

# Build To Learn

Learn To Build

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# Welcome

Welcome, faculty and instructional designers. Today's workshop is about a **fundamental shift**:

**Instructors as Content Deliverers → Instructors as Builders**

 By the end of this session, you'll have built something real that you can use in your next class session.

# Today's Agenda



## Mental Models

~15 min



## Sketch

8 min hands-on



## Build

15 min hands-on







## Share & Next Steps

~10 min





**~50% hands-on** — You'll leave with something you built today

# The Shift

## THE PROBLEM

-  Assessments AI can game
-  Instructors deliver content
-  Students consume
-  Shrinking attention spans

## THE NEW PARADIGM

-  Projects requiring agency
-  Instructors BUILD tools
-  Students CREATE
-  Curiosity & ownership

# The Philosophy

*"Not by banning AI,  
but by making creation the default."*



You become  
builders



You teach  
building



Students become  
creators

# Why Building Works



## AGENCY

When you own what you make, you're invested — this is true for you *and* your students



## ITERATION

Learning happens through attempt → feedback → refinement cycles



## CURIOSITY

Building something real sparks questions  
worksheets never will



These principles apply to **you today** AND to **your students** when you teach them

# PART 1

## Mental Models

How to think about working with AI

# The Key Insight

**"The skill that makes you great at AI isn't technical.**

**It's social."**

— Riedl & Weidmann, "Quantifying Human-AI Synergy" (2025)

It's about **perspective-taking** — understanding what the AI knows and doesn't know.



# Theory of Mind for AI

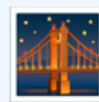


Your capacity to **model another agent's** beliefs, goals, and perspective.

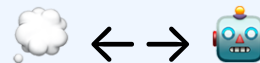


WHEN YOU GET A BAD RESPONSE, ASK:

- **?** "What false assumption is the AI making?"
- **?** "What context am I taking for granted?"



**Your job is to be the bridge**



Intent  $\leftrightarrow$  AI's understanding

# Be the Bridge



*"If I ask AI to 'make a quiz for my students,' it doesn't know their **course level & modality**, what we **just covered**, whether it's **formative or summative**, or what **accessibility + accommodations** are in play."*

**My job is to be the bridge — to translate my tacit knowledge into explicit context.**

# Theory of Mind → Context Engineering

~~PROMPT ENGINEERING~~ → **CONTEXT ENGINEERING**



PROMPT ENGINEERING

Wordsmithing — finding the magic phrase,  
the clever trick



CONTEXT ENGINEERING

**What information** you include, not how  
cleverly you phrase it



You don't need to learn *prompting*.

You need to make your **tacit knowledge explicit**

# The Three Stances



## **Stance 1: Don't know the domain**

AI gives garbage mixed with gold, can't tell which



## **Stance 2: Know domain, resist adapting**

Only get time savings on rote tasks



## **Stance 3: Know domain + collaborate creatively**

**DRAMATIC AMPLIFICATION**

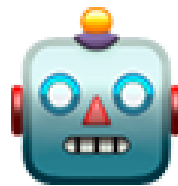
# Architect, Not Coder



**You**

Describe what your learners need

Your expertise: **Pedagogy**



**AI**

Builds it

AI expertise: **HTML/JavaScript**

**Never let "I can't code" stop you — your students won't either 🚀**

# Iterate, Don't Perfect



~~GET PROMPT PERFECT FIRST TIME~~

Impossible and frustrating



DESCRIBE WHAT'S WRONG

Your first prompt won't be right.

**That's expected and fine!**



**Iteration** beats perfection

# Live Demo: Mental Models in Action



Let me show you these mental models in action with examples I've built.

Watch for: **Theory of Mind**, **Context Engineering**, and **Iteration** in practice

# PART 2

## Your Tools

Excalidraw → Google AI Studio



# Your Tools

Let's talk about the tools you'll use today — and can teach your students.



Excalidraw



AI Studio



Live App

# The Flow



## STEP 1

**Excalidraw**

**Sketch your idea**

- ✓ Low stakes
- ✓ Visual brainstorm
- ✓ [excalidraw.com](https://excalidraw.com)



## STEP 2

**AI Studio**

**Make it real**

- ✓ Iterate with chat
- ✓ See live preview
- ✓ [aistudio.google.com](https://aistudio.google.com)



## STEP 3 (optional)






**GitHub**

**Save your work**

- ✓ Publish live
- ✓ Build portfolio
- ✓ [github.com](https://github.com)

# Higher-Ed Guardrails

## Before you build

-  **Privacy:** don't paste student PII (names, IDs, grades). Use synthetic examples.
-  **Accessibility:** check contrast, headings, keyboard use, and accommodations/UDL.
-  **Alignment:** tie the tool to outcomes + assessment intent (formative vs summative).
-  **Copyright:** respect licensed content; cite sources and avoid uploading PDFs.
-  **Policy:** follow Illinois Tech guidance for AI / privacy / security before production use.

# Excalidraw: Sketch First

- Lowers the "blank page" problem
- You're drawing, not coding
- Sketch boxes, buttons, text — rough is fine
- Use freehand rectangles + labels + arrows

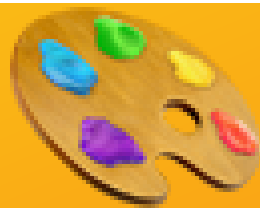
## Workflow:

Start your own sketch at **excalidraw.com**

When ready, **copy** to our shared session

Export PNG for AI Studio

**Open now:** <https://excalidraw.com/>



# BUILD SESSION 1

Brainstorm in Excalidraw

**8 minutes**

# Pick One to Build



## Vocabulary flashcards

For any subject — students can make their own too



## Random student picker

Fair participation, add your class names



## Activity timer

Transitions, group work, think-pair-share



## Quick formative quiz

Check understanding on today's lesson



## Exit ticket

What clicked? What's still fuzzy?



## Learning objective tracker

Students self-assess against goals



**Or...** solve a real challenge from your course!

All of these are achievable — and you can assign them to students too.



## Share your sketches

Shared Excalidraw: [\[\[SHARED\\_EXCALIDRAW\\_LINK\]\].](#)

Worksheet: [materials/.../worksheet.md](#)



# BUILD SESSION 2

Make It Real in AI Studio

**15 minutes**

# AI Studio: Build Mode

- Export Excalidraw sketch as PNG (or describe it)
- Open [aistudio.google.com](https://aistudio.google.com) → Build mode
- Paste image or describe what you want
- Iterate: "Make the button bigger" / "Add a score counter" / "Add AI features"



# Remember: Iterate

Try saying:

- "Make the button bigger"
- "Add a score counter"
- "Change colors to match my school"
- "Make it work on mobile"

## THEORY OF MIND CHECK

- "What context is the AI missing?"
- "What assumption is it making?"

# CLOSING

What's Next

Let's bring it home

# The Multiplier Effect



You — an educator — just built  
something

**in an hour**



Now imagine your students doing this



If you teach **30 students** to be  
builders...

×

Each creates one tool =

**30 new**

learning resources — created by the people  
who need them most

# Same Principles, For Students



## AGENCY

When students build their own study tools, they **own their learning**



## ITERATION

"Fix what's wrong" beats "get it right the first time"



## CURIOSITY

"What else could I build?" — the question we want them asking

# For Faculty



**Pick ONE class session or module in the next 2 weeks**

where students **BUILD** instead of consume



**Right now:**

Find an accountability partner at work



**Right now:**

Post your app URL in the doc

# Resources



BRAINSTORM

[excalidraw.com](https://excalidraw.com)



BUILD

[aistudio.google.com](https://aistudio.google.com)



APP GALLERY

AI Studio → App Gallery



FREE COURSE (2 HRS)

[grow.google/ai-for-educators](https://grow.google/ai-for-educators)



**Shared Excalidraw:** [\[\[SHARED\\_EXCALIDRAW\\_LINK\]\]](https://excalidraw.com/#shared/[[SHARED_EXCALIDRAW_LINK]])

# Exit Ticket



One thing that clicked



One thing still fuzzy



What will you build — or have your students build — in the next 2 weeks of your course?



# Thank You!

## Now go build something.

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