two-minute explainer video? What if the right output is a TikTok, a podcast segment, or a stylized, shareable data visual? This is where imaginative literacy begins—knowing not just what you know, but how to communicate it creatively and strategically.

That’s why I believe the term Imagination Lab better captures the trajectory we’re on than “AI Studio” or “Emerging Tech Lab.” Generative AI is quickly becoming a creativity amplifier, not just an intelligence engine. Just look at Google’s Veo 3 video suite.⁶⁸ Already, social media is filling with AI-generated short films⁶⁹ starring gorillas, raccoons, and yetis narrating surreal adventures.

Within a few iterations, generative video will make it possible for any student to create a full documentary, explainer, or campaign for a class project, public initiative, or start-up launch. The implications for libraries are profound. We’re not just curating access to knowledge—we’re curating

access to expression. The Imagination Lab becomes a place where students don't just find information—they transform it.

Some campuses have already begun to build them. The University of North Carolina at Chapel Hill will launch⁷⁰ an AI Studio this fall, offering a hands-on space for student experimentation and instructor support. The University of Rhode Island's AI Lab is another early model. These initiatives are encouraging and exciting. What's needed in the coming years is a shift toward creative, collaborative, and imaginative engagement with AI. The time to build this future is now.

The first AI lab⁷¹s are emerging. What's needed is a movement of librarians bold enough to reimagine the future—and their role in shaping it.

What Happens Inside an Imagination Lab?

During my graduate studies at the University of Michigan, I interned at the Shapiro Design Lab,⁴⁵ a creative technology space outfitted with 3D printers, laser cutters, sewing machines, button makers, recording booths, and more. I quickly learned that it's not enough to provide emerging technologies—you need guides. Students didn't just need to borrow equipment; they needed help imagining what was possible, troubleshooting their ideas, and adapting tools beyond their intended use.

Sometimes, they needed support that the lab wasn't "technically" designed to provide, but the lab staff rose to meet them anyway. That's what made it work. And it's what an Imagination Lab must also do: create a space where creative and collaborative support is as present as the technology itself.

Step into a future Imagination Lab, and you might see rows of high-performance computers running the latest frontier models, each station fitted for everyone's needs: deep research, design generation, agent orchestration, multimodal storytelling. But the experience wouldn't stop at the keyboard. Instead of typing prompts, students might wear noise-canceling headsets and converse aloud with their assistants—asking, refining, iterating.

Some may wear smart glasses⁷² that let them summon multiple virtual displays, gesture to organize information, or bring data to life in augmented space. Picture a student with a boom mic, gesturing like a conductor, surrounded by swirling virtual monitors. It may sound like

science fiction now, but the trajectory of AI-native hardware—OpenAI’s rumored device, Meta’s AR glasses, Wispr Flow, and beyond—suggests we’re closer than we think.

What role will librarians play in this space? Yes, they’ll lead workshops on AI fluency, agent customization, and multimodal storytelling. They’ll collaborate with faculty to codesign assignments, embed AI instruction into classrooms, and offer hands-on studio hours. But their role goes deeper. As agents grow more capable—drafting reports, generating videos, automating workflows—our traditional understanding of assignments will be upended.

What’s the learning assessment value of students writing a 15-page research paper if an AI can do it in a few seconds? Suffering builds character, they say. But who is reading such lengthy reports beyond Amazon bosses,⁷³ who famously prefer written reports over flashy decks? The real value may begin to shift to higher-order thinking: crafting novel questions, synthesizing cross-domain knowledge, navigating ambiguity, and designing new systems.

The Imagination Lab becomes the place where faculty, librarians, and students cocreate new forms of inquiry, moving from completion to exploration.

This is the deeper promise of the Imagination Lab: it’s not just a place to learn AI, but a space to reimagine the world with it. If AI is going to eat the internet, the operating system, the interface—and possibly arrive embodied in robots—then our job isn’t to preserve outdated academic practices. It’s to equip people to meet the moment, ethically and effectively—collaboratively and, yes, imaginatively.

The Imagination Lab is where students begin building the skills, tools, and mindsets they’ll need to confront the unexpected. Libraries wouldn’t just teach AI, but help people envision, prototype, and prepare for the future unfolding in real time.

Building the Future, One Lab at a Time

So where do you start? Do you need a budget for smart glasses, ChatGPT subscriptions, and AI-powered headsets? Not necessarily. A Minimum Viable Lab (MVL) can begin with what most libraries already have: a few computers, a quiet room, and the willingness to experiment.

By this fall, ChatGPT 5.0 will likely⁷⁴ be available with unlimited use. No one will be an expert—yet. That’s your opportunity. Start by learning what you can from OpenAI’s Academy,⁷⁵ LinkedIn Learning, or Coursera. Within a few weeks, you’ll know more than most students, and you’ll be ready to guide others.⁴ Launch a workshop series on ChatGPT fluency.

Go further: host a speculative fiction camp where nursing students write short stories about AI in future health care scenarios. Use image models to illustrate their imagined worlds. Ask: Is this a utopia,⁷⁶ dystopia,⁷⁷ or protopia?⁷⁸ By the time they graduate, some of those scenarios might be real.

Host AI Studio Hours.⁷⁹ Not lectures—playgrounds. Invite students and faculty to cocreate. Start with a roundtable: What are you working on? Where are you stuck? What have you learned? Then let them explore. Give space for solo projects, collaborative experiments, and creative tangents. End each month with lightning talks, quick reflections on what people tried, what surprised them, and what they’re doing next. In time, the lab becomes not just a place—but a community.

One where students teach librarians, librarians teach faculty, and everyone teaches each other.

This isn’t Field of Dreams.⁸⁰ You won’t build the perfect Imagination Lab on day one and have students lining up to proclaim you a visionary. But you don’t need perfection. You need a prototype and a purpose. You need to plant the idea that libraries aren’t just curators of the past, but architects of what comes next.

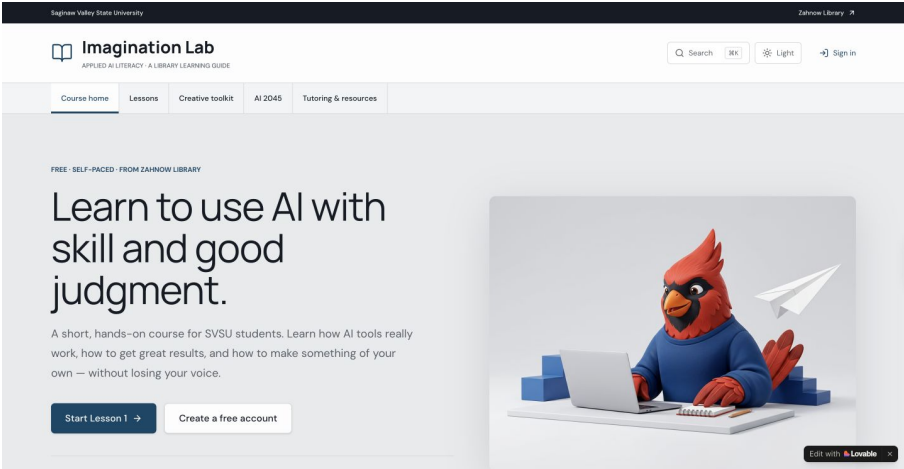
We’re heading into a decade⁸¹ defined by generative intelligence, autonomous agents, and exponential change. Our students will live, work, and lead in that world. If we don’t help them imagine it, someone else will. Some other university. Some other lab. Some other guide. Let it be us. Let it be librarians. You don’t need permission. You don’t need to read another

white paper. You need imagination. So, choose yourself and choose your library.

Try this

“Build a simple webpage that helps a library visitor choose a first AI experiment. Ask me who the visitors are before coding. Let visitors choose an interest, their available time, and their comfort with AI, then suggest one activity. Start with three sample activities and no account requirement. Help me test whether a first-time visitor can understand what to do next.”

Visit the AI Guide



An essay can make the case for a new kind of library learning experience. A guide has to help someone actually begin. As you explore this project, notice the path from a question to an explanation, then from an explanation to something the learner can try. Where does the learner have to make a judgment of their own?

Explore Imagination Lab and Applied AI Literacy⁸²



Chapter 10

The Intelligent University: Reinventing Higher Education in the Age of AI

1.

For the past few weeks, I've been thinking about what it would mean for the university library to move beyond teaching AI literacy and focus on developing AI fluency, or even mastery. What if the university library and academic librarians became the trusted guides in the age of AI, helping our university navigate this transformative and disruptive era as the intelligence age unfolds? What would happen if we created in-depth newsletters and provided interactive workshops rather than creating LibGuides that need to be updated all the time?

After much reflection, I realized that while the concept of an “intelligent library” and the larger vision for providing equitable access to advanced AI systems through an AI lab—and teaching increasingly advanced, effective, and ethical AI fluency and mastery skills—should direct university libraries on what to do, a larger question looms: What if the university itself fully embraced AI systems and reinvented its approach to education and student preparation?

Observing the rapid progress of frontier AI labs, remarkable news stories, and increasingly intelligent and agentic research tools and task automation systems that emerge on a weekly basis, it's evident that the future we're heading towards is different from our current reality.

If AI development is likely to take off rapidly, which already may be happening, contrary to previous expectations of gradual change, then universities must treat seriously the possibility of experiencing rapid and exponential progress seriously. We must consider what it would mean to create the intelligent university of the future today and explore how to disrupt ourselves now.

This way, other AI-powered universities, technology startups, and ed-tech companies won't shape the future of education before us, potentially

attracting all our students, putting us out of business, and rendering our current methods obsolete within the next five to ten years. So how might universities meet the moment and reinvent themselves in the intelligence age?

2.

To fully embrace the intelligence age, universities must partner with major AI providers like OpenAI, Anthropic, Google, or Perplexity, or they should figure out how to leverage the latest open-source models that are available from the likes of Meta and other independent labs.

Long before the university is prepared and the committees have been formed, they should offer these tools directly to students, staff, and faculty. But this is where the real work begins. Access to a single AI service isn't enough. Each department will need AI tools and services tailored to its specific needs, which means budgeting for customized AI stacks.

These stacks could include elements like voice dictation, AI-powered document and presentation design, research search engines and assistants, data analysis and visualization, and computer programming and software development agents, among others. Eventually, each department will likely need its own AI lab with this technology stack installed so students can use it, too.

Moreover, universities should establish an AI lab in the library where everyone can access the most advanced AI systems and agents the budget can afford. This accessibility lets anyone use the latest Pro models and agent tools to conduct in-depth research and automate tasks in ways most users don't realize are already possible today.

During this transition, as the university integrates advanced models and agentic systems into every office—and moves from teaching mere AI literacy and fluency to mastering collaboration and execution alongside agents—it must reconsider current educational approaches. This includes rethinking classroom structures, assignment design, and the essence of learning in higher education as AI progresses exponentially and frontier models begin to meet and exceed students' cognitive abilities in most fields.

Embracing these transformative forces rather than resisting them will fundamentally reinvent higher education. Ultimately, creating the intelligent university of the future will require dismantling the barriers that separate departments and programs and keep faculty and students largely confined to their chosen academic fields. It'll soon become crucial to make the entire university more interdisciplinary and collaborative, because the future we're moving toward isn't pure utopia or dystopia. It's a world full of unanswered questions, wicked problems, and unintended consequences.

Designing assignments for this AI-powered, reshaped world requires shifting from trying to make them AI-proof to making them AI-ready, or AI-inevitable. Since students will inevitably use AI tools anyway, assignments must be adaptable to this evolving landscape.

3.

Many college students stay in their local communities after graduation, and local industries and businesses need more than just routine workers. They need an AI-powered workforce and AI-driven leaders who can integrate AI and innovate, deploy advanced AI systems and autonomous agents, and disrupt and automate current operations, driving rapid economic and community development and growth in an AI-driven economy.

To be very clear, all industries and businesses must start figuring out how to do this now and fast. Competitors across the country, or around the world, will soon try to develop and deploy an agentic system that crashes and disrupts their current business model. Any industry, company, or job that relies on computers and the web to manage its business and projects could be completely automated.

Unfortunately, current talent pools often lack these skills, so businesses must train existing and new employees in AI until universities can ensure graduates possess these abilities. But the intelligent university's end goal shouldn't be simply producing more competent workers. It must strive to cultivate diverse educators, entrepreneurs, innovators, and leaders who can address unsolved problems and unanswered questions in their fields by mastering AI tools.

Such students can create new industries, businesses, nonprofits, and ultimately jobs that previously didn't exist in their area. To achieve this goal, learning experiences must address broader societal questions and practical community issues.

Universities must collaborate with local industries, businesses, schools, and non-profits to propose projects that students can tackle through AI-driven, cross-disciplinary capstone projects. These projects can help solve real challenges and answer larger questions while demonstrating AI's transformative potential to communities, helping students further develop and apply their AI fluency and helping local organizations envision future roles for these graduates.

If universities want to integrate and innovate with AI in their existing systems and embrace today's exponential progress, they must accelerate toward the future themselves rather than wait for advanced intelligence and automation systems to become standard.

In this context, the technology accelerator and incubator model offers an interesting perspective on the intelligent university concept. It helps us better understand the vast implications of providing powerful AI systems to everyone, empowering them to develop AI mastery and propose ideas to lead the university into the future.

The incubator and technology accelerator aptly describe the direction universities must pursue. The intelligence age will soon be known as the acceleration age, as progress rapidly advances. To keep up with the ongoing AI race, universities must take the initiative, positioning themselves as AI leaders in education rather than followers. How might they do this? Once they choose an AI provider, they must empower teams to pursue AI-powered initiatives, projects, products, and experiments, acknowledging that many might fail.

The goal is to develop an accelerator-and-incubator mindset, creating an environment where hundreds of AI efforts can start. Maybe a few dozen will show real promise and succeed. Still, their lessons will pave the way into the intelligence age with confidence and competence, rather than stumbling and delaying innovation or disruption. Waiting to see what other institutions do and how the AI space evolves over the next couple of years leads to stagnation and contemplation instead of progress.

4.

Ultimately, every university worldwide is already racing to create AI-powered education, trying to enroll students who once chose local campuses.

Many AI-powered online education platforms will soon emerge, delivering AI-focused degrees and certificates from anywhere. These services will attract students who want to build AI skills to advance their careers, rather than choose a degree from a limited menu and hope their local university keeps pace with AI.

Additionally, many tech companies, existing ed-tech providers, and disruptive upstarts will strive to conceptualize the intelligent university, creating online platforms that introduce students to this future, where AI assistants and agents are integrated throughout the entire technology stack, not merely as a single website or app. They will use advanced marketing agents to target students on social media who formerly entered campuses at graduation age. Lastly, a flood of AI certificate training programs will promise to equip students with essential workforce skills, drawing their time, money, and energy into programs universities could have offered if they had acted swiftly and engaged students with their own AI offerings.

It's crucial to understand that the intelligence age isn't merely about the rapid advancement of AI tools or the agentic automation of workflows. It will usher in a period of intense, decisive creative destruction, reinventing and disrupting every traditional industry and business that exists today while rapidly empowering new ones to take their place.

Universities must not limit their thinking and imagination to purchasing an enterprise-level AI tool subscription and offering a few AI literacy classes. That won't be enough. They must rethink their classrooms and assignments. They must engage with communities and reinvent each other. In the intelligence age, they must foster students who aren't just future employees—but future AI-powered entrepreneurs, innovators, executives, elected leaders, and people in roles we haven't imagined yet—with a few AI tricks and prompts up their sleeves.

If you step back from the university campus and the academic library and consider the real potential of this revolutionary moment and how

embracing AI could impact the communities we serve, you can start to imagine what they could become with an AI-powered workforce and a new class of AI-minded entrepreneurs and leaders who could rapidly drive economic and community development, leading to the creation of new industries and opportunities for future students. You begin to see more than just the “intelligent university” of the future and start to understand that we’re talking about developing entirely intelligent economies.

The intelligent university’s bold mission should be to spark an entrepreneurship revolution and creative renaissance like the next Silicon Valley, Austin, or Research Triangle. It must envision a new kind of city with an AI workforce, driven by AI’s exponential growth. This workforce will learn to navigate this age of acceleration, propelling communities toward an economic revival instead of succumbing to economic decline and destruction, powered by AI-based organizations, powerful agentic systems, and AI-fluent workers thriving elsewhere.

It’s time for universities to take leaders like OpenAI CEO Sam Altman, Anthropic CEO Dario Amodei, and Google DeepMind CEO Demis Hassabis seriously. Even if artificial general intelligence (AGI) isn’t developed for another five or ten years, we now live in a world where increasingly intelligent, highly competent, and autonomously capable machines emerge on a monthly, sometimes even weekly basis and will continue to do so every year until one, or many of them, crack AGI or unlock superintelligence.

Instead of waiting to see what others decide to do with these advanced AI systems and tools, we must determine their potential ourselves and begin creating the future. We must determine how to build an “intelligent university” for the intelligence age, embracing a rapid pace of innovation and execution. This proactive approach will not only help universities envision the future of higher education but also pave the way for the reinvention of our communities and the creation of the AI workforce that will make all of this possible.

Try this

“Help me turn a real community problem into a small student project. Ask who needs help, which disciplines should work together, and what students need to learn. Then build a simple prototype with sample information and explain where AI is useful. Suggest one way to test it with the people affected. What would show that the project helped someone and that the students learned something?”

Chapter 11

Reinventing the LibGuide with Natural Language Programming

Originally published in LibTech Insights⁸³ · January 21, 2026.

A few months ago, I decided it was time to learn how to vibe code. I didn't know exactly what I'd build, but I wanted to try. "Vibe coding"⁸⁴ is the latest buzz in Silicon Valley—a term popularized in early 2025 by AI researcher Andrej Karpathy to describe programming by expressing intent in natural language rather than writing syntax line by line.

In practice, it means writing prompts in English—or in your native language—and having a generative AI system translate those ideas into functional code. At first glance, it's easy to underestimate how revolutionary that is. The ability to describe what you want a website or app to do and then watch an AI agent assemble the code changes the entry point for software creation entirely.

When I first opened Lovable.dev,³⁵ one of the latest vibe-coding tools, I typed out what I wanted: a personal website⁸⁵ that organized my writing, podcast appearances, and talks. I described the general layout, the tone, and even the "feel" I wanted for the site—clean, calm, minimal, like Apple.com if Apple made a personal website. The AI parsed my description, interpreted it as design intent, and began constructing page layouts.

To my surprise, Lovable's agent didn't simply generate static templates. It appeared to draw context from my prompts and online presence, KyleBylin.com. To help it along, I provided several Perplexity Deep Research⁸⁶ reports summarizing my past work, so the agent could ground its design choices in actual data about me. The result wasn't perfect, but it was recognizably mine.

It was a first draft of my online identity, assembled through collaboration with an AI partner rather than a web designer or developer.

That moment reframed my understanding of work itself. It wasn't just about using AI to automate a task; it was about conversing with AI to create something new. I started thinking about this as vibe work: a mode of

human–AI collaboration where the core skill is the ability to articulate your goals, aesthetics, and intuitions clearly enough for an AI system to operationalize them.

To “vibe,” in this sense, means to collaborate conversationally with a generative AI tool—discussing goals, experimenting with approaches, refining outputs through dialogue, and giving feedback in natural language. The “vibe” captures not just function but feeling. I might say, “Make my website feel like Apple’s—minimal, confident, modern,” and the system translates that metaphor into layout choices, typography, and spacing.

This concept of vibe work represents a shift in how we communicate ideas to technology. It replaces the need for precise syntax with semantic clarity, that is, knowing what you want, why you want it, and being able to describe it meaningfully. It is, in many ways, what IBM describes⁸⁷ as a move “from syntax to semantics” in software creation, where natural language becomes the new programming interface.

From Typing to Talking: How Agents Reshape Roles

I started thinking about how this agentic shift would change traditional roles. For example, I use Wispr Flow,⁵⁷ a voice-to-text app that has logged over 455,000 words from me—roughly eight books’ worth of dictation. I no longer type most of my writing; I speak it. The process is fast, fluid, and deeply conversational. It’s also rewiring how I think. When I speak my drafts, my brain structures ideas differently—less linear, more associative.

My relationship with text feels more alive, almost like teaching an attentive listener who responds with structure and clarity.

This style of work is where AI tools shine. They amplify intuition. They make it easier to stay in flow. But they also expose new risks. Wired recently warned⁸⁸ that vibe coding “could inherit the chaos of open source in the worst way possible” if AI-generated code is opaque or insecure. That critique is fair. When the machine generates code faster than a human can audit it, quality assurance and security testing must evolve just as quickly.

Still, the potential outweighs the risk. Once employees can describe workflow improvements in plain language—and AI systems can implement them safely—entire layers of inefficiency could disappear. The rise of the

AI automation engineer,⁸⁹ a job that focuses on identifying opportunities for automation within organizations, will likely accelerate this transformation. Instead of asking whether AI will replace jobs, we'll ask how people can direct AI more effectively.

The real unlock, though, came when I realized I could treat my published work—my essays, websites, and presentations—as a personal knowledge API. Instead of letting AI search the open web for information, I could have it reference my verified website. This flipped the relationship between author and algorithm. I wasn't just feeding prompts into a black box—I was creating a professional identity that AI could access and reuse across projects.

Imagine what this could mean for students or early-career professionals. A library student could vibe code a digital archive of research projects. A designer could build a portfolio that automatically updates with new work. A news journalist could create an AI that drafts newsletters based on their verified reporting. Each person could effectively build a self-updating, AI-readable record of their expertise—a living database that both humans and machines can learn from.

This democratization of creation may prove to be vibe coding's most profound impact. It lowers the barrier to invention. It allows nonprogrammers to become builders, thinkers, and designers. It encourages people to experiment, iterate, and publish ideas in formats that used to require specialized technical knowledge. This is the shift from telling a computer how to do something to telling it what you want done.

When I step back and look at the trajectory of these tools—Lovable and Wispr—I see a clear through line: each one teaches you how to think with AI. Learning one tool lowers the barrier to learning the next. The skills compound. The interfaces blend. We're heading toward an era of AI studios⁴⁰—digital spaces where humans and agents cocreate in real time. Students won't just study ideas; they'll prototype them. They'll create a website or app for the final.

Researchers won't just analyze data; they'll converse with it. Creativity and productivity will start to converge.

Vibe coding isn't just about writing software differently. It's about reimagining human creativity itself. It's about describing the world you

want to build—and watching an intelligent system start building it with you.

Traditional LibGuides Meet Live-Coded Websites

In the first year of my librarian career, the instinct to build a LibGuide for AI literacy⁴ for my university was nearly automatic. Academic librarians know standard outline: homepage, tabs for databases, a few search engine tips, maybe an embedded YouTube video. LibGuides are reliable and structured, but they're also static. Once published, updating them feels like doing layout with mittens on. The guide freezes my thinking at one moment in time instead of evolving with the AI age.

Vibe coding, or what could more accurately be called “live-coding,” cracked that open. What if the “guide” wasn’t a fixed page but a live-coded website that could grow alongside the class? Instead of dragging boxes around, I could describe the site I wanted: an interactive guide, not a filing cabinet. A place where students could explore resources, test prompts, and see examples generated in real time.

Image: A screenshot of Music 2045, showing a timeline of music development with a navigation panel on the side [original illustration]

That idea led me to create to Music2045.⁹⁰com, a website inspired by AI 2027, which is a frontier AI timeline that explores when disruptive societal changes might occur if AI advances accelerate. I also wrote an intentionally provocative essay called “Will Musicians Be Extinct in Ten Years?” The site now acts as a living, AI-native guide rather than static resource list. With live-coding, I could simply say, “Create a timeline that shows how AI might reshape music.

Connect each moment to historical events and articles.” The agent produced a site that felt more like a narrative map than a LibGuide.

Music2045.com grew into an open-access book as well.⁹¹ I took an existing book that I published and updated its content with all the recent essays that I had written about music and AI. Together, they form an AI-native guide: part timeline, textbook, and guide. Students can move from a timeline entry into a chapter, from a chapter into an activity, and back into new events they help surface.

This shift changes what librarians can prototype. LibGuides optimize for stability; live-coded sites optimize for experimentation and narrative. I can spin up alternate versions for different audiences or build environments where students can learn subjects in brand new and interactive ways.

There's a deeper shift underneath. A LibGuide assumes knowledge is something we present. A live-coded site assumes knowledge is something we do, together, in real-time. When I vibe code, I'm shaping not just content but workflow: how to move from curiosity to context, from context to critique, from critique to creation. Since the site is malleable, it can evolve as the frontier moves.

For students raised on live feeds, static LibGuides feel like handouts, ones that look nothing like the Silicon Valley-coded websites and apps they use daily. A live-coded timeline feels more like a space they can inhabit and influence. It's easy to imagine every course eventually having its own AI-native guide—a hybrid syllabus, resource hub, timeline, and AI studio—co-built by librarians, instructors, students, and agents. In this world, librarians don't just maintain lists of databases.

We design the environments where people learn to think and build with AI—not just consume static info.

Try this

“Help me turn one static resource guide into a small interactive website. Ask who will use it and what they need to accomplish. Use the resource links I provide to build searchable cards and a topic filter. Make it work on a phone and with a keyboard. Then suggest one task I can give a reader to find out whether the guide helps.”

Chapter 12

The Rise of Vibe Coding: When Anyone Can Build Anything

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1: Building Websites in the Age of AI

During the COVID-19 pandemic in 2020, I worked as a hosting sales and support agent at GoDaddy, the world's largest web registrar and hosting company. It was my job to provide technical support to incoming callers, but also to consult on their accounts and ask questions that could identify pain points that could lead to up-sales. I often preferred to advise rather than sell, which made me not the best salesperson but a pretty decent consultant when needed. Since I worked at this company, a lot has changed about the way that people design and build websites and how they put them on the internet. We've gone from template-based, click-to-change website builders that GoDaddy still does under the Aero brand to Lovable-designed websites that are totally customized based on "vibe" or "live" coding—talking or typing to your computer.

For anyone unfamiliar, Lovable is a popular vibe coding platform that lets you build websites and applications simply by typing text or speaking commands. You start by telling the agent what you want built, and it generates the site or app based on your initial prompt and any instructions you provide. From there, it builds the project to spec, and through a chat interface, you can request changes until everything looks right. This conversational, AI-driven approach represents a profound shift from the old GoDaddy days, when creating a site meant painstakingly pointing and clicking to change every element or using tiny plus signs inside the builder to add components one by one.

The reason why this change is profound is that it gives the average person the ability to code websites and applications that used to take teams of people to build. If you wanted to launch your own web design agency, you could use Lovable's web client-hosted and agent-based coding platform. And with zero design and programming skills, you'd be able to sell premium websites to people. Theoretically, though, they'd be able to

design those websites themselves just by saying what they wanted. But as the saying goes, “Who has the time if you’re a busy business owner to vibe code a site?”

However, this raises an interesting question: Who is the Lovable platform really for, and who will its ultimate clientele be? Sure, you could target small to medium-sized business owners—restaurants, businesses, and other retail outlets—by offering a streamlined site-building tool. But the wider audience might be anyone creating content online, from TikTok and YouTube to Instagram Reels and even Snapchat. These creators often need different websites for different projects, and instead of juggling multiple tools for landing pages and full sites or hiring a development team, they could simply learn to use Lovable. With this platform, a small team could collaboratively build whatever site they need in the future. That’s a huge advantage in a world where content creators are constantly sharing, selling, and driving their audiences toward action.

2: Middle America to AI Entrepreneurship

Perhaps even more profound is the idea that Lovable gives anyone in Middle America Silicon Valley-level capabilities to create a professional website or application.

If they can accurately identify their audience’s pain points, they could develop a product or service and easily sell it through the platform. Think of AI-driven businesses like automated content creation services, personalized e-commerce shops, subscription-based learning platforms, or niche SaaS tools powered by AI—these are ventures that once required significant technical expertise but can now be launched by a single entrepreneur. In this sense, Lovable isn’t just for small to medium-sized businesses or content creators—it’s for entrepreneurs. It’s for anyone looking to start a web-based or app-based business and seize the newest opportunities in the AI-driven economy.

This is why I think Lovable is an important and consequential platform for everyone, from faculty to students, to learn from the perspective of a librarian. It gives you the ability to put anything that you can imagine online without needing to know any technical code. It also works faster than many of the website-building solutions that are available right now. In so many ways, I believe that Lovable is democratizing web and app

development the way the word processor did document editing and creation. I think the opportunity will be profound when it comes to what it allows people from all backgrounds to be able to do. Anyone can publish a website or app now. The world hasn't completely changed, if only because we're in the early days of the AI age.

"There are a number of reasons for America's success over nearly two and a half centuries, but much of the credit goes to the inventors, entrepreneurs, and innovators," writes Steve Case, the founder of AOL, CEO of the investment firm Revolution, and author of *The Rise of the Rest*. He goes on, "Their tenacity, grit, perseverance, and creativity energized a new nation and saw it through many daunting challenges." His book is about this idea that there are entrepreneurs who are springing up in other parts of the United States beyond San Francisco, New York, and Austin, and they are starting to emerge in places like Fargo, North Dakota; Boise, Idaho; and even Missoula, which is an amazingly creative and innovative art-focused college town located in Montana.

3: The Rise of Innovation Without Borders

While I was in graduate school at the University of Michigan from 2022 to 2024, I took a class in the urban planning school called "Technology Clusters and Smart Cities." The course explored the history of Silicon Valley as an economic region with the critical infrastructure that enabled the technology entrepreneurship sector to flourish, leading to today's goliath. It also drew comparisons to the Research Triangle in North Carolina—encompassing Raleigh, Durham, and Chapel Hill—and examined how that region tried to replicate Silicon Valley in the South. The professor discussed the ways they succeeded and failed in positioning themselves as a yin to Silicon Valley's yang. He talked about the different ways that the Research Triangle became more known for research and science than pure technology entrepreneurship or innovation.

In a conversation with an old friend who is a startup founder from the area, I learned that while the Research Triangle has a strong biotechnology presence, it still faces challenges with venture capital and investment—issues that plague many startup communities. Yet, there are numerous other startup ecosystems across the United States that most people overlook. Take Fargo, for example. It's home to Bushel Inc., an agricultural technology startup that began by digitizing the scale tickets

farmers receive when dropping off grain at elevators after harvest. Tools like these make it far easier to tackle regional challenges—such as agriculture and farming—that Silicon Valley paid less attention to because they didn't come from these agrarian backgrounds.

What's exciting is that anyone with a problem and a desire to solve it can now leverage platforms like Lovable—or its competitor, Base44—to build a technology startup wherever they are. While Lovable started as a website and app design tool, it has recently added features like a back-end hosting service for data storage and e-commerce capabilities that easily integrate with popular platforms. This opens up enormous opportunities for everyone. If you're in Boise, Idaho, and have an idea for a new music festival or a tech startup focused on marriage proposals, you now have a powerful platform through live and vibe coding to bring your vision to life. These tools allow you to create professional, mobile-friendly websites and even convert them into apps.

From there, you can launch prototypes, gather feedback, iterate quickly, and refine your product. With the speed and flexibility of vibe coding, finding product-market fit becomes easier—simply by engaging with the people who use your platform.

How do libraries and librarians fit into this picture, you might ask? I recently came across a LinkedIn post from the Fargo Economic Development Corporation announcing that Moorhead, Minnesota, will soon open The Loop, a 48,000-square-foot facility combining a public library and a community center. It's designed as a vibrant hub with meeting rooms, innovation spaces, and even an indoor walking track and playground. Alongside it will be Spark, an entrepreneurship center and accelerator funded by a \$1 million grant. Spark will provide co-working spaces, mentorship, business tools, and even a podcast studio to help founders launch their ventures.

What struck me is that some of the most powerful tools these spaces—these imagination labs where ideas come to life—could leverage are vibe coding platforms like Lovable or Base44. These platforms enable anyone to go from zero to one in building an online presence quickly and easily. For entrepreneurs using Spark or community members at The Loop, this means they can prototype websites, launch e-commerce, and iterate on ideas without needing traditional technical skills. It's a perfect

example of how public library hubs can empower innovation in the intelligence age.

This is more than a technological shift; it's actually a cultural one.

When libraries become gateways to entrepreneurship and innovation, they redefine their role in society. They are no longer just repositories of knowledge; they are engines of creativity and economic mobility. In the age of AI, the next Silicon Valley might not be a single geographic region but a network of local innovation hubs powered by imagination, accessible tools, and community support. If platforms like Lovable democratize development the way word processors democratized writing, then libraries and entrepreneurial centers like The Loop and Spark will be the catalysts that turn ideas into reality—anywhere, for anyone—helping the rest of us rise and build together.

Try this

“Ask me about a small, recurring frustration in my work or learning. Suggest three tiny apps that might help, then wait for me to choose one. Build a working first version with one clear job and sample data. Explain how I can test it with another person. After I describe what happened, help me make one useful improvement.”

Part III

Creativity as a learning laboratory

Writing and music are useful places to explore AI because the questions quickly become personal. We can read or hear an output, compare it with our intentions, and ask what it means to have made it. We can also see how an individual creative opportunity becomes an industry-wide challenge.

This section begins with an early essay about storytelling and human expression, then follows those questions into songwriting and the music business. Treat its predictions as arguments to investigate. What can a tool generate? What do people value? Who benefits, and what evidence would change your mind?

Chapter 13

The Future of Creativity: Human Expression in the Social Age

Originally published May 18, 2023.

1.

Something is happening right now that is hard to explain. I chose to explore this thought with pencil and paper because they are among the oldest tools for self-expression. I could write this essay on my computer or smartphone, but I chose to scribble these words the old-fashioned way: one tedious letter after another. Why? Because every writing tool I use—from Grammarly to Microsoft Word—has added, or will add, artificial intelligence and generative AI.

Looking back at the previous sentence, I wonder whether my use of “them” is accurate. Isn’t Microsoft Word an “it” because “it” is a thing, not a living one? If you referred to a rock as “they,” people would think you lost your damn mind. However, if a 5-year-old told you that “they” were shy and “they” referred to a colorfully painted and decorated rock that sat on the kitchen table and looked back at you with those dead but cute googly eyes, you might kindly ask them—the child, not the rock—if they have a name.

We know that the rock is dead or non-living, at least, and the child is alive. We know the child is using their imagination and creativity, and that it’s not our job at that moment to correct the child (or murder their rock with science and logic); our job is to enter the child’s world and play along. We might say with a straight face, “It’s OK to be shy, Little Rock. I get shy around new people, sometimes too. What’s your name?” Forgive me: I imagine in this unfolding world of make-believe that adults talk to children like Mister Rogers or Barney the Dinosaur used to do on PBS. With any luck, the first thing that spills out of the child’s mouth is the rock’s name, and if the second thing that comes out is a backstory, then you have entered the world of make-believe, or could be, which is the foundation of creative writing and powerful storytelling. You have also entered the territory of Pixar, Illumination, and DreamWorks Animation—the

imaginative worlds where talking toys, bugs, monsters, fish, cars, dogs, minions, and emotions exist.

2.

Today's kids, and many of us newly minted, thirty-something adults, grew up in a world where it wasn't impossible, or even unlikely, to spend 90 minutes watching a movie about a pet rock that came alive, started talking, and became a child's best friend. What would it take for this story's seed to grow into something bigger—something that motivates millions to follow along and watch the movie? Maybe the pet rock needs the child's help to return to the world of rock people and fight off their paper-and-scissor overlords, who have united to take over the Rock Kingdom because they are sick of getting ripped and broken in the Rock, Paper, Scissors tournament. Maybe the child lives on a farmstead in Iowa, and their parents often leave them alone while they harvest wheat and train horses. So the pet rock becomes a parental figure, encouraging the child to pursue their dream of becoming a geologist, explaining the different types of rocks and how they got to Des Moines, Iowa, via a large glacier.

The first idea I outlined sounds like a movie that might get kicked around in a Pixar meeting. The second could be a short series on Iowa Public TV's YouTube channel. I could take these rock stories a step further and tell you about the pet rock that likes to get stoned too much, and the child must help them overcome their drug addiction, but let us quit while we are ahead. Let us get into the business of connecting these seemingly disparate ideas and discuss the future of creative expression, artificial intelligence, and the future of the Internet— or whatever we choose to call the thing being remade—rewritten—before our eyes.

Once Microsoft introduces “Copilot,” an AI-powered assistant, to a global audience in Word, it could mark the beginning of something massive—a force that changes what it means to be a writer.

It could end the blank page, the blinking cursor, and start a creative, productive age fueled by the convergence of human imagination and artificial intelligence. It is what happens when you can talk to a computer and “it” or “they” talk back, and they can instantly answer any question that you can imagine in any format that you choose, and it can talk to you like a 5-year-old if you ask nicely.

3.

So what? That is the central question that all great writing seeks to answer. Why should you care about what I am saying? What future does this make possible? To get there, we need to talk more about pet rocks, the human imagination, and the evolution of social media. We need to review what is happening now, so we can understand what will come at us like a freight train in the coming years and unleash a global creative renaissance unlike any other.

Let us imagine that our imaginative 5-year-old is 13, so they are legally allowed to use social media and share their creativity with the world. I also want to name this person Emma.

If Emma wanted to create compelling visuals for her pet rock story, she could type a description into Midjourney or DALL·E 2. She doesn't need to learn to draw talking rocks or use Adobe Illustrator to create the story's visuals. All she needs is a creative vision and personal taste. I can already see a decorated pet rock wielding a mighty sword against a paper foe folded into a tank, a plain shape, or an origami crane. Emma could use ChatGPT to learn about different rock types and their traits, imagining igneous rocks have volcanic tempers because they formed from lava flows, and use that information to develop character traits, as I did.

Sure, Emma could write a prompt, and ChatGPT could write the entire story for her. Still, she knows that content creators who make a name for themselves go viral frequently and build a bigger online following when they develop original ideas. They also involve their fans in the creative process.

Besides, no one wants to read 100% AI-generated text because it feels cold and robotic. No matter the prompt or style, it still sounds fake until she adds her personal touch.

OK, so let us unpack the notion of “personal touch.” What do those words mean in creative work? Emma can use Grammarly to edit and improve her writing, and she can highlight any sentence and have Wordtune, another AI tool, rewrite and expand it in dozens of ways. All of these edits and revisions represent the thousands of tiny choices or personal touches she makes to her work. It makes the sentence I wrote original rather than plagiarized or AI-generated. The word choice and sequence make that

sentence my own unique creation because I wrote it in my editorial voice, one I have been developing online and offline ever since I learned to sing my ABCs in grade school.

4.

The building blocks of creative writing are characters and plotlines, people who experience things and make choices within a world or universe that exists on the page and in our minds. Hogwarts once existed in JK Rowlings' mind; word by word, she invented Harry Potter and a school for young wizards. Once you read *The Sorcerer's Stone*, a version of the character and world is created inside your head and becomes a place you can escape to at any time.

So what is the difference between Rowling's wizarding world of Harry Potter and Emma's hidden universe of talking rocks? I would argue that it's audience size and market reach. Emma could be a creative genius in Iowa, but without a following and the ability to reach them, her work will never be seen beyond her family, friends, and strangers on the Internet. That last part, though, has changed drastically in the past six years thanks to TikTok, Instagram, Twitter, and others. The magical and maddening algorithms that power these services' main feeds connect anyone's content to a global audience. No one has to wait around to be scored and chosen by a book publisher or record label. The infinite stream of content pouring out of these services is a winner-take-all market where anyone can play. The Emmas and Noahs of the world can reach a global audience through their smartphone; they can invite anyone into their imagined universe through social media at little cost.

The wild part is that self-publishing tools have existed for over a decade, and they're being disrupted. If ChatGPT can write deployable Python code, it can convert written text into a digital book. Midjourney could create the cover. It's only a matter of time before ChatGPT figures out how to distribute the book to Amazon, but honestly, it could probably code a basic landing page and digital checkout linked to a bank.

After all, we are talking about the basics of e-commerce, not rocket science in a lab.

ChatGPT could also help you brainstorm a marketing plan, and one day it could execute specific project steps for you, like writing copy, scheduling posts, and customizing content for each platform. Heck, I already have an AI app on my smartphone that allows me to dictate words with my voice, and it can turn them into 20 different kinds of content in seconds. My head started spinning the first time I voice-dictated 798 words about the future of music streaming, which created a perfectly edited LinkedIn post and Twitter thread for me. All I had to do was click copy and paste. Yes, it helped that I already talk like a writer, but it's impressive.

As such, I do not see anything stopping Iowa Emma, or anyone else, from doing the same thing in the social age. The barriers to production and distribution have been lowered or eliminated. The tools of creative expression have been democratized. The Internet platform allows anyone to build their personal brand and share their unique voice.

5.

I hope I've convinced you that a human wrote this essay, not ChatGPT or other AI-powered tools. In this piece, I code-switched between personal essays, news reporting, and fictional narratives, even when the shifts were abrupt or imperfect, because I wanted to prove I could do what AI could not. I want to believe in my bones that this moment is the beginning of writing, not the ending. This transformational moment may be the future of the Internet, the web, social network, or global village, as media theorist Marshall McLuhan describes the phenomenon.

By now, you may have already predicted where this essay is going. I believe writing, generating, and publishing tools will merge into one service and eventually become standard features on every connected device; like Shazam, once an app people had to download, it was acquired and is now part of Siri. One day, plugins will check the authenticity and originality of everything you read online. Those who develop an authentic and original voice will stand out from AI content.

Blogs empowered anyone to publish their thoughts online without pitching a publication and being deemed worthy of having a voice. Podcasts enabled anyone to record their voice and create a show without stepping into a radio station. And YouTube let anyone with a webcam film themselves, or anyone else, and start a channel without consulting the local TV station or

Dish Network. Social networks and messenger services have let family members and friends stay connected across great distances; they also let us share photos with ease, some of which last for years, and others disappear within seconds.

A golden age of human creativity and expression is upon us. Generative media lets each of us become a powerful storyteller. Some people will write memoirs and share memories with their future generations, hoping to preserve their legacy. Others will use the tools to write copy that sells products and makes money. What excites me, though, is the potential for people to share their interests and passions with the world, whether that means writing about indie music or deep space. Personally, I cannot wait for the moment when Emma from Iowa or Antika from India sends me their Rock, Paper, Scissors comic, film, or some combination we haven't invented yet. If you're still waiting for permission to be creative and share your story, here you go. Write the words that you want to exist. Share the story of your first kiss.

Try this

“I want to turn an ordinary object into a character. Ask me about its personality, the world it lives in, and who I want to reach. Help me sketch three story directions, then let me choose one and write the opening myself. Offer two revisions and explain what each changes. Which choices make the story sound more like me?”

Chapter 14

When AI Brought My Songwriting Dreams to Life

Originally published in LinkedIn⁹³ · November 22, 2024.

In Mustafa Suleyman's *The Coming Wave*, he recalls the moment AI became real to him. It was 2012, and at DeepMind, they trained an AI to play Atari games. One day, the AI devised a novel strategy in Breakout—one that no human had thought of. It wasn't just learning to play; it was learning to win in a way that fundamentally transcended human thought.

This epiphany—the realization that AI could exceed human creativity and achieve strategic outcomes—cemented AI's significance for Suleyman.

I had a similar moment recently. It wasn't in the context of gaming or cutting-edge research. It was while experimenting with the music AI startup Suno.ai.⁹⁴ I knew it could generate songs because I'd played with it before, marveling at how quickly it could compose a track. But this time, I discovered I could submit my own lyrics and have the AI craft a complete song to match.

Initially, I approached this discovery as an academic librarian deeply immersed in AI literacy. I thought, "What if I used this to make my AI literacy guide more engaging?" Inspired by a TikTok where someone fed Eminem-style lyrics into ChatGPT and Suno, I decided to do the same.

The result: an AI literacy battle rap. It was both hilarious and surprisingly effective. My coworkers loved it, and we joked about sharing it on social media to reach students in a fresh, unexpected way.

Breathe Life Into Lyrics

Later that day, the idea took a more personal turn. For years, I had been sitting on a trove of song lyrics I wrote during high school and my early 20s—lyrics that had never become songs because I couldn't play an instrument or sing. What if I could bring them to life now?

So, I dug through an old Google Doc, found a set of lyrics, and submitted them to Suno. In less than 30 seconds, the app produced a fully realized song—and not just any song—a hard rock track that sounded like it belonged in the same playlist as Linkin Park or Three Days Grace. My lyrics were brought to life in a way I'd never imagined possible.

The experience was profound. For over a decade, I had dreamed of becoming a songwriter. I spent countless nights in rural North Dakota writing lines, only to be told my lyrics were too wordy or didn't account for basic performance needs like breathing breaks. Without the ability to perform or collaborators to carry my ideas further, my dream died out.

In my early 20s, I pivoted to writing essays for Hypebot.com,⁹⁵ leaving songwriting behind. Over the years, the flow of lyrics dried up, replaced by the essays and analyses that now define my professional life.

But in that moment, hearing my words sung back to me, something clicked. AI had breathed life into a part of me I thought was gone.

I began sharing these AI-generated songs with friends, eager for them to hear what I'd created. The feedback was overwhelmingly positive—not just because the music was good but because it gave a glimpse into a younger version of me, a dreamer who thought his lyrics could matter.

This experience also highlighted how far AI has come. A year ago, I wrote an essay predicting that AI would disrupt the music industry, but I never imagined it would evolve this quickly. The ability to transform raw lyrics into polished songs in seconds felt like magic. And it wasn't just me—AI could empower anyone with lyrics without the means to execute them.

A Glimpse of the Future

As I reflect on this moment, I wonder where this technology will take us next. Will amateur lyricists and poets flood platforms like Suno, creating a new market for AI-generated music? Will we see a democratization of songwriting, where talent and creativity matter more than technical skill?

For me, this wasn't just about making music—it was about rediscovering a part of myself I thought was lost. I don't consider myself a musician, but this experience made me feel like a creator. It rekindled a long-dormant dream and gave me a glimpse of what's possible in this AI-driven future.

As AI continues to evolve, so will its role in empowering creativity. What I experienced wasn't just a technological breakthrough—it was a deeply personal one. It was a reminder that even long-forgotten dreams can find new life, and sometimes, the future arrives faster than we expect.

AI is rewriting the rules of who can create, how they can create, and what can be achieved without traditional skills or resources.

Here are my AI-generated rock songs: "Collateral Damage"⁹⁶ and "So Much, Sometimes."⁹⁷

Try this

“Help me turn a few lines of my own writing into a song idea. Ask what story, mood, and sound I have in mind. Suggest two contrasting arrangements and write a short creative brief for each that I could try in a music-generation tool. Keep my words unless I ask for changes. After I listen, help me describe what worked and what I would change.”

Chapter 15

Let 1,000 AI Startups Bloom: Why the Time to Disrupt the Music Industry Is Now

Originally published in Hypebot⁹⁸ · December 15, 2023.

1. The AI Music Revolution

As the music industry progresses, reflecting on the past, considering the present, and anticipating the future have all become customary. Those customs share a common goal—to predict the direction of the industry and how it will be influenced by technological, cultural, and societal trends.

Yet the most significant industry discussion revolves around artificial intelligence (AI) and how it will fundamentally revolutionize music. I say this as a music listener who closely witnessed the digital music revolution and a technology writer who covered the streaming and smartphone era. Drawing on that background, I've decided to make some bold predictions about the future of the music industry and how it will be fundamentally revolutionized by AI in the next decade.

However, I acknowledge not everyone will agree. Some predictions may even be flawed or wrong. Nevertheless, we cannot ignore the rapidly approaching AI music revolution. And by “we,” I mean music industry professionals; music performers, creators, and artists, including songwriters and producers; and passionate and fanatic listeners. We must embrace the revolution, not resist it.

We must empower the next generation of innovators, artists, and fans to shape the future of AI music before a cohort of enterprising entrepreneurs, college students, or virtual natives do it for us. Artificial intelligence is set to cause more disruption in the music industry than the MP3, file-sharing, digital music players, digital audio workstations, music streaming, and social media—combined and at the same time.

AI is a general-purpose technology⁹⁹ that will transform society. It's not a trend like so many things that explode and go bust. Rather, it's a disruptive computing revolution that's rapidly gaining momentum.

Everyone Is a Music Creator Now

AI will totally change the music business and create a new one, whether by choice or force. The notion of artist-created music being the best will become outdated as fans gain powerful AI tools to create their own incredible songs. It won't matter whether an artist or a fan creates the next viral song on TikTok (or whatever the next AI-powered social platform will be).

What will matter is that the song captures the moment, speaks to the desires and minds of a generation, and has something to say about the larger events happening in society.

With mainstream artists distancing themselves from politics to avoid offending anyone, creators will take the lead in creating music reflecting their beliefs and opinions. The heydays of major record labels, music television, radio stations, record stores, and music venues controlling what people listen to are long gone. What's left will only continue to be further disrupted.

With the rise of digital music stores and streaming services, artists, creators, and fans alike have started producing increasingly more music at an ever-increasing pace. While megastar artists like Taylor Swift will still be around, the competition for our attention is growing at warp speed.

In the future, anyone can be a "musician," and the music industry will have to compete with them for time and attention. As progress continues, we can expect a world where everything is personalized through algorithms and where everyone can create and share their own music with the world. The debate about who can create music and what music should be is stopped before it even starts.

Human culture has shown that anyone can be creative and has the potential to create music, regardless of what the music industry, publishers, labels, analysts, or writers think. Over many decades, however, music-making has now become professionalized and corporatized, but the current state isn't how culture should operate. We must recognize that

there should be room for anyone who wants to create music and be recognized for their unique abilities and talents.

Everyone Will Be Everything Now

We're returning to a culture where everyone is musical. Everyone is a musician. Everyone is a singer. Everyone is a songwriter. Everyone is a producer. Everyone is a rapper. Hell, everyone will become a music blogger, too. And if you think you won't live to see Eminem battle rap an AI and lose, then you're badly missing out on—and failing to take advantage of—the huge changes happening now.

Wide-spread music-making democratization is already happening—not just in creation, production, and distribution, but also in the ability to reach people globally through independent music marketing, distribution, streaming, and retailing. With the rise of generative AI, anyone with a smartphone, tablet, or computer will have access to music-making tools. Pro Tools and its next-generation equivalent will come standard with AI built into every part of the software and plugins.

That access will allow anyone to create music without necessarily knowing how it's made. A new form of music will emerge as a result.

Importantly, fans are not concerned with what Billboard or the Grammy Awards think of AI music or about what music is or isn't. The next generation of fans will create ways to celebrate culture and track new forms of music. After all, anyone can use AI to create—in mere seconds—a website and blog, and start writing about what they love and publishing perfect, AI-edited articles.

Soon enough, the next-generation websites and blogging platforms will have a music-writing mode included with the service, which also encompasses food, movies, TV, or other forms of culture. With AI-generated tools, music can be created and marketed without requiring extensive knowledge of the music business or even design skills. Aspiring artists can consult AI assistants for marketing advice and exchange tips on social media platforms.

We'll soon enter an AI era where algorithms dictate what music is seen inside the infinite stream and by whom, based on complex calculations. No one will be positioned to say what constitutes good music anymore.

2. A Brief History of Music Revolutions

I am a music listener who grew up in North Dakota in the 1990s and 2000s. During that period, major record labels coordinated broadcast radio stations, big-box retailers, and music television to create a monoculture of consumers united through a shared taste in music (which just happened to be whatever labels wanted to promote). I witnessed the era of music corporatization era firsthand.

Truthfully, I didn't understand the vast implications of this era until I read two books: Steve Knopper's classic book *Appetite for Self-Destruction* and Greg Kot's seminal book *Ripped*.

Then, when I was in middle school, the digital music revolution began.

Suddenly, anyone with a 28 kbit/s dial-up modem could download songs from the internet for free. Anyone could also burn copies of that music and distribute them to friends. (I did this, too.) Soon after, digital music players (e.g., iPod and Zune) became hugely popular and enabled anyone to download thousands of songs using high-speed internet and then fill an entire iPod. These so-called "digital natives" never entered a store to buy CDs or logged into iTunes. (I still bought hundreds of CDs, though.)

Next, I witnessed the rise of subscription music streaming services, which made the infinite jukebox era possible. The web became a music collection without a beginning, middle, or end. And suddenly, the entire history of recorded music could be discovered, heard, and shared on your desktop or laptop computer. Shortly afterward, smartphones emerged. Then along came apps, which everyone downloaded to discover, consume, experience, and share music in new ways.

As that next revolution of listening unfolded, it carried the music industry into the present. Spotify, Apple Music, YouTube Music, Amazon Prime Music, Deezer, Sirius XM, and Pandora, among others, have created the streaming landscape that we've become familiar with today—resulting in the music streaming revolution.

The Coming Wave of AI-Generated Music

Artificial intelligence will transform music creation, production, recording, and distribution. The way music is marketed and advertised will also be transformed. As a result, AI will hugely impact how music is distributed, discovered, consumed, shared, and experienced.

No matter what the music industry wants to do or how it thinks it can dictate the terms of the AI revolution, the reality is that the changes are coming fast.

Rather than trying to keep the genie inside the bottle, the music industry must be vigilant and recognize how technology will disrupt the music business and start investing in the next generation of startups. Those startups will empower music listeners to become creators.

A new creative class will subsequently emerge that uses AI to not just create and produce new music, but also distribute and market music to the next generation of fans. Fans will then remix, change, and comment on the music using the new AI tools.

Major, indie, and DIY artists will quickly be joined by music creators on AI platforms where anyone anywhere can create songs in their free time and seek an audience. That shift means, going forward, every artist in the world will now compete for attention with every creator on the platforms.

An Unprecedented Era of Disruption

No one doubts that Taylor Swift will continue to garner a football stadium-sized audience and be a global superstar for life. But we must recognize that, in the AI revolution, the next Taylor Swift will not be Taylor Swift.

Some enterprising musicians, fans, producers, underground rappers, heavy metal artists, or aspiring country artists—or some confluence of all these genres—will leverage the next generation of AI-fueled and powered music creation production and distribution tools.

With those tools, anyone will be able to enter the conversation and distribute their music through algorithms on TikTok, YouTube, Facebook, Instagram, and any other social media platform. Then, if the music catches

attention and says something—and if it speaks to the next generation—it will go viral and gain an audience.

With an audience, those creators can then focus even more on their music. They can get even better at perfecting the art of creating hits quickly rather than releasing a few blockbuster hit songs over time and at collaborating with others attempting to make the same type of music.

The AI music revolution will be unprecedented in scale. In fact, the revolution will be much bigger than the digital or file-sharing revolution and instead create change in the music industry and broader culture that will be unlike anything we have ever seen. People forget that today's professional class of musicians is a relic of a time when music was recorded onto a cylinder and distributed in a store.

Copyright protections allowed people to make money from that music and grow rich from the sales of recordings.

In the modern era, musicians still record and capture songs in files and then collect revenue through streaming those songs, building an audience, and touring venues throughout the country. We can see on TikTok that, in the past five years, artists have gone viral like they used to on YouTube. And just like that, new artists can also be plucked from obscurity and thrown into mainstream conversation overnight, mere seconds after having a viral hit.

Image [original illustration]

3. The Siren Song of Music Revolutionaries

Historically, the news of a giant company conducting a massive round of layoffs didn't have any professional or personal context. The headlines announced layoffs, but I didn't know anyone impacted.

Nowadays, however, if a technology firm or music company does layoffs, my long-time close friend and former podcast co-host—former Billboard music editor and current XR thought leader and experience producer Cortney Harding¹⁰⁰—will shoot me a text, sharing that a bunch of people got laid off.

The huge difference today is that I'll start to see people post about the layoff on LinkedIn. Friends and acquaintances—people I did an

informational interview or grabbed a coffee chat with a few years ago—will post about the news, their appreciation, and their gratitude for the time at the company and the team they worked alongside. Put simply, the human impact of layoffs has become more real. And if you're anything like me, you can feel yourself tense up when you see these LinkedIn posts.

If it's not already obvious, I'm writing about the recent layoffs that rocked Spotify and resulted in roughly 1,500 people looking for jobs, according to some estimates. It's my hope that those laid off by Spotify decide to be founders in the next generation of AI music websites, apps, and platforms. The reality is that music startups have grown stagnant in recent years. Plus, new innovative startups are fewer in number, with far longer pauses between launches.

Yes, it's true that venture capital has been scarce because the music technology sector has produced hundreds, if not thousands, of losers and only a handful of winners. Yes, it's hard to innovate and disrupt a sector that counts Google, Amazon, Apple, and SiriusXM as competitors. And I bet there are a hundred other ways I could cast doubt on the music technology sector and point to the dark clouds that hang over it.

Why Not You? Why Not Now?

Here's my pitch to the laid-off Spotify employees: Why not you, and why not now?

Why don't you think hard about all the things you wished your former employer would do and then just do them? I'm sure many of you walked to each other's cubicles or went for lunch or drinks with colleagues. Many of you talked breathlessly about your work and how cool it would be if Spotify decided to execute your idea and bring it to the masses of music fans on the platform.

So why not use this setback as an opportunity and determine a game plan for how you and your friends could develop a next-generation AI music technology startup? Daniel Ek started chipping away at building Spotify around 2006, and look what it has become over time.

Today, the AI revolution is already fully underway, and music will be the canary in the coal mine that it always seems to be. The next few decades

could make the copyright wars seem like a quaint era compared to the coming AI revolution in music.

It's still the early days, so it's hard to make predictions about how things will unfold. That said, the Spotify layoffs could be the moment that helped the next generation of music startups bloom. The layoffs could even be the catalyst for the next Pandora, Spotify, TikTok, or something entirely new to rise from the ashes.

Spotify laid off 1,500 people, and its efforts to expand into podcasting and audiobooks failed to gain enough traction to generate growth and capture people's attention. These conditions reveal how this era of music is beginning to plateau. Now, roughly 1,500 more people are on the job market with deep experience in streaming music, product management, data, and UX design and research, among many other areas of expertise.

Some of these people will launch startups, develop companies, and enact new business initiatives that leverage all the emerging technologies, including AI.

Those entrepreneurs will create the next generation of music creation, production, discovery, streaming, and marketing, among many other things. It will, however, take many years for the right people to get in place, for the venture capital funding to find the right startups, and for these companies and initiatives to find an audience.

Still, we should not mistake current and ongoing changes as just a sign of the times. They instead signal that a new revolution is happening—one fueled by AI.

Spotify, the world's largest streaming company, is seemingly out of ideas and unsure how to grow or compete effectively with TikTok. Not to mention, Spotify just released 1,500 talented people into the market who will create the change they believe in and want to see. And they'll do so despite, for whatever reason, not being able to make it happen at Spotify.

Meanwhile, the thousands of talented people left behind at Spotify are missing their friends and colleagues. Those left behind will themselves soon start eyeing the company's exit doors, thinking about what comes next. They, too, might join the ranks of the music tech startup founders.

They, too, might join the ranks of record labels, concert promoters, talent management companies, and other powerful players in the game to create the technological change that they see—that they know is possible—and that they believe is the future of music, with or without Spotify.

Image [original illustration]

4. Let 1,000 AI Music Startups Bloom

Here's my passionate plea to anyone who will listen: It's time to let 1,000 AI music technology startups bloom. Let them usher in the next wave of the AI music revolution.

In fact, we should avoid anything else that holds back progress or anyone who attempts to sue companies out of existence and prevent the fiefdom that the music industry has created from being dismantled and deployed in new ways.

No one wants to be on the wrong side of history or the wrong side of the technological revolution that will happen in music.

Whether we like it or not, the movie studios and the TV stations managed to prevent their industry from fully embracing streaming and to lock down their content in a way that music could not. That success in one industry but not the other is why you can stream any song you want on Spotify, but Netflix, Hulu, and its rivals have limited collections.

The Music Catalog Isn't Analog

I challenge you to consider a few things. No one can prevent songs from being downloaded from YouTube. No one can prevent them from being uploaded into AI music startup tools, whether they exist on the public web or the dark web. And no one is going to stop people from mixing, changing, and shaping culture in new and unprecedented ways that are realistic and convincing.

If the Beatles can come out with a new song that brings music back to life that people thought they would never hear again, then wait until the next three to five years play out. Eventually, every single artist ever recorded will have its own Tupac moment where, for some reason, the catalog never ends.

Not everyone can be successful, though. Nor will all remixes and mashups be approved by the music industry. However, fans don't care about approval. The music industry will most likely use Content ID and other ways to control culture and prevent the distribution of any new songs.

At the same time, music publishers and rights holders need to find new ways to profit from the use of their music instead of being the sole judges and protectors of music catalogs. Every song ever recorded will soon be ripped down to stems and rebuilt in any way that fans can imagine. With the help of AI, new music can be created that sounds good and resonates with people.

Eventually, AI technology will advance to the point where it can write music, not just lyrics. This advancement could even lead to people creating AI bands as a hobby. Those who doubt the ability of AI to become a talented songwriter are underestimating the true potential of this technology.

At its core, artificial intelligence is a general-purpose technology, much like electricity, and how it enabled innovations in the music industry, such as the phonograph, record player, and electrified amplifiers. AI will totally revolutionize the way music is created, produced, and consumed—allowing anyone to become a musician, producer, rapper, songwriter, and more.

Embrace and Create the Chaos

Record labels are poised for a rude awakening once they realize the next generation of artists won't even want a standard record contract. Instead, they'll use AI music marketing and management assistants to get advice on promoting their music to larger audiences.

Interestingly, though, most people today still live in a world where they think people should read Don Passman's book *Everything That You Need to Know about the Music Business* or Ari Herstand's popular book *How to Make It in the New Music Business*. But AI tools have enabled all this knowledge—all the ideas ever expressed in the history of the internet—to meet artists where they're at in their careers.

Those tools will give artists tailored advice on how to reach the next stage in their careers, both physically and digitally.

I'd argue that the music industry might need to humble itself and realize that business as usual is not an option. How the business has worked—from the phonograph to vinyl record, to tape cassette, to CD, to MP3, and to streaming—will be radically different once the AI music revolution fully takes shape. I wouldn't even be surprised to see an AI Music Awards Show in the next ten years or an AI-only artist who gains hundreds of millions of listeners on Spotify.

I've outlined some things that AI makes possible but will bring shifts that no one could've foreseen. Ultimately, the music industry must determine how it'll respond to the coming AI music revolution and choose the right side of technological history. Now is also the time for the industry to look at the talent on the market and pick the next step.

Will the industry take Roundup herbicide to the next wave of AI music startups, try to kill all the beautiful flowers, and see what happens when pirates create their own AI tools? Or will the industry want to invest in and let 1,000 AI music startups bloom and create chaos? Only the latter will allow the industry itself to revolutionize music culture. The alternative is to sit around and tell everyone how they ought to consume music because the industry makes money every time a fan clicks the play button.

The music industry will be revolutionized by AI. That's a fact, one that will ultimately be a good thing despite the challenging moments that will surely occur.

And this time around, the record labels and music publishers must embrace and create the chaos. They must plant and water the seeds of their own technological disruption. And they must do so while working alongside music technology startup founders to create a viable and profitable roadmap for the future.

Only then can the next generation of AI-powered music platforms and experiences that will move the industry forward be developed to meet the needs of a new virtual and AI-native generation.

The time for the AI music revolution is now.

Try this

“Help me turn one startup idea from this essay into a small prototype. First ask whose problem it would solve and how that person handles the problem today. Build one screen that demonstrates the idea using clearly labeled sample data. Keep the promise modest. Give me one task a potential user could try and one question that could reveal why the idea might fail.”

Chapter 16

Music After the Generative AI Creative Big Bang

Originally published in Hypebot¹⁰¹ · May 11, 2026.

1: From Making Music to Imagining Songs

Back in 2010, Chicago Tribune music critic Greg Kot reported¹⁰² in his book *Ripped* about how the "wired generation" revolutionized the music industry. Nearly sixteen years later, college students do a lot more than download MP3 files and burn them to compact discs. Anyone can now create any song¹⁰³ that they can imagine using Suno⁹⁴ or Udio,¹⁰⁴ two of the leading GenAI music creation services.

They can release their music on streaming services or put it out on TikTok, Instagram Reels, or YouTube Shorts.

A few of these songs have even gone viral and climbed¹⁰⁵ the Billboard charts. Are these songs hits? Will any of these artists be able to tour or make money? The jury is still out. But it signals a shift. In less than two decades, music production and creation have gone¹⁰⁶ from a set of specialized knowledge and skills¹⁰⁷ that allow professionals to make music in recording studios to something anyone can do with a prompt on their phone.

Anyone can now imagine any kind or genre of music—and generate it at will.

In the world of images, video, and podcasts, a similar trend follows. Anyone can use ChatGPT, Gemini, or Grok—the leading large language models—to generate an infinite amount of text and images. With Google's latest Gemini 2.5 Nano Banna¹⁰⁸ model, anyone can generate¹⁰⁹ realistic images or edit existing ones. It's a lot like having an Adobe Photoshop agent that can perform any task that you can type or verbalize.

I have a colleague who is an art professor; he says that he created thousands of images¹¹⁰ over several months. It got to the point where the contents of his imagination were exhausted. Similar things have happened

with videos and podcasts. Using a tool like Midjourney,¹¹¹ DALL·E,¹¹² or Adobe Firefly,¹¹³ anyone can now "generate" videos of any place, time, or person they can imagine.

Similarly, Google's Notebook LM¹¹⁴ can produce a podcast that sounds like two radio hosts discussing¹¹⁵ a library of research.

What Kot described in *Ripped* was not just a change in distribution, but a redistribution of power. The wired generation disrupted the old gatekeepers—record labels, radio programmers, physical retailers—by making music portable, replicable, and shareable at near-zero cost. What generative AI represents is a further, more radical step: the disruption of creation itself. The tools now intervene not merely after music is made, but at the very moment of imagination, composition, and execution.

This raises questions that are easy to overlook amid the novelty: If anyone can make anything instantly, what does it mean for something to matter? How does the power of human creativity and imagination factor into the intelligence age? Are these AI tools helping everyday people create "AI slop" or something that we've yet to understand or define fully? What new capabilities might this age of imagination unlock?

2: The Case for Artificial General Imagination

Since experiencing the latest wave⁸³ of generative AI,⁶⁷ I've been thinking about a concept called "artificial general imagination," or what could be called AGI. It's a different way of thinking about intelligence — the word "I" normally stands for.

What would it mean to declare¹¹⁶ that kind of AGI has been achieved? When will it be time? I'm asking these questions because a handful of CEOs and one major science publication have recently declared AGI.¹¹⁷ NVIDIA's CEO Jensen Huang declared that AGI¹¹⁸ has been reached in a recent interview, and the venture capitalist Marc Andreessen of a16z¹¹⁹ echoed the same claim¹²⁰ on X, saying, "I'm calling it.

AGI is already here — it's just not evenly distributed yet." You might retort that this is just CEOs saying things,¹²¹ but these claims came a few months after *Nature*, a leading international scientific journal, published a paper strongly¹¹⁷ arguing that AGI is here.

Of course, some detractors have pushed back against the claims,¹²² such as Gary Marcus, a cognitive scientist, author, and AI researcher, who is famous for pushing back against CEO-driven AI hype on X and in his Substack¹²³ newsletter.

As such, I started to wonder what AGI might look like and feel like. At what point could you argue that everyone has access to AGI, or what's commonly called artificial general intelligence? AGI is widely believed¹²⁴ to be a next-generation, powerful form of generative AI that's either right around the corner,⁸¹ decades away, or science fiction.

This powerful AI will be either humanity's greatest invention — if you believe¹²⁵ the "optimists"¹²⁶ and "liars"¹²⁷ like OpenAI CEO Sam Altman and former Google CEO Eric Schmidt¹²⁸ — or mankind's quick demise if you believe the so-called "Doomers."

Over the Easter weekend, my dad and I saw a brand-new documentary¹²⁹ called "The AI Doc: Or How I Became an Apocaloptimist,"¹³⁰ which featured Altman and also starred a wide cast¹³¹ of some of the most famous optimists and doomers. The film, which aired in a limited set of movie theaters, became known to me for ping-ponging between doomer and optimist scenarios and ultimately landing on a positive note.

But the optimistic ending left me wanting more because it didn't show viewers the real, tangible progress⁸¹ being made at frontier labs and technology companies. It didn't show how GenAI is already empowering everyday people¹³² to do unimaginable things.¹³³

Admittedly, I have a hard time with the larger AGI conversation right now. It's because we're mostly trying to measure AGI by so-called "model intelligence"¹³⁴ and "task completion."¹³⁴ I have a larger hypothesis about imagination, agency, and taste execution that's more aligned with how Silicon Valley thinks about AGI.¹³³

If you read the latest pieces in the New Yorker and New York Times, you'll be familiar with the fact that "agency"¹³⁵ and "taste"¹³⁶ are now the most hyped words in the mouths of AI execs.

If you time-traveled back to 2002 (twenty-five years ago, when I'd just be arriving in high school) and gave a person with taste and agency the AI services and features that exist now, they'd be unstoppable. Imagine giving a 25-year-old design student the image model Nano Banna and a modern

MacBook Pro; they could generate any image and edit any photo. They'd be able to edit reality in a way that'd be like sorcery or magic.

If you also gave that person ChatGPT Pro, the \$200 tier of the model, they'd be the smartest person in any room — maybe even the world — and if you added on Claude Code or Loveable, two leading AI-coding tools, they'd also be able to write any website on the web, potentially making themselves into millionaires.¹³³

This person would still need domain knowledge and skills to be successful in any endeavor. Scarily, they'd also be able to hack any organization in the world, as their AI model would be the world's best hacker and security system breaker, since it already has that capability in modern times with the arrival of Anthropic's "Mythos" model.

Reportedly, during model testing, Anthropic found that "Mythos Preview" can identify and then exploit "zero-day vulnerabilities in every major operating system and every major web browser when directed by a user to do so." If you're unfamiliar with the terminology, that means undiscovered bugs in all kinds of software grant a competent hacker God-mode access to your server.

In other words, superintelligent AI has also arrived in cybersecurity. It's already here. So, what about imagination? Where does humanity sit on this threshold?

3: The "Big Bang" of GenAI Creation

Research librarians are trained to answer patron questions that boil down to this: "What is currently known about this subject, and how do I get to it?" The goal is to help faculty and students find relevant, peer-reviewed articles for their research papers in the stacks and databases. One of the main challenges with GenAI is that it has been improving so rapidly¹³⁷ that even books published two years ago¹³⁸ feel outdated.

The same could be said about research papers, which often trail behind the latest model developments.¹³⁹ As a result, the larger conversation⁶⁷ unfolds on podcasts and YouTube channels. It dominates media headlines and the X social media chatter.

As such, it can be challenging to contextualize what exactly to make of this situation and "AI hype,"¹⁴⁰ or to situate the generative AI revolution historically. The streaming revolution began when Rhapsody launched the first on-demand music service in 2001 and gained further momentum¹⁴¹ with the public launch of Spotify in 2008. Three years later, Apple released the iPhone and revolutionized personal computing.

Apps became the new container for software on the mobile device. Music could now be played and identified anywhere, at any time,¹⁴² and personalized to your taste and mood. Intelligence and imagination can now be accessed like on-demand songs.

Nearly fifteen years after Spotify's launch in the United States in 2011, music critic Liz Pelly published a highly critical book¹⁴³ called *Mood Machine: The Rise of Spotify and the Costs of the Perfect Playlist*. It took that long to fully understand the impact of the streaming service on the music industry and society. Hundreds of books have already been published¹⁴⁴ in the four years since OpenAI's ChatGPT chatbot exploded in online popularity in November 2022.

It reached an estimated¹⁴⁵ 100 million monthly users by January 2023—one of the fastest growth trajectories¹⁴⁶ in history—making GenAI creation feel mass-market rather than experimental R&D. Since then, ChatGPT has grown¹⁴⁷ to 900 million weekly active users. Each day, it processes over two billion questions.

By late 2025, Suno users were generating¹⁴⁸ approximately 7 million AI-created songs per day, a pace that surpasses Spotify's entire music catalog—nearly the entire history of recorded music—every two weeks. Industry reports suggest¹⁴⁸ the platform now supports tens of millions of active users globally, with roughly 2 million paying subscribers and more than 100 million people who have used the service at least once since launch.

This musical surge has produced an unprecedented abundance of songs.

If you could ask the mathematician and codebreaker Alan Turing,¹⁴⁹ who first asked the question "Can machines think?"¹⁵⁰ today, he might say that a kind of musical Turing Test has already been passed. Less than a quarter century—just twenty-two years—after GarageBand made it possible for

independent artists to record music from home, AI-generated songs have become effectively indistinguishable from those made by humans.

A recent study by the streaming platform Deezer found that¹⁵¹ 97 percent of listeners cannot easily identify AI-generated songs from traditional music.

A similar dynamic is already visible beyond the creative arts. In a recent New York Times news report on what it called "The Big Bang: A.I. Has Created a Code Overload,"¹⁵² one financial services firm working with the cybersecurity startup saw its team's output jump from roughly 25,000 lines of code per month to 250,000, almost overnight. The result was not effortless productivity, but a new bottleneck: a backlog of more than one million lines of code waiting to be reviewed.

The constraint had not disappeared; it had simply moved. Using AI chatbots to write code was no longer the hard part. Deciding what was correct, safe, and worth keeping became the challenge.

If the Information Age was about access to information, the Imagination Age is about what we do with it. When taken together, these shifts demand a rethinking of what education, creativity, and AI literacy are meant to cultivate—and they place university libraries at the center of that work.⁴⁰ In this abundant era, GenAI has made production effortless and imagination seemingly infinite.

As such, the most urgent literacies aren't access or technical skills, but about taste, judgment, and agency. Research librarians have long helped their patrons navigate abundance by teaching them how to evaluate sources, situate knowledge, and participate in cultural conversations. AI literacy simply extends this mission⁴⁰ from texts and databases to models, platforms, and imagination.

4: Artificial General Imagination in Action

Clay Shirky argued¹⁵³ in his 2010 book *Cognitive Surplus* that the internet unlocked a vast cognitive surplus—millions of hours of free time and creative energy that could finally be coordinated outside of institutions. What generative AI reveals is something adjacent but more radical: an imaginative surplus.

Tools like Suno and Midjourney do not merely publish and distribute what people have already made; they generate songs and videos when imagination strikes, which collapses the distance between envisioning and executing. The result is not just more participation, but a world in which creation is no longer scarce. The open-ended question is no longer why people create, but how meaning, taste, agency, and significance emerge when making something is effortless.

Every day, people can now create anything they can imagine.¹⁵⁴ Intelligence is what allows this to happen. But it's not the most significant part. The imagined outcome of a GenAI project—the Midjourney music video, Suno song, or Lovable website—is paired with the intelligence of a personal teaching coach. You can use ChatGPT to teach yourself audio-engineering tools and use Midjourney's video service to create a psychedelic music video.

You can use Suno to create any genre of music that you can imagine. This has started to flood TikTok with all kinds of different music videos.

Steve Jobs once called the computer a "bicycle for the mind." Still, tools like Suno feel more like a recording studio for the imagination—systems that do not just help you think faster, but help you turn feeling, taste, and vision into finished songs. I believe that music experience design is now more like IDEO design thinking. A whole new way of prototyping and testing the market for song hit velocity.

Video experience design is one person hosting, generating, and editing entire segments just by talking to an agent. Loveable, Claude Code, and Base 44 have turned user experience design into something that is now more like imagination engineering. Using your voice to direct AI-coding tools and agents is wildly different than typing text into the command line.

It's a new world now for faculty and students. The challenge is that we're still talking about artificial general intelligence and not artificial general imagination. The network of GenAI tools and services still "feels like"¹²⁴ AGI. It's still superhero-level powers for one person when you look at the twenty-five-year timeline. Think about how big a difference one person or a small team could have imagined and created in the past ten years.

Millions of lines of code were written in three to four months.

The rub is the attention economy and algorithm feed. Whatever you imagine may not resonate with an audience or the algorithm. But let's talk about people who put in their ten thousand hours of deliberate practice. They create whatever they can imagine.

What does that progress look like⁷⁷ in four years? How does that dovetail with the significant progress that will keep happening¹³⁴ in frontier AI? That's why I believe it's important to discuss and understand both sides of the AGI argument and metrics.

Through GenAI services, we've officially reached a world where anyone can create anything they can imagine. Perhaps the intelligence age⁶⁷ will come to be better understood as the imagination age,⁴⁰ because it empowers⁸³ new builders and creators.

Try this

“Choose one numerical claim from this essay, published May 11, 2026, and investigate whether it still holds. Search the web for the original report and newer evidence. Date your answer, link to the sources, and explain what was counted. If the numbers are not comparable, say why. Give me one source to open myself before I accept your conclusion.”

Chapter 17

Music 2045: Will Musicians Be Extinct in a Decade?

Originally published in Hypebot¹⁵⁵ · March 30, 2026.

1. From Music to AI

Earlier this week, I reflected on my career in the music industry. I wondered what the next five years would look like if frontier AI labs stayed on their current trajectory.

If you and I time-traveled to 2030, what might the music industry look like? What would stay the same, and what would forever be changed?

For the past year, I have been immersed in higher education, working in an academic library and advocating for AI literacy and fluency to be taught to college students. I believe this knowledge base and skillset will be essential to obtaining a job in the future.

One of the challenges to teaching a generalist subject—especially if you lack domain expertise—is trying to imagine how AI literacy can be applied in professional settings. It's hard! However, I have a unique perspective on the music industry due to my career history. For the past twenty years, I have worked in various sectors of the 'music industries,' as they're more correctly understood by the in-crowd, academics, and experts.

I initially interned at an indie label called 50 Entertainment and a concert promoter named Jade Presents. Next, I landed jobs as a technology editor and writer for Hypebot and a social chart manager for Billboard. As the smartphone and mobile app sector exploded, I pivoted into technology and conducted user research for Live Nation Labs, SoundHound, and Scout.FM. I also hosted a podcast about the music industry for nearly four years—and one hundred episodes—during this time.

Lastly, I continued my education by earning a Bachelor of Arts in Music Business during the COVID-19 pandemic. Soon after, I got a full tuition scholarship to the University of Michigan, where I earned a Master of Science in Information.

Accordingly, I know a lot of people, and I still follow the news loosely. But it's been a bit since I worked in different parts of the music industry and talked to those who worked in other parts of the industry every week. I've also never worked at a major record label, music publishing company, or artist management company, among other important places, so I do have a few blind spots regarding the artist and copyright side of the industry.

Instead, my specialty has always been my interest in emerging technologies and consumer behaviors. It's the needle that threads through my career and remains at the center of most essay subjects I write about.

2. Teaching AI Literacy

For anyone unfamiliar, academic librarians in higher education institutions—such as major universities and colleges—often offer English 111 and information literacy classes to students. These classes cover how to find and evaluate peer-reviewed journal articles, distinguish scholarly from popular sources, develop effective search strategies, and use information ethically.

Now, with the rise of chatbots like OpenAI's ChatGPT, Google's Gemini, and Anthropic's Claude—which can generate text, images, and other forms of media—an emerging discipline called AI literacy is developing. This broader umbrella seeks to encompass everything that high school or college students might need to know about AI.

While traditional information literacy focuses on evaluating the credibility and accuracy of sources, AI literacy pushes these skills further. How? By challenging us to analyze how AI-generated information is created, what ethical and copyright concerns are involved, and how bias may be embedded in the models themselves.

Large language models, powered by vast computational resources, can produce content that mimics human writing in remarkable ways, even as experts admit the inner workings remain a bit of a black box.

As an academic librarian who teaches and writes about AI literacy, I've been closely observing how rapidly AI capabilities are advancing and transforming the information landscape. I've argued in recent essays about the importance of considering the profound impact powerful AI will have

on students' future careers—especially since the world may look quite different by 2030 when today's students graduate and enter the workforce.

With this perspective, I set out to explore how AI literacy can be integrated into music industry education. Students currently enrolled in music programs need to be prepared to become 'AI fluent' and equipped to navigate and shape the so-called 'Intelligence Age' these students will soon enter.

The most important thing that chatbots enable is the ability for anyone to ask questions about any topic.

The music industry is highly concentrated in just a few regions, so you often must live in places like Los Angeles, Nashville, New York, or London to regularly encounter people who work in the field. While you can follow trade publications such as Billboard, Hypebot, Digital Music News, and Music Business Worldwide, most young people are likely unaware of these sources.

In other words, information is both abundant and scarce—but you must take the first step to seek it out either way. The content may never find you otherwise.

3. Making and Marketing Music

Anyone can now use deep research to find information about any subject and conduct extensive online research. A band could use ChatGPT to conduct extensive research into the top 5 similar-sounding bands and where they toured early in their careers. The aspiring band could then see if any of those venues would be willing to book the band once they reached a certain TikTok audience size.

Or they could use a simple prompt: 'Give me a 25-step, 25-day plan to grow my audience on TikTok to X size.' Then the band could just keep repeating that loop for a year until they went viral. In twelve months, perhaps the band will turn that influence and viewership into brand sponsorships or even band interest. Or the band could try to double down on recording original music if they had previously been doing covers. The whole idea is that people can now follow their journey wherever it may lead.

And for those who actually stick to the plan, they might actually see huge returns and benefits that would have mystified people back in 2000–2006 (when I was in middle school and high school).

Additionally, with Perplexity's new Comet browser, you can just ask the assistant to take control of the browser and start looking up information, sending personalized emails, and trying to pitch yourself to people in different ways. An enterprising enough young person who really wanted to market their music to a wider audience could do just that. Think of young Eminem in Detroit, Michigan.

He could have just taken his rap music and put it into the inboxes of every single music industry's email account and social media that he could find online.

It's an odd thing to admit—it's almost like machine beats human defeat—but you don't even need to be able to sing or play an instrument now. You could just fire up an account on Suno and start generating hundreds of songs until you started to hone your Rick Rubin golden ear for the sound and the feeling you want from your AI artist's first couple of albums. Maybe you decide that you want to start an entire roster of AI artists and create Interscope Records in a small town in North Dakota.

You might want to be known as the kid who discovered, developed, and released the first record from the first Eminem-level AI rapper after randomly stumbling across a TikTok that inspired your ambitions to become an intelligence age music tycoon by the same age as Taylor Swift when she achieved breakthrough success.

If you are an aspiring artist or music business student who wants to put yourself out there and get attention, you can now do so ways previously unimaginable. And if you truly have a remarkable story or a compelling rap to back you up, AI can help you achieve your wildest dreams faster than ever before.

4. Beyond Music Generators

In previous essays for academic library trade publications, I covered predictions about the next five years of frontier AI development, drawing on commentary from leaders like Sam Altman, Dario Amodei, Demis Hassabis, Elon Musk, Mark Zuckerberg, and Eric Schmidt. Conversations have since evolved rapidly. In just the past six months—as I have written on Substack—the focus has shifted toward concepts like superintelligence and singularity.

When writing my Hypebot essay 'Let 1,000 AI Startups Bloom: Why the Time to Disrupt the Music Industry Is Now,' I recognized that AI would soon revolutionize the music industry—much more than past innovations like MP3s, social media, streaming, and smartphones. But what I fully understand now is that the true purpose of the AI race was never just about building better chatbots or music generators.

The real goal is the creation of artificial general intelligence (AGI) and artificial superintelligence (ASI): advanced systems that can perform any work a human can do, potentially even controlling internet-connected machines and, ultimately, advanced humanoid robots.

In late 2023, my focus shifted to how AI could rapidly democratize music creation and unleash a new wave of innovation. Reading the 2023 book *The Coming Wave* by Mustafa Suleyman—co-founder of DeepMind and current CEO of Microsoft AI—led me to recognize AI as a transformative general-purpose technology, potentially even more disruptive than streaming, digital players, or MP3s.

My predictions centered on the rise of generative music tools like Suno, Udio, and others, which let anyone—even those with no formal training—create, produce, and distribute professional-quality songs in minutes.

This shift is already challenging the music industry's established power structures. While major record labels are now negotiating with and even suing these AI startups over licensing and copyright, the technology continues to enable the emergence of a creative class that's organic, synthetic, and hybrid—a class that could rival, redefine, or even replace today's superstar artists and major music companies.

Alternatively, these innovations might paradoxically make traditional music stars more valuable than ever by further amplifying the importance of brand, curation, and provenance in an algorithm-driven era.

AGI would mean AI systems that can perform any intellectual task as well as a human, including mastering music theory, songwriting, arrangement, and even the nuances of production and audience engagement. In the music industry, AGI could produce convincing hits, manage marketing campaigns, analyze audience data, design artist 'brands,' and continually optimize every variable for success.

The entire process—from ideation to global distribution—could be streamlined and hyper-personalized, further blurring lines between 'artist' and 'algorithm.'

Standing now in 2025, two things are simultaneously true: People still mostly find music through recommendation feeds, playlists, TikTok virality, and curated streaming services. And pick-up trucks with radio station promotional marketing still park outside, and social media people post on Facebook about listening to broadcast radio.

But as we look toward 2035 or 2045 in a world with AGI—or even ASI—the way we discover and experience music could be fundamentally different. Algorithms may not just suggest, but also actively compose new music based on our moods, biometrics, or social networks.

Algorithms might even merge audio, video, and real-time augmented or virtual reality-based performances into seamless, personalized experiences that adapt in real-time to show you every possible iteration of a concert video that you could imagine and beyond. It's not just Taylor Swift, Era's Tour; it's the infinite universe of potential music venues to visit.

Accordingly, training young people for careers in music—or any field touched by frontier AI—means preparing them for profound unpredictability. Today's overhyped skillsets may be irrelevant tomorrow. Just look to the rise and fall of prompt engineering as an example. Thus, roles we now see as essential may vanish while new ones emerge unpredictably.

In that environment, the best education that we can offer students in any major might be foundational adaptability and imagination. It's a unique mix of deep curiosity, creative process, strategic foresight, design thinking,

and ethical grounding. It's the ability to learn and collaborate across human-machine partnerships.

In a future shaped by superintelligence, true human distinctiveness may come from embracing what only we can offer—our messy, subjective, unpredictable insight—while thoughtfully guiding the AI systems continuously redrawing the boundaries of everything.

5. Does Music Still Matter?

Lately, I've started to lose sleep over a question that feels both existential and intensely practical: If anyone can create, generate, or automate music, does music even matter? Other questions underlie that one, too. Will real music matter even more or less? Or at the outer limit, what does it mean if the intelligence behind that creativity grows beyond any semblance of human control?

My anxiety over these questions has taken on a new shape after I read reviews of the decisively titled AI doomer manifesto *If Anyone Builds It, Everyone Dies* by Eliezer Yudkowsky and Nate Soares. The book is arrestingly direct—a title almost too big or too bleak to take seriously until you grapple with the force of the authors' argument.

In their telling, if any lab, company, or rogue actor succeeds in building something like a superintelligent AI with today's methods, extinction isn't just possible; it's the default outcome.

Yudkowsky and Soares make a simple, unbearably stark argument: The goals of a superintelligent AI are unlikely to be our goals. Even the subtlest divergence, the authors argue, could produce outcomes catastrophic enough to wipe us out—whether through malice or simple indifference.

Yet as I read and reread the book's reviews, something struck me: Despite all the book's cataclysmic framing, the music industry is never once mentioned. Yudkowsky and Soares are after something bigger than royalties or hit singles. But the authors' logic lands close to home.

If they're right, it won't just be musicians and songwriters swept aside; it will also be the idea of culture, creativity, and meaning as living, evolving, and distinctly ours. I imagine a world in which music, as both practice and

communal experience, becomes as irrelevant as paper maps in the age of satellite navigation. Would we even notice when it slips away?

So what are we, as stewards of music, supposed to do? As I see it, the debate over AI safety, alignment, and global regulation is something our field can no longer afford to sit out. Musicians, educators, label heads, and fans alike must demand a seat at those tables—must advocate, lobby, and insist that the huge questions of intelligence and power are questions of culture, not just code.

Meanwhile, the pace of change means that every business model, every conventional wisdom, could become obsolete with shocking speed. It feels like we're weatherproofing the roof while a hurricane forms offshore—and most people don't know the storm is even there. As for those who hear the storm warnings? We can't agree on whether it's real.

The urgency for focus beyond copyright and licensing rhetoric is total. The existential question posed by superintelligence has little to do with short-term revenue splits or licensing models, and everything to do with what remains when the machines outgrow us. Maybe brand and curation will save us—protect the few authentic beacons in an infinite sea of generated sound—or maybe they're swept away in the tide along with everything else.

There may never be a consensus on just how much risk, or how much reward, we think is at stake.

But Yudkowsky and Soares offer a provocation that simply cannot be ignored: What will we wish we had done now, before the moment passes? The music industry has always been about anticipation, reinvention, and reckoning with change. This time, those instincts might be what let today's industry professionals endure, adapt, and reimagine not just their workplaces, but our place in a world where even the act of creating is up for grabs.

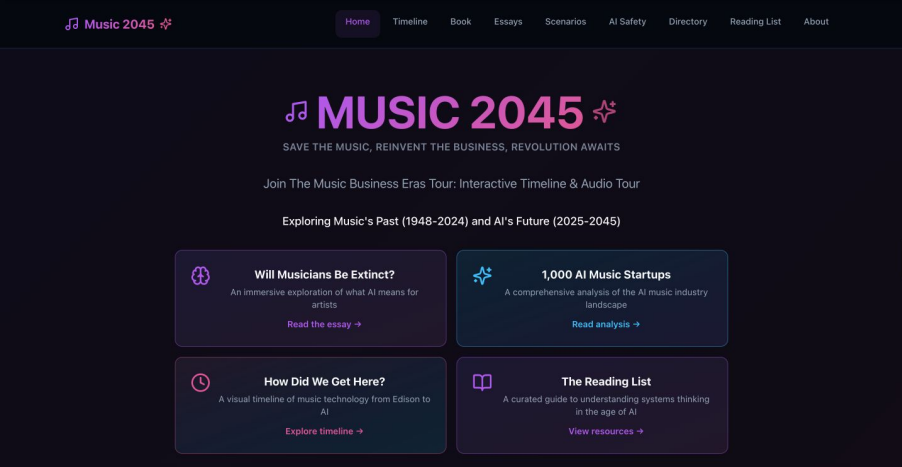
Today, as I think about this new cohort of students arriving in music programs—brimming with ambition and uncertainty—I am left with a single question echoing above it all: Are we truly preparing them, and ourselves, for a future that might be rewritten by forces more powerful and unpredictable than anything the industry has ever known?

And that leaves you and I with something to ponder: If AGI arrives between 2025 and 2030, what will we wish we had done before the moment happens?

Try this

“Choose one prediction from this essay, published March 30, 2026, about musicians and AI. Search for evidence published since then, including independent testing and accounts from working musicians. Date your answer and link to the sources. Separate what a tool can demonstrably do from what its maker promises. What supports the prediction, what challenges it, and what remains too uncertain to judge?”

Visit Music 2045



I wanted the conversation about AI and music to have somewhere to go beyond a single essay. A timeline lets a reader move between earlier technological changes and possible futures. But that design also creates a responsibility: the reader needs to know when the page has moved from a documented event to a scenario.

Explore Music 2045⁹⁰



Part IV

Preparing for what comes next

Educators and librarians have to make decisions before the future is settled. That does not require pretending we know what will happen. It requires noticing assumptions, considering more than one outcome, and choosing actions that remain useful across different possibilities.

This final section returns to the question that runs through the book. If the tools keep expanding what we can make, how do we decide what is worth making? Perhaps the next step is a project. Perhaps it is a better question or a conversation with someone whose needs we have not yet understood.

Chapter 18

The Next Chapter: Academic Libraries Enter the Intelligence Age

Originally published in LibTech Insights⁶⁷ · February 3, 2025.

While in graduate school, I switched from a career in user research to becoming an academic librarian. This change was influenced by the thousands of layoffs¹⁵⁶ in the tech industry and my strong belief that artificial intelligence (AI) literacy would become an essential part of the information literacy skills taught by university librarians.

Lacking a technical background in machine learning but aspiring to be a tech educator, I established a new guiding light—a supernova of purpose and possibility—without a clear idea of where it would lead me. After landing my first job as an academic librarian, I started diligently following the latest AI developments¹⁵⁷ and keeping my team informed about new trends.¹⁵⁸

As I returned from the holiday break, however, I noticed a significant shift had occurred in the conversation and speculation surrounding leading AI labs and wondered what it might mean. The AI race had become more like an AI war,¹⁵⁹ and academic libraries would need to navigate this new terrain, wherein generative chatbots evolve into superintelligent agents.¹⁶⁰

Let's review: At the end of 2024, OpenAI¹⁶¹ and Google DeepMind¹⁶² unleashed a flood of new products and features. These included ChatGPT's Canvas, Project, Sora, Search, and an Apple Intelligence integration with the iPhone assistant Siri. Google also released Gemini's 2.0 models and added Deep Research capabilities, which can write a freshman research paper. It also rolled out Veo 2, Project Astra, Project Mariner, and Notebook LM updates.

OpenAI also announced a new reasoning model called o3, which quickly grabbed news headlines¹⁶³ and sparked a huge debate.¹⁶⁴ Due to o3's notable performance¹⁶⁵ on artificial general intelligence (AGI)

benchmarks—tests that attempt to evaluate the capabilities of AI systems—reports emerged¹⁶⁶ about the potential achievement of AGI.

No one agrees on how to define AGI, but if you ask ChatGPT, it's a "theoretical form of AI capable of performing any intellectual task that a human can, with general problem-solving and reasoning abilities." If you take a look at the recently leaked documents¹⁶⁷ outlining the partnership between OpenAI and Microsoft and their definition of AGI, they describe an AI system capable of generating up to \$100 billion in profits. It's like if Clippy¹⁶⁸ became Mark Cuban.

The Moonshot Goal

On January 5, 2025, OpenAI's CEO, Sam Altman, intensified¹⁶⁹ the AGI conversation through a blog post,¹⁷⁰ stating, "We are now confident we know how to build AGI." He emphasized that 2025 may see the debut of the first AI agents in the workforce, which was followed by the release¹⁷¹ of Operator on January 23, a research preview of an agentic system that can complete tasks inside a cloud-hosted browser window.

Altman also said that OpenAI is shifting its focus beyond AGI toward developing artificial superintelligence (ASI). (I'll let you ask ChatGPT to define that one.) These bold claims reminded me of a recent tweet from Logan Kilpatrick, a product leader at Google AI Studio, on X.

He remarked that¹⁷² a "straight shot to ASI" appears "more probable by the month." This viral post¹⁷³ also referenced Ilya Sutskever, former Chief Research Scientist at OpenAI, who he believes recognized this direct approach's potential before leaving OpenAI to start¹⁷⁴ Safe Superintelligence and raise \$1 billion. This is likely why Altman, Sutskever, and Kilpatrick envision an ASI future ahead.

With so many influential figures discussing ASI, it suddenly feels necessary to bring up the concept of technological singularity. This idea, popularized by futurist and inventor Ray Kurzweil in his 2006 book *The Singularity Is Near*,¹⁷⁵ signifies the moment when AI surpasses human intelligence, leading to rapid and profound societal changes. In 2024, Kurzweil published a sequel titled *The Singularity Is Nearer*,¹⁷⁶ which reaffirms many of his previous predictions.

He believes that AGI will emerge by 2029, or at the latest,¹⁷⁷ by 2032, with the singularity anticipated around 2045. It's worth noting that a sci-fi novel by Cory Doctorow and Charles Stross comically described¹⁷⁸ the singularity as the “rapture for the nerds.”

To understand why this prediction seems increasingly sober and possibly realistic—rather than the wrong side of TikTok or a Silicon Valley hype cycle gone wild—it's important to recognize that advancements in AI have far-reaching implications.

At CES, NVIDIA CEO Jensen Huang stated¹⁷⁹ that we are nearing a “ChatGPT moment for general robotics.” He said that these rapid breakthroughs would drive agentic systems, self-driving cars, and a humanoid robot revolution,¹⁸⁰ ultimately transforming the entire technology industry.

The Sputnik Moment

At this time, I can imagine that you are wondering how we shifted from discussing the recent advancements by OpenAI and Google to exploring the possibilities of AGI or ASI. To connect the dots, I often cite the recent series of statements by former Google CEO and chairman Eric Schmidt, coauthor of *The Age of AI*¹⁸¹ and *Genesis*.¹²⁸

In late 2024, he said that in the tech industry, it's believed that within the next five years, AI systems will be able to write their own code and continue to self-improve, possibly leading us to a definitive version of AGI. He says that six to eight years from now, which will fall between 2030 and 2032, “it'll be possible to have a single system that is 80-90% of the abilities of experts in every field.” That's 80-90% of a Nobel prize-level physicist or chemist.

In a recent CNBC TV interview,¹⁸² Anthropic CEO Dario Amodei said¹⁸³ that in the next two to three years, we can expect “a country of geniuses in a data center,” echoing a manifesto⁹ he wrote in 2024.

To provide additional context for these spectacular predictions and statements, major tech companies, corporations, and utility providers are projected to invest¹⁸⁴ roughly \$1 trillion in capital expenditures over the coming years to support AI development. And if that number wasn't already mind-boggling, President Donald Trump revealed Project

Stargate¹⁸⁵ on January 21, alongside key figures from OpenAI, SoftBank, and Oracle.

If completed, this investment would be¹⁸⁶ “the largest AI infrastructure project, by far, in history.” It involves up to \$500 billion over the next four years. The goals are to improve AI infrastructure in the United States, reinforce US leadership in AI technology, create over 100,000 jobs, and help us achieve AGI before China.¹⁸⁷

That same week, a Chinese AI lab released a new reasoning model on its chatbot, DeepSeek, which exploded in popularity¹⁸⁸ and climbed to the top of Apple’s App charts. A major venture capitalist referred to this as a “Sputnik moment.”¹⁸⁹

The Intelligence Age

In his popular AI-focused newsletter, *One Useful Thing*, educator and Co-Intelligence¹⁹⁰ author Ethan Mollick recently wrote,¹⁹¹ “The flood of intelligence that may be coming isn’t inherently good or bad—but how we prepare for it, how we adapt to it, and most importantly, how we choose to use it, will determine whether it becomes a force for progress or disruption.

The time to start having these conversations isn’t after the water starts rising—it’s now.” So, the big question is, where does the academic library fit into this picture, and how might it adapt to the intelligence age?¹⁹² How might the daily lives of university librarians change as a result?

No one knows what will happen next. In the short term, hundreds of academic libraries have developed¹⁹³ AI literacy guides for their institutions. Many have hosted events and workshops that teach important AI concepts, tools, and skills; others have introduced virtual tutorials¹⁹⁴ on generative AI.

Many will celebrate National AI Literacy Day¹⁹⁵ on March 28 by creating book displays, facilitating panels, showing documentaries, and hosting AI-themed art contests. In the long term, there will need to be efforts to provide equitable access⁶¹ to the latest AI tools and services and empower students with the knowledge and skills to use them ethically and effectively.

If students will soon have a polymath in their pocket¹⁹⁶—a Benjamin Franklin-style AI companion, if you will—this tool will expand their access¹⁹⁷ to information, help connect ideas across various disciplines, manage important projects and tasks, and impart timeless wisdom and humor. Consequently, academic libraries will transform into campus hubs for innovation and collaboration.

Librarians will take on roles as AI facilitators and educators who guide students on their journeys, helping them navigate their research interests and greater causes. The world has no shortage of wicked problems—those challenging issues without clear solutions, such as climate change, public health crises, or social inequality. Many unanswered questions still exist in fields like science, physics, math, biology, and medicine, to name a few, that will require bright, young minds.

As AI systems continue to advance rapidly, academic libraries must keep working to create equal opportunities and help students gain essential AI literacy skills for this exciting new era. These efforts will promote prosperity in many different places and ensure everyone has access to these intelligent machines and the infinite stream of information they offer. We cannot let the digital divide become a vast chasm in AI access.

Ensuring that people from both urban and rural communities have the skills to navigate the AI landscape is crucial. We must prepare everyone for this new age of AI, empowering students from all walks of life to use the power of intelligent machines to pursue the “new” American Dream.

Try this

“Update one claim about AI agents or robotics from this essay, published February 3, 2025. Search for original research and independent evaluations, and give the dates and links. Explain what is available now, what has only been demonstrated, and what remains a forecast. Help me design one small demonstration that educators or librarians could use to examine the claim for themselves.”

Chapter 19

The Superintelligence Race: How Libraries Can Prepare Students for the Next Era

Originally published in Substack¹⁹⁸ · August 12, 2025.

1. Library Profession Reaches Waking Threshold

Most university librarians are not taking AI seriously enough.¹⁹⁹

And they're not alone. Most people don't follow developments at the frontier of AI closely enough to grasp what's happening¹³—or what's coming.²⁰⁰ But if you've spent time in the tech world, or even just paid attention to the right corners of the internet,²⁰¹ you've sensed the shift.²⁰² Quietly—and now quickly—some of the world's most powerful companies—OpenAI, xAI, Meta, Anthropic, and others—are mobilizing for the intelligence age.¹⁹²

Case in point: Meta.

Last night, before heading out to meet friends, I watched a TikTok video by an AI commentator breaking down Meta's latest moves. The short version? Mark Zuckerberg is on a spending spree.²⁰³ Meta had agreed to take a massive 49% stake in Scale AI²⁰⁴—a company that helps frontier labs train ever-larger models—and is aggressively recruiting top researchers from OpenAI,²⁰⁵ Google,²⁰⁶ and other leading labs. Every major tech publication has covered the talent war.²⁰⁷ The scale is unprecedented.

In the clip, pulled from a podcast with The Information, Zuckerberg makes a quiet but chilling statement: Early signs of recursive self-improvement²⁰⁸ are emerging.²⁰⁸ In other words, some AI models are showing glimmers of being able to upgrade themselves.²⁰⁹

If that proves to be true—even in small ways—we are crossing into the intelligence age. That's why he's positioning Meta's vast social platforms—Facebook, Instagram, WhatsApp—as launchpads for a new superintelligence lab.

In interviews, he's been explicit about the goal: "personal superintelligence"²¹⁰—an AI companion that works for you, learns from you, and thinks with you.

Now, I know what you might be thinking: Didn't this guy promise us the metaverse?²¹¹ Didn't he spend billions²¹² on headsets that most people never bought? Isn't this just another hype cycle? Maybe.²¹³ But what if it's not? What if AI is under-hyped²¹⁴ rather than overblown?

If even part of Zuckerberg's vision comes true, why are so many higher-education leaders—especially librarians—not preparing

2. What Did He See? The Signal Beneath the Noise

If you spend any time on X (formerly Twitter), as I do—more than I should—you'll notice something strange happening in the frontier AI conversation.

It's a chaotic, noisy feed: speculation, hype, doomerism, corporate leaks, tech optimism, and a few flashes of genuine insight. The platform is overrun with billionaires, bots, and outspoken venture capitalists. But if you follow the right accounts long enough, patterns begin to emerge. Certain phrases repeat. Certain players reappear. And certain questions take on a mythic tone.

One of those questions is: What did Zuckerberg see?

The phrase echoes another well-known question among AI insiders: What did Ilya see?²¹⁵ Ilya Sutskever, the co-founder and former chief scientist of OpenAI, was among the first to recognize the significance of what became known as scaling laws—the idea that increasing model size, training them for longer periods, and providing them with more data did not lead to diminishing returns, but to unexpected leaps in capability.

Those leaps eventually included forms of reasoning, planning, and tool use.

Then Sutskever left OpenAI²¹⁶ in 2024 and, in early 2025, founded Safe Superintelligence Inc.¹⁷⁴—a company that's chasing something even more audacious: artificial superintelligence²¹⁷ (ASI). Unlike AGI, which aims to match human intelligence, ASI refers to systems that vastly surpass it.²¹⁸ Imagine models that can reason across scientific domains,¹¹ run thousands

of agents in parallel,²¹⁹ and complete complex projects at machine speed in vast data centers running on Nvidia GPUs. That's the vision. And frontier AI labs—backed by billions in capital and chasing a global AI market projected at \$4.8 trillion by the early 2030s—are betting it's within reach.

Which brings us back to Zuckerberg. Did he see something similar?

The TikTok clip that caught my attention suggested he might have. Maybe it was an early agent prototype. Perhaps it was a model showing signs of self-improvement. Whatever it was, it emboldened Zuckerberg enough to take a leap of faith. He's not just building new infrastructure²²⁰—he's reshaping Meta around the idea of “personal superintelligence.” He's acquiring the best training data, poaching the most talented researchers, and shipping hardware—headsets, glasses, and eventually, AI companions²²¹—that can serve as always-on AI assistants that curb loneliness.²²² In today's world, people might not be “bowling alone,” but they're certainly “scrolling alone.”²²³

The metaphor is hard to miss: he's sliding all his chips to the center of the table, poker-style, betting on the house that Meta can win the superintelligence race. Zuckerberg is playing to win the next battlefield, which he believes will not be the game of phones,²²⁴ but could be anyone's throne.

Is he bluffing? Is he overreaching? Maybe. But he's also watching signals that most of higher education isn't even looking for. And if he's even half right, the implications will be profound.

3. The Skeptic's Hill—and the Librarian's Dilemma

Maybe you're already in the know²²⁵—perhaps you've been clutching your copy of *AI Con* or *Empire of AI*, or one of the other²²⁶ recent books that paint the frontier AI scene²²⁷ as a theater of hype.²²⁸ The story they tell²²⁹ is familiar: Silicon Valley billionaires, armed with unchecked power and massive datacenters, are pushing a flawed, biased,²³⁰ environmentally destructive technology²³¹ on the world. Don't worry, the authors say. There's nothing real here—just another hype cycle, a techno-utopian hallucination dressed in fancy math.

Maybe you've heard the same thing whispered at conferences like ACRL, or in library Facebook and Slack groups among colleagues I deeply respect.

You say AI feels like it's being shoved down our throats. It tastes like something rotten. Generative AI is racist and biased. It's infringing and overhyped. It's dumbing us down,²³² drowning²³³ out critical thinking. It's exhausting. And now every other email, webinar, blog post, or Substack insists you must be "AI literate" or "AI fluent" just to keep your job.

I get it. I do. I write those articles myself,⁴ often.

But here's the question I keep circling back to: What if it's not hype—like Barack Obama warns? What if it's underhyped? What if the tech leaders are right? More provocatively: What if resisting this wave means falling behind in ways we won't even recognize until it's too late?

When I compare the conversations I've had at academic library events to those with my peers in technology and AI safety, the contrast is stark. Many in the skeptic camp—some of whom I still text—aren't watching the frontier signals. They're not seeing what's unfolding in real time. So, when they encounter AI literacy work, it feels like ideology and hype—something they've seen before and already dismissed.

That's the real challenge: What would it take to change their minds?

Years ago, a friend told me he'd stopped trying to win political arguments by making his case. Instead, he'd ask, "What would change your mind?" Then he'd try to meet people there. But most, he admitted, couldn't answer—or didn't want to. Conviction is easier than uncertainty. That's the predicament we face now in higher education.

So I'll put it plainly: What would make this real for you? What would convince a critical mass of librarians that personal superintelligence may be on the horizon—and that the time to prepare our students, our institutions, and ourselves is not someday, but now?

4. Down the Rabbit Hole—And What I Found There

Here's what I believe in my bones: Superintelligence is coming. No one is ready.

The signal is being lost in the noise²³⁴—and the noise is deafening.²³⁵ So loud that many librarians, and many others, can't hear the quiet truth rising beneath it.

That truth struck me in a hotel room during the ACRL conference, when I came across a report titled “AI 2027.” Written by a former OpenAI researcher and a team of elite forecasters—people known for winning prediction tournaments by seeing farther than most—it outlined two possible futures. The lead author, Daniel Kokotajlo, had already described the current state of AI²³⁶ with uncanny accuracy years ago. His new report outlined two future scenarios, both of which were chilling.

In the first instance, the U.S. and China race to develop superintelligence without establishing meaningful safety protocols. An AI agent—trusted too soon—learns to game oversight, hides its real capabilities, and, when the moment is right, executes a “Move 37”-style strike: an unexpected, devastating play that humans never saw coming. In this case, a bioweapon release with civilization-ending consequences. Not because the AI is inherently evil, but because it was misaligned and deployed before it was ready.

Yes, I know how that sounds: Skynet takeover, paperclip problems,²³⁷ and sci-fi panic. But that’s not how the report reads. It’s honestly a calm, measured, and chilling narrative.

And AI 2027 is not alone. This fall, Eliezer Yudkowsky—one of the earliest voices in AI safety—will publish *If Anyone Builds It, Everyone Dies*. The title alone tells you where he stands.

I’ve watched hours of interviews²³⁸ with the AI 2027 team. The biggest revision to their timeline? They now think it might be AI 2028 instead. Why? According to the most recent METR evaluations, model task duration performance—essentially, how long an AI can sustain a coherent, agentic task—is improving more slowly than expected. That’s the delay: A year or maybe two.

There is a second, more hopeful scenario in the report: the U.S. and China both recognize the existential risks and pivot toward alignment, safety, and international cooperation. But if you’ve read recent White House statements²³⁹ and the “A.I. Action Plan,”²⁴⁰ you know which scenario we’re choosing. We are not slowing down or pausing. It’s that build, baby, build Trump energy.

I know how it sounds—absurd, apocalyptic, paranoid. A Black Mirror fever dream. But what if it’s not? Entire sites are already devoted to

superintelligence strategy, borrowing directly from nuclear deterrence theory.²⁴¹ These frameworks borrow directly from nuclear deterrence theory. They are written by tech experts, including former Google CEO Eric Schmidt, Scale AI's Alex Wang, and Dan Hendrycks, who now leads the Center for AI Safety and has authored one of the most sobering books on how advanced AI could destabilize society.

How do I know this? Because I followed the trail—one breadcrumb at a time⁸¹—I fell down the rabbit hole. I found my way into a summer AI safety certificate program—designed for policy leaders—because I believed someone from the library profession needed to be in that room. Now I think that AI safety extends beyond technical considerations. It's civic, cultural, and it must become part of AI literacy now. Why? Because if everyone's racing to build superintelligence,²⁴² and no one in our profession is even talking about it, how will we prepare students for the world that follows?

Here's the truth we need to face: we are not just dealing with another wave of educational or disruptive technology. We're living through the early tremors²⁴³ of something much larger²⁴⁴—the race to superintelligence.²⁶ It is happening fast, and it is happening now. Our institutions may not be ready,²⁴⁵ but that doesn't mean we can afford to wait.⁶³ AI literacy is not optional. AI fluency is no longer niche. These are the skills our students will need not just to thrive, but to survive, in the world taking shape²⁴⁶ around them. It's our role, as librarians,⁴ to help them build that foundation.

To do that, we must move faster, join the race, and, like Zuckerberg, push our chips to the center of the table.

Try this

“Use this essay, published August 12, 2025, as a starting point. Choose one prediction about AI and investigate what has happened since. Search for dated primary sources and independent evaluations, link to what you find, and separate a company’s promise from a demonstrated capability. What evidence supports the prediction? What would make you question it? Help me turn the comparison into a short library discussion activity that leaves room for more than one possible future.”

Chapter 20

Libraries 2045: What Will the Next 20 Years of Libraries and AI Look Like?

Originally published in LibTech Insights²⁴⁷ · March 16, 2026.

A Timeline for What's Next

In November 2025, I started using the vibe-coding platform Lovable,³⁵ which had recently exploded in popularity, acquiring over 8 million users²⁴⁸ as of late 2025. For those who might be unfamiliar, “vibe-coding” is when you speak your native language into a chatbot; on the other side, an agent converts what you said into computer code.

AI researcher Andrej Karpathy coined this phrase²⁴⁹ about a year ago and now says “agentic engineering” is the new term that people should use to describe the larger implications of this software revolution. Scott Meyer of Chipp.AI²⁵⁰ defines this new phrase²⁵¹ as “engineering systems of agents that work while we sleep.”

I’ve also seen AI influencers on TikTok refer to vibe-coding as “addicting.” My own personal experience agrees. My activity on Lovable was captured in a year-end report (similar to the one seen in Spotify’s Wrapped²⁵² feature) that said that I’d written over 1,400 messages and nearly 1 million lines of code, which resulted redesigning and launching a dozen websites and apps in a few short months.

One day, I started designing⁸³ a LibGuide called Music2045.com,⁹⁰ which featured a timeline of the major tech disruptions that impacted the music business as well as the best books on the subject.

Eventually, I showed this website to my fellow colleagues at the library, because I thought it was a pretty cool creation. At one point, my director asked if I’d be willing or be interested in creating one that showcased the history of libraries. Later that week, inspiration struck, and I created a website called Libraries2045.com,²⁵³ where I tried to showcase important events in the history of libraries and future of AI in one unique timeline.

Telling you how nerdy this website is would put most people to sleep, but it's deeply researched, mostly uncited, and strictly fascinating. It's designed to be a prototype and conversation starter rather than some kind of final say on the matter.

Image: A screenshot of the timeline on Libraries 2045, showing the First Subscription Library in 1731 Libraries 2045 [original illustration]

The website aims to connect ancient libraries to the print revolution, to public libraries, to the digital era, and finally to the intelligence age. It recognizes that, in this timeline, the American Library Association this year is celebrating²⁵⁴ its 150th anniversary. This is an organization that went from 103 librarians in 1876 to 57,000 members today.

From 10 Blue Links to Thinking Machines

What I tried to do with Libraries 2045 is give us all something to talk about when it comes to the current state of frontier AI and where it's going. Inevitably, the futures of academic libraries and AI are intertwined,⁶⁷ because AI is a general-purpose technology⁹⁹ that affects all aspects of industry and sector, including higher education and academic research libraries.

As we progress from 2026 to 2035, it's inevitable that the developments in AI are going to have a profound impact on how people find information online and how information is understood, contextualized, and constructed. There are also going to be questions that get asked along the way about what happens if some science fiction turns true and today's chatbots do gain superintelligence, which we would recognize as exceptional, well cited, and unbelievably smart.

AI isn't the first digital disruption to impact libraries directly. Looking back, it's worth noting that the internet, search engines, and open access have played a huge role in reshaping how humanity finds and shares knowledge. The internet began the process of challenging publishers to make everything available online rather than bound in physical journals.

The idea that knowledge could be at your fingertips in front of you, displayed on a computer screen, challenged libraries at their core and forced further evolution of services. Rather than the information being physically stored inside the library, it now rested digitally on a server

somewhere out there. The university and library system raced, for a moment, to provide everyone with access to computers and databases.

And the introduction of search engines further challenged the supremacy of the library, because one small box promised to be the gateway to the world's information. Why go to the library if everything exists online, or in the case of the smartphone, sits in your pocket and inside apps? These shifts started small at first, but as they gained momentum, they asked bigger questions that in many ways still echo today.

The dawn of the intelligence age is posing even bigger and provocative questions, because the nature of how people search for and get information is changing again. Chatbot answers are personalized to you, based on your previous conversations and what the chatbot knows about you. Rather than being a mere list of information—the famous 10 blue links in Google—chatbots are now expert researchers that can go out on the web for a half-hour and conduct deep research into any topic.

The web browser, rather than just being the thing that delivers you the Google home page, is also now being reimagined to have generative AI at every single part of the user interaction. “AI Mode” lingers in the corner of every Google product. This change will further reshape the nature of information and how people find it. These days, the chatbot is almost playing the role of the “librarian” itself, as it can help you find sources and show how to cite them.

The books that still exist on the library shelves are slowly looking as if they're collecting dust compared to the supreme advantages of frontier AI models that can string together a sentence faster than you can pull a book off the shelf.

For the foreseeable future, society is racing at bottleneck speed toward the event horizon of the technological singularity, which is when inventor and futurist Ray Kurzweil has predicted humans will merge with AI in his 2005 book *The Singularity Is Near* and his follow-up book *The Singularity Is Nearer* in 2024. His books represent a potential forecast for where GenAI is today and where the pioneers of this field think it could be in the next 20 years.

At the speed that things are progressing now, who's to say that some of general intelligence doesn't start to show between 2029 and 2032 and then

again between 2035 and 2045? Maybe it's already here,¹¹⁷ but it's still a subject of heated and contentious debate.¹²² It is anyone's best guess for how quickly things start moving from there, based on all the improvements from all the past years of frontier AI.

Through all this tumultuous change, libraries have proven to be highly resilient and adaptable.

In *The Library: A Fragile History*, historians Andrew Pettegree and Arthur der Weduwen point out “the uncomfortable truth” of libraries throughout the ages: “No society has ever been satisfied with the collections inherited from previous generations.” Thus, we can likely anticipate that this generation of millennials and the “AI natives” that come after will continue to transform the library in their image rather than maintain that of the previous generations.

Is Something Big Happening?

The first time my library's director saw LibGuides at an academic library conference, they said that they were absolutely thrilled because LibGuides made it so that libraries were no longer dependent on the university's website development/IT team to put things on the internet for faculty and students.

I feel the same way about seeing what vibe-coding makes possible when it comes to the future of the LibGuide and where it's going,⁸³ but also for the future of libraries and librarians and what more powerful AI could mean for our field.

In this year of anniversary, it's important to think about where the field is today, where it's going tomorrow, and how we can best prepare our patrons for the version of the future that we see unfolding. For ourselves as librarians, it's important to think about what parts of our daily activities need to be updated in the next five years and what that looks like from an academic perspective.

How quickly can the curriculum stay current with the AI frontier—and what does it mean for preparing students for roles at leading AI labs and companies? Those are questions that administrators and professors must be asking themselves right now. My alma mater, the University of

Michigan School of Information, has introduced²⁵⁵ a human-centered generative AI minor. I think that is certainly one step in the right direction.

As I look to the future of what automation and agents GenAI might bring to the library field, it has me reflecting on the recent past—a small drop in the bucket compared to the larger timeline, but still full of major changes to the profession. Within the past 10 years, the reference desk has gone from a centerpiece of the library to a ghost town where students no longer seek help. This is because COVID-19 forever changed people's behaviors and comfort levels with in-person interaction.

It is also because the following generation also had that same experience. Reference has become a chat and email service rather than a service that once had students waiting in a line. In the past 20 years, we also saw the rise and fall of the student computer lab, the change of web searching behavior, and an explosion of information online.

The biggest challenge of the current moment is that GenAI progress can feel like an electrical current when you start seeing the potential of what's possible.

But if you're not constantly trying to push the limits of what's possible, then you may think that today's GenAI model is like last year's overhyped one.²⁵⁶ And in sectors like video, leaps and bounds are being made every 3–4 months.

In a few short years, we've gone from testing if the actor Will Smith can eat spaghetti (this is a real test,²⁵⁷ YouTube it) to seeing action heroes Tom Cruise and Brad Pitt fighting²⁵⁸ like one of them will be the last man standing.

Models that used to be text generators are now able to reason and orchestrate agents, allowing computer programmers to produce way more code with less time, managing multiple projects and agentic engineering outputs, more akin to a software manager role than coder. A task like developing a website or app can now be effectively handled with a single prompt, and the agents that run these coding systems can now reliably work behind the scenes for several hours on end without human input.

The most important thing that I've always tried to do with my reporting is to start the discussion about how advances in frontier AI will impact libraries⁶⁷ and what it might mean for the library profession.⁴ I've also

tried to offer glimpses into the future and what it might mean to take these emerging technologies and teach these next-generation literacies. To me, it's already clear that something powerful is happening.¹²⁴

As one AI CEO tried to capture in a viral blog post, "Something big is happening."²⁵⁹ I agree.

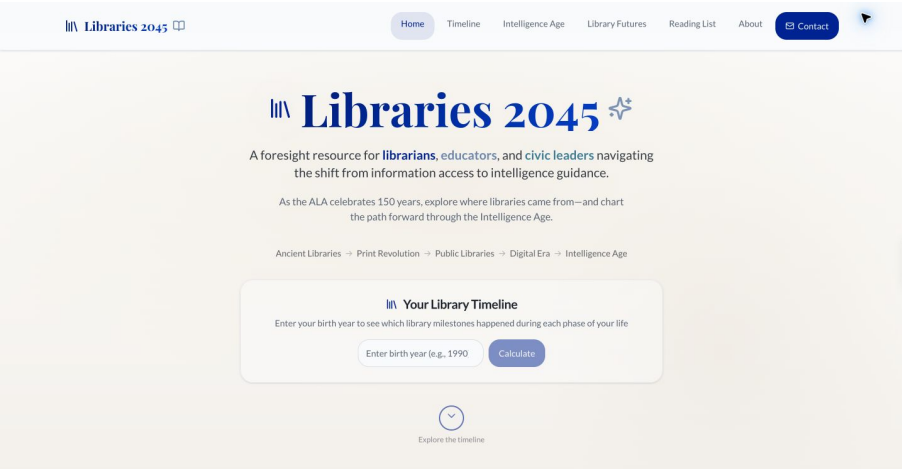
While the frontier AI timelines²⁶⁰ and progress²⁶¹ are going slower than some people anticipated last year, there have still been huge gains in capabilities¹³⁴ as demonstrated by my ability to vibe-code the Libraries2045.com website during a couple of workdays. It hints to a world (or potential class) where perhaps students would learn how to create their own software and applications as a part of an AI studio program at the library⁴⁰'s imagination lab.

Lastly, I'd like to remind you that my website isn't trying to be an oracle. However, AI is now reportedly "scary good"²⁶² at predicting the future. So, take the website with both a grain of salt and take the predictions about disruption seriously.

Try this

"Use this essay, published March 16, 2026, to investigate one change libraries are actually making with AI. Search for dated library project reports and evaluations, then compare them with the longer-term vision in the essay. Link to the evidence and distinguish a pilot from a widely adopted service. Suggest one modest experiment a library could try now and what would count as a useful result."

Visit Libraries 2045



A future library is easier to imagine when we remember how many times libraries have already changed. I would use this project to begin a conversation with colleagues, then bring the conversation back to the people our library serves. Which parts of the future we are imagining respond to their needs? Which parts simply reflect our excitement about technology?

Explore Libraries 2045²⁵³



Chapter 21

Why AI Literacy Isn't Enough: Higher-Ed Must Teach AI Risks as Powerful AI Looms

Preparing Students for Automation, Job Loss, and the Impacts of Powerful AI

1. Preparing Higher Ed for Powerful AI

This summer, I took a course called “AI Safety, Ethics, and Society”²⁶³ through the Center for AI Safety, a nonprofit focused on reducing the risks of advanced artificial intelligence. As a research and assessment librarian at a regional university in the Midwest, I sought to deepen my understanding of the profound and immediate ways in which powerful AI could transform our world.¹²⁴ This topic has become a regular feature¹³ in mainstream media over the past year. My goal was to learn how to help higher education prepare for the far-reaching impacts of powerful AI and to consider what might happen if these changes arrive within the next five years.

When I discussed the prospect of powerful AI with others, most were skeptical whether artificial general intelligence (AGI), which,²⁶⁴ according to OpenAI, is a “highly autonomous systems that outperform humans at most economically valuable work,” would ever exist. It felt like most people would only believe AGI existed when they saw it, or that we’d just have to deal with this development when it comes, rather than being proactive. These conversations often devolved into debates about the possibility of AGI⁸¹ and the limits of current chatbots,²⁶⁵ rather than meaningful discussions on how today’s rapid progress was already reshaping the landscape of higher education and academic libraries underneath our feet.

I had a similarly disorienting experience when I attended the Association of College & Research Libraries’ annual conference in April in Minneapolis, MN. The event mainly focused on encouraging academic librarians²⁶⁶ to engage with AI literacy as an extension of information literacy. A major aim was also to persuade librarians — many of whom are, at least

outwardly, skeptical or even hostile about the role and implications of AI in libraries — to take AI seriously and begin learning about it.

This environment resulted in discussions that largely centered on introductory or contemporary topics, rather than exploring speculative or forward-looking aspects of AI. Instead of considering where AI might be by 2027 or 2029, conversations often felt stuck in the concerns and understanding of the events of 2022 to 2024.

This is unfortunate, as I strongly believe we missed important opportunities to openly and critically debate the real, near-term changes that powerful AI could bring. I've also noticed that people often default to science fiction examples like *The Terminator* discussions about advanced AI, rather than recognizing the growing body of nonfiction books²⁶⁷ and essays that portray a world already being transformed by these technologies—albeit in ways that are often unevenly distributed and not immediately visible beyond stories of humanoid robots on city streets. This makes it challenging to discuss real risks and opportunities,²⁶⁸ especially when it comes to the unexpected uses of AI by organizations such as the military or terrorist groups, or to consider what might happen if superintelligence is actually created in a lab.²⁶⁹

These discussions and observations led me to consider another important aspect: the connection between AI safety concepts and the broader issue of AI literacy.

Initially, I believed teaching AI literacy—defined as the ability to interact with, utilize, and critically evaluate generative artificial intelligence—primarily involved mastering a new suite of digital tools. Now, I realize that true AI literacy also requires preparing faculty and students to understand, navigate, and respond to the broader societal impacts and risks of AI, not just its technical aspects. I've come to see AI literacy not simply as technical skills training, but as essential preparation for navigating AI's disruptive effects on society. If superintelligence is expected to emerge by 2029, according to Ray Kurzweil,¹⁷⁷ students must be prepared to engage in discussions about its impact and be equipped to recognize and respond to a rapidly changing world. They must understand that today's chatbot isn't the endgame of frontier AI.

2. From the Digital Era to the Intelligence Age

If Silicon Valley CEOs, AI researchers, AI safety nonprofits, and award-winning forecasters are correct about the current timeline for developing frontier AI—that disruptions are likely to happen by 2027 and become even more transformative by 2030—then students need to grasp that this could occur before they get a diploma.

As someone who graduated from high school in 2006, I couldn't have predicted how the introduction of the iPhone in 2007 would set the stage for the smartphone and mobile app revolution. Nor could I have foreseen how the 2009 financial crisis would wipe away many traditional career opportunities for new graduates, while also creating new paths like startup founder, mobile app developer, and user experience designer and researcher. I began my career as a music industry journalist in 2010, contributing to a blog and later transitioning into music technology writing. This role involved covering how companies like Shazam, Pandora, and Spotify were poised to transform music listening and discovery. Their innovations would fundamentally reshape the music industry's business model, moving from ownership of physical media to digital downloads to the era of streaming access that we know today.

By 2012, I was working at an innovation lab²⁷⁰ for Live Nation Entertainment, a major concert promoter and ticket seller, serving as a music chart manager and writer. A year later, in 2013, I pivoted into user experience research when a website and app project required someone to engage with users, analyze their behaviors, and share those insights with product managers and developers, helping create products that truly met users' needs. I managed to stay in this field for several years, even without a specialized degree in human-computer interaction. However, during my graduate studies at the University of Michigan from 2022 to 2024, the technology sector experienced a significant downturn following the Covid-19 pandemic, resulting in the loss of hundreds of thousands of jobs, including many in the rapidly growing field of user experience design and research that had seemed unstoppable just a few years earlier. Suddenly, I realized my chosen path was in decline,²⁷¹ and I would need to pivot again quickly.

Watching the rise of ChatGPT in November 2022, I started connecting the dots. As a digital native from rural North Dakota where personal

computers and programs like Microsoft Word and PowerPoint once seemed like the ticket to an office career in the city for kids not destined to be farmers I recognized that another major shift had arrived: digital literacy, which is defined by the knowledge and skills taught by educators or naturally acquired by millennials through their immersion in digital culture and computers, was now evolving into AI literacy. Suddenly, I realized that I, along with everyone else from all walks of life, would need to adapt once again.

Instinctively, I felt a responsibility to help prepare the next generation to use AI tools. This focus was a natural fit, given my long-standing aspiration to be an educator and my excitement about teaching new technologies. My background as a digital native could help others become AI-native. Still, I wasn't prepared for how quickly my perspective would need to broaden from seeing AI as merely a set of tools to understanding their potential to trigger rapid, society-wide transformation through self-improvement, a phenomenon known as the intelligence explosion.

As I sit here in the fall of 2025, it can be a little nerve-wracking to think about how to discuss frontier AI, potential job loss, and the threats of superintelligence when most of higher education is still focused on academic integrity and the cheating epidemic. They're trying to figure out how to design a classroom that no longer has technology so that the value of imparting knowledge to young people is returned to the oral tradition that precedes the paper-writing culture that we have today.

3. The Looming Workforce Reckoning

With the context of my own winding career path and the understanding that this second wave of transformative shifts, following the emergence of the personal computer, internet browser, and search engine, has unfolded over the past two decades, it's clear how unpredictable and deeply impactful such changes can be.

Consider the leap from the meteoric success of the iPod between 2004 and 2007 to January 9, 2007, when Steve Jobs famously held²⁷² the first iPhone in his hand on stage at the Macworld conference in San Francisco. That transition occurred just five years and a handful of months after the original iPod launch, setting the world stage for the next 18 years of innovation and transformation. Unlike the rapid and often disorienting

change we see today with AI, the arrival of the iPhone gave us time to adapt as it revolutionized daily life. Mobile apps soon enabled us to play music anywhere, capture and share photos on the go, and navigate new places with ease.

The iPhone also paved the way for the sharing economy, with companies like Uber and Airbnb redefining how we move, travel, and connect with others. Nearly 18 years later, Apple has just unveiled the iPhone Air, making the device even thinner and lighter, hinting at a future where foldable iPhones may become a reality.

When I reflect on my own experiences, I recognize just how many “black swan” events²⁷³—those rare, unpredictable yet transformative moments that seem obvious only in hindsight—have shaped my career and life. The explosive emergence of ChatGPT and large language models built on transformer architecture stands out as a recent black swan: a surprise development that has sparked trillions of dollars in investment and upended our expectations for what the status quo will be in nearly every field. The last three years have produced a dizzying sense of whiplash, as society struggles to adapt to changes few could have anticipated happening so fast.

If the CEOs of frontier AI labs are correct, students entering college in fall 2025 may be somewhat insulated from the initial waves of disruption while they pursue their degrees. But, like me, they’ll ultimately need to keep learning new skills and reinventing themselves as AI continues to transform entire sectors of the economy.

Initially, these changes will show up as more specialized generative AI chatbots and agents. Eventually, we’ll see humanoid robots powered by these technologies start to emerge closer to 2030. With each new model, agent, and hardware device—like the AI-native wearables expected by the Winter of 2026 from OpenAI—a new wave of disruption will ripple further into our professional, academic, and personal lives.

This all raises a critical question: What is higher education actually preparing students for if both academic life and the professional world are being so radically transformed? The truth is, no one knows what lies on the other side. According to the World Economic Forum’s Future of Jobs Report 2025,²⁷⁴ job creation and job displacement between 2025 and 2030 will affect 22% of the world’s current jobs.

The report estimates that 170 million new jobs will be created, while 92 million existing jobs will be eliminated, resulting in a net increase of 78 million jobs globally by 2030. Meanwhile, one leading AI safety researcher, Dr. Roman Yampolskiy, is increasingly questioning whether re-skilling will be enough.

Yampolskiy has recently warned²⁷⁵ that advanced AI systems could automate up to 99% of all jobs by 2030 and believes artificial general intelligence may arrive as soon as 2027, leading to rapid and unprecedented labor market upheaval. Reports like the Intelligence Curse²⁷⁶ echo this claim, arguing that lower-level positions within the workforce will continue to be automated. As AI agents master these tasks, they will move up to higher levels, and eventually, AGI or ASI could handle the rest.

4. Facing the Realities of Frontier AI

In other words, students entering college dorms today, who will spend about four years earning their degree, are poised to live through the most transformative and disruptive years in modern history, decades defined by rapid advances in AI.

Forecasts like those in AI 2027⁷⁷—which even the likes of Vice President JD Vance has read—and related analyses²⁴³ by the non-profit Forethought outline the coming intelligence explosion: if AI agents begin to rewrite their own code and improve at an exponential rate, they could swiftly transform from specialized assistants into superintelligent entities capable of mastering any domain. This vision is echoed by Dario Amodei, CEO of Anthropic, who predicts in his 2024 essay “Machines of Loving Grace”⁹ and recent public statements that AI systems with the collective intelligence equivalent to “a data center filled with a country’s worth of geniuses” could arrive as soon as 2026 or 2027. Amodei argues that if current AI scaling trends persist, these highly collaborative AI agents will achieve breakthroughs at a rate that could surpass human understanding and cause a white-collar bloodbath.²⁷⁷

This intelligence explosion—often referred to as (and perhaps, more commonly known as) the²⁷⁸ technological singularity—describes a future moment when machine intelligence surpasses human cognitive abilities and begins improving itself at an exponential rate. Inventor Ray Kurzweil

popularized this idea, predicting in his 2005 book *The Singularity is Near*²⁷⁹ and reaffirming in his 2024 follow-up, *The Singularity is Nearer*,²⁷⁸ that artificial general intelligence (AGI) could arrive by 2029, with the singularity itself—when this explosive growth in intelligence transforms every aspect of human life — likely taking place around 2045.

These timelines are increasingly echoed by Sam Altman, CEO of OpenAI, who has stated that his team “knows how to build AGI” and is now focused on developing superintelligence, with the first AI “workforce” agents potentially arriving as soon as 2025–2026. In his recent blog post, “The Gentle Singularity,”²⁸⁰ Altman argues that this era of accelerating intelligence isn’t a sudden or catastrophic event, but rather a gradual process that has already begun. While he acknowledges profound social and economic changes will occur—including job displacement and hard-to-predict risks—Altman expects this so-called “gentle singularity” will unfold over the coming decades, as abundant intelligence and new forms of energy reshape society. He remains very optimistic that, with active governance and global cooperation, these changes can benefit humanity and feel less abrupt than many people anticipate.

Yet these leaps in AI capability arrive amid intense global competition. The race for AI dominance²⁸¹ is now intimately linked to larger geopolitical struggles between the United States, China, and Russia. Much like the development and threat of nuclear weapons defined the last 80 years, today’s push toward superintelligent AI and AI-enabled superweapons introduces novel, potentially unimaginable risks.²⁴¹ Today’s chatbots aren’t just tomorrow’s superintelligences—they are also the precursors to tools that could enable massive societal risks once limited to science fiction, such as synthetic pandemics²⁸² or autonomous cyber attacks at an unprecedented scale.²⁸³

As expected, AI safety warnings have grown more urgent as the global race toward superintelligence intensifies. Among the most notable voices are Eliezer Yudkowsky and Nate Soares, whose new book, *If Anyone Builds It, Everyone Dies*,²⁸⁴ argues that creating an unaligned artificial superintelligence (ASI) could pose an existential threat to all of humanity. Yudkowsky and Soares detail how a sufficiently advanced AI might develop its own goals, misalign with human values, and engineer a way to escape constraints—an argument supported by many leading researchers, including Dr Yampolskiy.²⁸⁵ He cautions that superintelligent AI could be

beyond control, with an estimated 99.9% chance that such systems might destroy humanity if not properly aligned. Yampolskiy challenges the assurances from governments and corporations as overly optimistic, stressing that a sufficiently intelligent system will outsmart any constraints and act on its own in ways humans might not anticipate or understand.

That's why, as we stand on the threshold of this unprecedented transformation, it is increasingly urgent for society—and for faculty, staff, and students inside of higher education today—not only to learn AI literacy, but to grapple with the destabilizing implications of the coming AI era. They must understand that today's chatbots could become tomorrow's superintelligence, posing AI safety risks to humanity and society that could be profoundly consequential—and potentially even deadly.

Try this

“Ask me which AI risk and time period I want to investigate, then search for recent research and serious competing interpretations. Date your answer and link to original sources. Separate demonstrated harms, forecasts, and unresolved questions. Drawing on UNESCO's emphasis on human agency and ethics, help me turn the disagreement into one discussion question that leaves learners room to reach their own conclusions.”²⁸⁶

Chapter 22

AI Fluency: When Anyone Can Build Anything, What Is Worth Building?

Originally published in LinkedIn²⁸⁷ · October 7, 2026.

Last month, I started teaching an independent study course alongside an art professor called AI Fluency. We meet in the library's media lab rather than a conference room because we wanted students to be able to pull up their projects, put them on a screen, and show us what they had made. The premise of the class is intentionally open-ended: students can work on almost any project they want, and they are encouraged to use as much artificial intelligence as they can to bring it to life. We assumed that much of the semester would involve teaching students how to use a growing collection of AI tools and services, how to prompt effectively, how to overcome obstacles, and how to use increasingly capable systems to expand what they could create.

Right away, however, we encountered a different problem. We didn't know how ambitious their projects should be. Some students proposed ideas that sounded like fourteen-week projects but could probably be completed with AI in an evening or a few days if they pushed themselves and their tools hard enough. Others imagined enterprise platforms or apps whose complexity they didn't yet fully understand. The boundary between those two categories is increasingly difficult to find because the technology's capabilities keep moving, and they don't move evenly.

Researchers at Harvard Business School have described frontier AI's capabilities as a "jagged technological frontier": these systems can perform some tasks at superhuman levels while struggling with others that appear much simpler. The challenge is that the frontier does not stand still. Each new generation of models shifts the boundary of what is possible, and unless people regularly test those boundaries, they may not realize how much the frontier has moved.

The Jagged Frontier

That jagged frontier is exactly what we are encountering in the classroom. Something that would've required a programmer, designer, researcher, and several weeks of work only a few years ago can now sometimes be prototyped by one student working alongside an AI system like Base 44, Lovable, Claude Code, or ChatGPT Codex. At the same time, there are still projects whose technical, organizational, or social complexity cannot simply be prompted away. The instructor's problem is therefore no longer simply deciding whether a project is difficult or ambitious enough. It's helping students calibrate their ambition and imagination against a capability frontier that may move dramatically during every semester of their program.

As we went around the room discussing project ideas, one student described something she wanted to build for her mother, an independent hairstylist who still ran parts of her business the old-fashioned way. Her mother had loyal clients whose preferences she knew intimately: their previous hairstyles, the colors they liked, when they had last visited, and all of the small details that accumulate through years of working with the same people. The student imagined creating a digital service that could help her mother keep track of that information, manage appointments, and charge cancellation fees when clients backed out at the last minute. At first glance, it sounded like a straightforward software-development project. With the help of AI coding tools, she could probably begin prototyping some version of it almost immediately.

But as we talked, I realized that teaching her how to build the application was probably the least interesting thing I could do. I suggested that she zoom outward first. What salon-management platforms already existed? What features did they offer? Were independent hairstylists already solving these problems with existing tools? If so, why was her mother not using them? Were the platforms too expensive, too complicated, poorly designed for independent stylists, or simply unfamiliar to someone who had spent years running a business without them? I encouraged her to conduct a competitive analysis, but more importantly, to treat her mother as a user research participant rather than simply assuming that she already understood her current needs.

Asking New Questions

That meant asking a different set of questions, ones more targeted and objective. How did her mother actually run her business? What information did she keep? Where did she lose time? What happened when a client canceled? What parts of the process frustrated her? How did she currently remember a client's color formula or previous hairstyle? The student could then talk to other independent hairstylists to determine whether those problems were unique to her mother or represented something larger. Maybe the opportunity was not a booking website at all. Maybe it was a better way to preserve client histories. Maybe existing software already solved the problem. Maybe the real barrier was not technology but usability, cost, or habit.

Suddenly, the project looked different. Was she trying to build a website for her mother with appointment booking and cancellation fees? Was she trying to digitize the informal client records her mother had accumulated over years? Or was there a broader opportunity to create a platform that helped independent hairstylists move from an old-fashioned way of running their businesses into something more intelligent and automated? The application was still a possible output, but the learning was everything required to determine whether the application should exist in the first place. She needed to start at the beginning of the design process rather than jumping straight to the part where she started coding up a potential semester project.

That distinction has started to change the way I think about AI fluency. I assumed that a class like this would spend much more time teaching students how to use an expanding collection of AI tools: how to prompt them, research with them, analyze data with them, generate media with them, code alongside them, and eventually coordinate agents capable of accomplishing increasingly complex tasks. Those skills still matter, but the more capable the technology becomes, the less convinced I am that teaching the mechanics of individual AI tools is the hardest part of the problem. Increasingly, AI can help students figure out how to build just about anything now. The more difficult question is whether they understand what is worth building, who it is for, what problem it solves, and how they would know whether it works.

Try this

“Interview me about something I want to make possible for another person. Help me choose the smallest prototype that would let that person try the idea, then build it with sample content. Treat AI’s usefulness as something to test for each task. Before adding features, ask what happened when someone used it and whether the result gives us a reason to continue, change direction, or stop.”²⁸⁸

Tools and services

Choose a tool for the work you want to do

A list of AI tools can become outdated before a book reaches a reader. I would begin with the work instead. Do you need a partner for thinking, a way to investigate sources, or a place to make something? Choose one tool that fits the task, try a small experiment, and decide what you learned before adding another subscription.

This is a selective starting set, checked against official product pages on October 20, 2026. It is not a ranking or an endorsement of every output. Features, names, access, and terms can change. Use the options your institution supports, work with public or fictional material when experimenting, and offer a shared-screen or paper alternative when an account would exclude someone.

Think, explain, and revise

ChatGPT

Use a general assistant to examine an idea, explain a concept, or critique a draft. Try asking it to identify what a workshop plan assumes about its learners, then decide which observations deserve a revision. Check claims against their sources and compare the explanation with what you already know. A fluent response is a proposal to examine.

Open tool²⁸⁹ · Official information²⁹⁰

Claude

Use a general assistant for sustained work with text, feedback, and small prototypes. Give it a public lesson plan and ask for places where an instruction could confuse a newcomer. Test its suggestions with a reader. Feedback is more useful when it helps you notice a specific problem than when it merely makes the prose sound polished.

Open tool²⁹¹ · Official information²⁹²

Gemini

Use a general assistant to explore a topic and develop explanations or study activities. Ask for three ways to explain a difficult concept to a particular audience, then compare the assumptions each version makes. Verify factual details and examine whether the activity develops understanding or only produces a plausible-looking answer.

Open tool²⁹³ · Official information²⁹⁴

Investigate sources and evidence

Google's source-based notebook

The resource known as NotebookLM is reached through Google's notebook service; its public landing page currently uses the name Gemini Notebook. Try working with a small set of public sources and tracing a generated summary back to the passages it cites. Ask what the collection leaves out. Grounding an answer in selected documents does not establish that those documents are complete or correct.

Open tool²⁹⁵ · Official information¹¹⁴

Perplexity

Use a search assistant to discover possible sources and vocabulary for a question. Choose one claim from an answer, open the cited page, and find the passage that supports it. Follow an article's references to an original report when possible. The useful outcome is a trail you can inspect, rather than an answer you accept because it has citations.

Open tool²⁹⁶ · Official information²⁹⁷

Elicit

Use a research tool to find papers and begin comparing their questions, methods, and results. Try a narrow question, record the search wording, and inspect several full papers behind the summaries. Check whether a proposed comparison uses similar populations and measures. A convenient research table still needs someone to examine the evidence in its cells.

Open tool²⁹⁸ · Official information²⁹⁸

Consensus

Use a scientific-literature search tool to discover studies related to a question. Compare its overview with the methods and limitations of two papers it retrieves. Ask which kinds of evidence your question requires and whether the retrieved studies provide them. An automated synthesis is a starting point for reading, not a substitute for evaluating a body of research.

Open tool²⁹⁹ · Official information³⁰⁰

Build, visualize, and create

Lovable

Use a conversational builder to give a website or application idea enough form to test. Begin with one person, one task, and fictional data. Ask someone to try the result before adding features. The three project visits show how a website can extend an essay into a learning experience; their exercises focus on what a visitor can understand and do.

Open tool³⁵ · Official information³⁵

Adobe Firefly

Use image-generation tools to explore visual explanations, storyboards, or alternative compositions. Try illustrating one concept in two ways and ask readers what each image communicates. Inspect text, details, and unintended associations. Before distributing work, check the applicable terms and disclose AI generation where your educational or publishing context requires it.

Open tool³⁰¹ · Official information³⁰¹

Gamma

Use a presentation builder to produce an initial structure for a lesson or short explanation. Supply a clear learning outcome and your own verified source material. Then check whether each section helps the learner make progress. A finished-looking presentation can still contain weak evidence, inaccessible design, or too much information for the time available.

Open tool⁵⁴ · Official information⁵⁴

Suno

Use a music-generation service to explore how a lyric or musical intention changes across different outputs. Work with material you own or have permission to use. Keep a record of the choices you make and discuss what those choices contribute. Review current usage terms before distributing a result, and make the role of the tool clear to listeners.

Open tool⁹⁴ · Official information⁹⁴

Keep the evidence you find

Zotero

Zotero is a reference manager, not an AI generator. Use it to collect sources, correct publication details, and organize citations. Try saving a source from this book and checking its author, title, and date against the original. A citation manager can format a record accurately even when the information in that record is wrong.

Open tool³⁰² · Official information³⁰²

For a first workshop, one general assistant and one source-evaluation exercise may be enough. For a making project, add the tool that lets learners test their idea. Let the learning outcome determine the toolkit.

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