

# **Students in Charge:** *Using GenAI in an Creative Interdisciplinary Activity*

30th of April, 2026



School of Engineering  
Center for Engineering  
Education and Outreach

# Students in Charge: Using GenAI in an Creative Interdisciplinary Activity

A (very real) fear of AI in Education is that the AI will do all the interesting, good, hard work instead of the students. Prof. Ethan Danahy from Tufts University has created an interdisciplinary activity that helps support students in exploring Generative AI in several different ways. Enabling students to drive the conversation, and reflect on when AI was overstepping, it helps scaffold students in being the driver of the experience. In the context of a cross-disciplinary activity, touching on topics like design, technology, history, and language, students design a custom drink coaster for a historical client. In this workshop, participants will experience the activity, reflect on the multiple ways AI was used in accomplishing the task, and start personalizing their own lesson to facilitate students' use of GenAI in education. (Session in English)



**Ethan Danahy**  
*Tufts University*

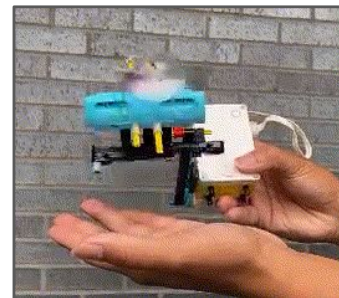
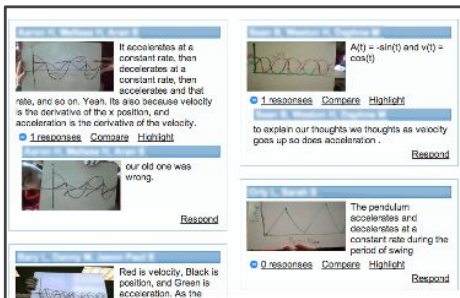


**Bill Church**  
*Tufts University*



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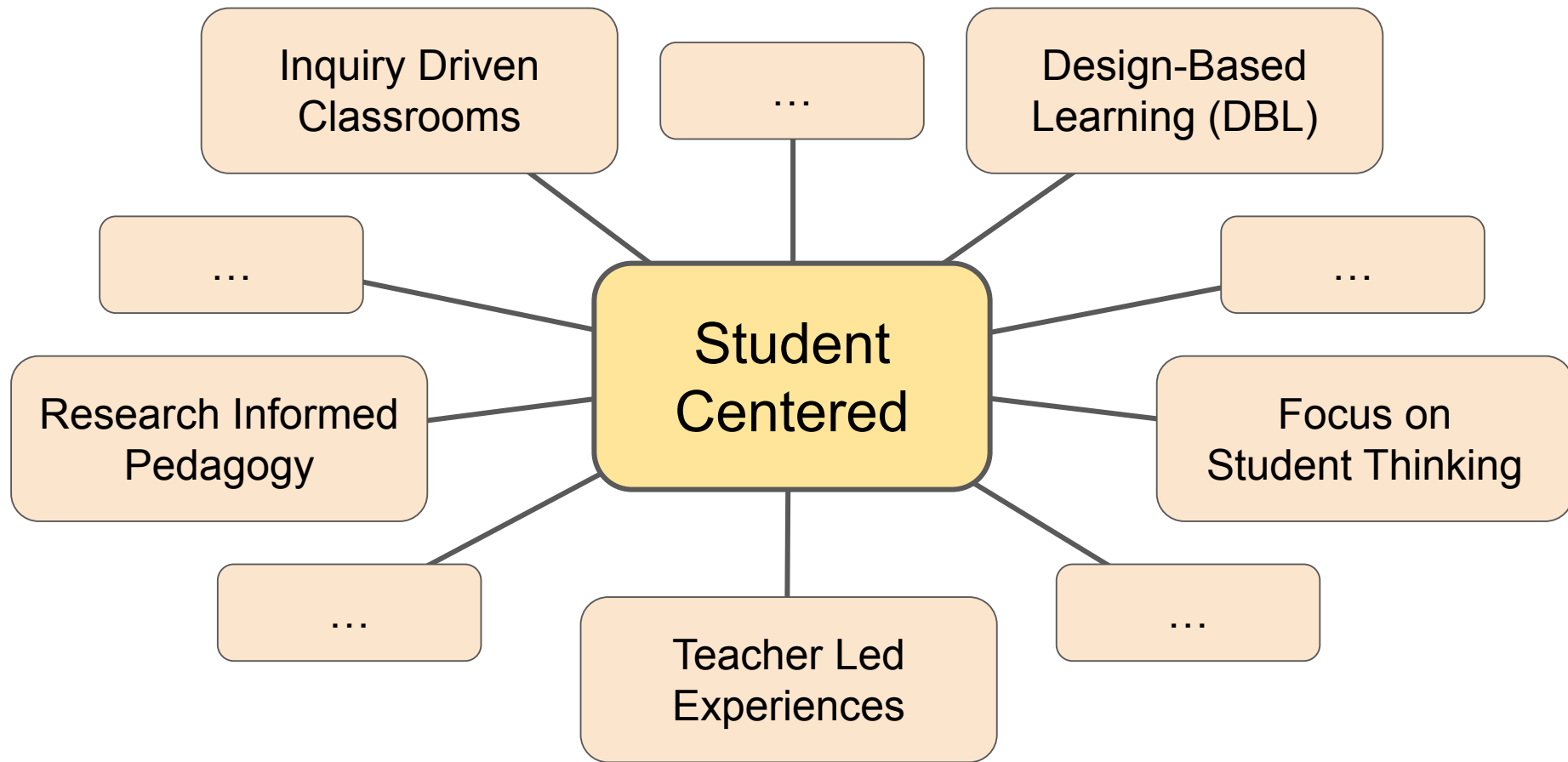
**Creating  
technology-enhanced  
learning experiences  
that enable:**  
*creativity and innovation,  
documentation and  
sharing of ideas, peer  
interactions and  
collaboration, hands-on  
project-based learning*

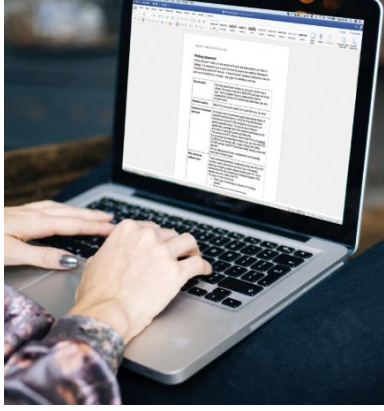
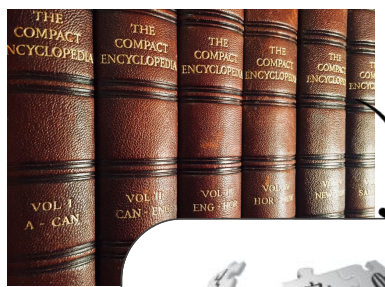
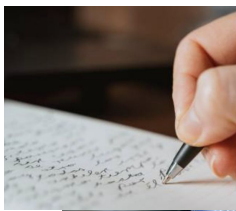


# Agenda

- Introduction + AI in Education (background)
- Introduction to Design Activity
- Work on Design Activity
- Wrap-up/Conclusion

Staying true to what we **value**, **trust**, and know **works**:



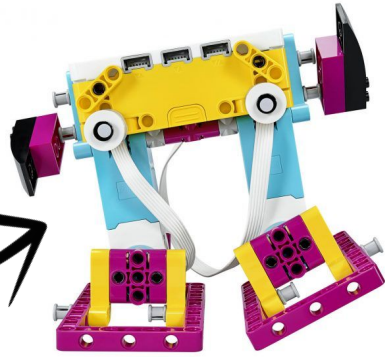
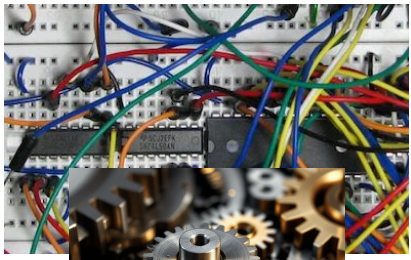


# Google

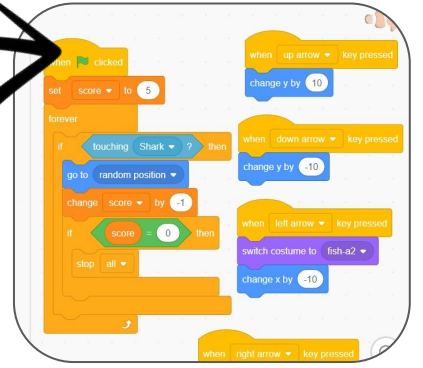


# WIKIPEDIA

The Free Encyclopedia



```
"object" = typeof exports && "undefined"
"function" = typeof define && define.amd ?
globalThis ? globalThis : t || self).bootstrap
(this, (function () {
"use strict";
const t = {
find: (t, e = document.documentElement
querySelectorAll.call(e, t)),
findOne: (t, e = document.documentElement
(e, t),
children: (t, e) => [].concat(... t.chi
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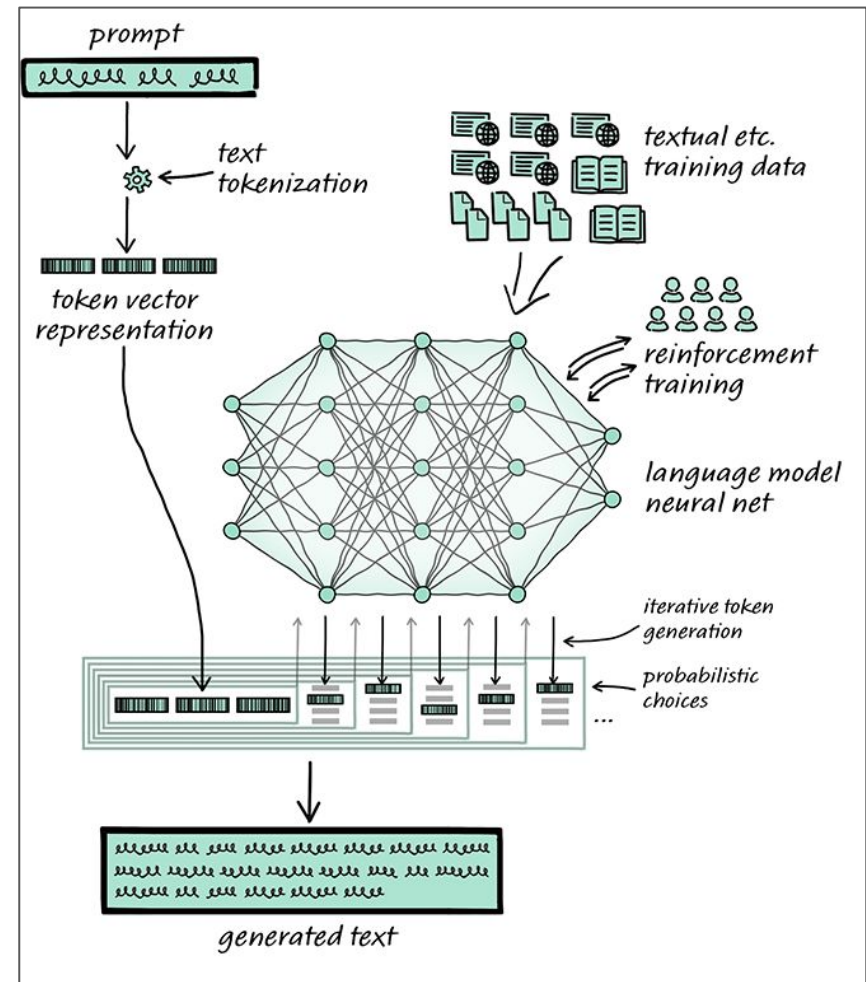
# Generative AI (e.g. ChatGPT)

Probabilistic Choices

***“Given whatever prompt a human being types in, come up with the best prediction of what the human wants to see next”***

- [Freakonomics Podcast](#)

The responses and answers are based on hundreds-of-billions of factors, which is why you can never know why it's doing what it's doing. To understand it, you would have to look at more than one-trillion parameters for each word, so impossible for humans to know why any particular response was generated.



<https://writings.stephenwolfram.com/2023/01/wolframalpha-as-the-way-to-bring-computational-knowledge-superpowers-to-chatgpt/>

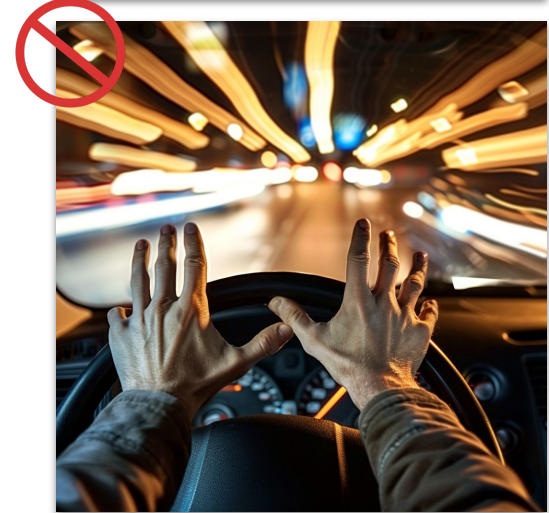
# What We Value: Keeping Human in the Loop

*Modern solutions involve humans!*

Data represents people, algorithms developed by people, statistics and graphs interpreted by people, decisions made & solutions implemented by people.

*Good education involves humans!*

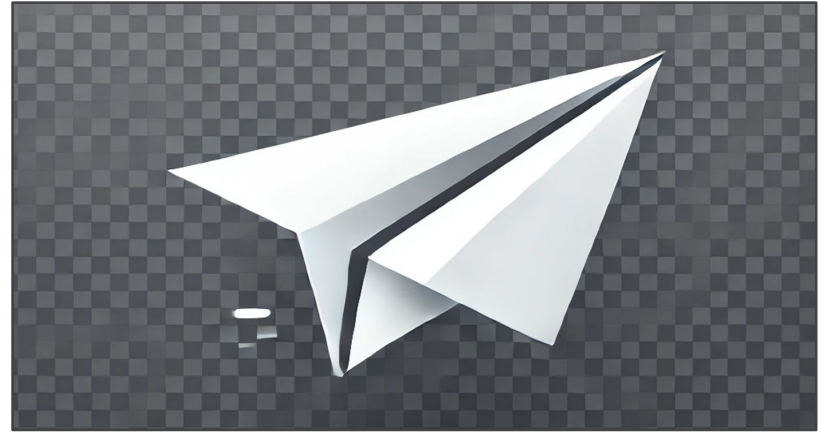
Teachers leading the learning  
Students doing the thinking  
Peer-to-peer learning experiences  
Responsive adjustments made in real time





# Intro to GenAI Activity: Paper Airplane Challenge

- Use GenAI to construct a paper airplane step-by-step
- You are **NOT** allowed to make any decisions and must exactly follow the directions you are given!
- If the ChatBot isn't clear about a particular step, **ask for clarification**



**Extension:**  
*different origami!*



# Background *(for today's activity)*

**Coasters** for cups,  
glasses, and mugs  
come in many shapes  
and sizes

*Activity Inspiration from:*

- [Prof. Sol Diamond](#) (Dartmouth)
- [Ella Ryan](#)
- [Bill Church](#) (CRCS)



*Image created by OpenAI's DALL·E (March 2024)*

# Inspiration: *coasters come in all shapes, sizes, and styles*



# Today's Tasks

## Design Brief: *Create a Coaster Design for a Client*

- (1) Identify interview questions to assist with doing design  
Use **Generative AI** to help with brainstorming!
- (2) Pick a client
- (3) Use questions to interview client, learn info, and develop design criteria  
Use **Generative AI** to simulate interview
- (4) Based on research, design a new coaster!  
*Optional:* use **Generative AI** to help design and visualize your ideas!

# Your Challenge

## Part 1: Questions

### Develop Interview Questions

What kinds of things would you need to ask in order to learn about a person?

What are some common knowledge facts you can inquire about? But also what are more obscure details? (*And how will you know the accuracy of them? Will you be able to verify?*)

Learn about the individual enough to help you design a customized coaster that is unique to them!

## Part 2: Interview

### Pick a Client

Who are you going to interview?

### Ask Your Questions

Prime the Generative AI to take on the personality of your selected individual.

Describe what is about to happen (“I’ll ask you questions...”) and how you want the AI to answer.

Conduct the interview

*At the end, ask for a summary!*

## Part 3: Design a Coaster

### Reflect and Design

Think about the answers from the interview and the new information you learned about your client.

What design features would your new coaster have to be unique for them?

### Document Your Design

Sketch or prototype or implement a version of your coaster. (Or use Generative AI to create an image!)

Upload to shared documentation

# Recommendations of GenAI Platforms

The following don't require an account/log-in to use:

- OpenAI ChatGPT (<https://chatgpt.com>)
- Google Gemini (<https://gemini.google.com>)
- Microsoft Copilot (<https://copilot.microsoft.com>)
- Duck AI (from DuckDuckGo: <https://duck.ai>)

From the [Future Classroom Lab](#) at [Københavns Professionshøjskole](#):

- SkoleGPT (<https://skolegpt.dk>)

Image Generation often requires a login/subscription. Options that seem to work without are:

- Microsoft Copilot (<https://copilot.microsoft.com>)
- Magic Studio (<http://magicstudio.com/ai-art-generator/>)

# Sample Example: **Generating Interview Questions**

**PROMPT:** I'm doing a project where I need to interview a client to get to know who they are, what their life is like, what is their personality like, what they like/don't like, etc. The goal is to be able to get deep insight into who they are so that I can do a design project specific to them. The project is to design a coaster (like for a mug, cup, glass, etc) that is customized and unique to who they are. So my initial goal is to generate a list of interview questions. Can you help me do that? What are some good questions (10 questions?) that I can use to start a conversation with the client to help understand them better (and what in particular "makes them them")?

Absolutely, here are 10 questions to get a conversation flowing and understand your client on a deeper level:

- 1. What's your happy place?** This open-ended question lets them describe a situation that sparks joy and reveals their preferences for relaxation or stimulation.
- 2. If you could have any superpower, what would it be?** This taps into their sense of wonder and what they might value most, like strength, knowledge, or creativity.
- 3. Tell me about a time you overcame a challenge. What did you learn from it?** This explores their resilience and problem-solving skills, giving you a glimpse into their work ethic and personality.
- 4. What's your favorite way to spend a free weekend?** Understanding their leisure activities reveals their passions and how they unwind.

## **5. What's the most meaningful object you own? Why is it special?**

This can uncover sentimental value and the stories behind their prized possessions.

**6. Who is your role model and why?** This sheds light on the qualities they admire and might aspire to in themselves.

**7. What's the one thing you'd love to learn how to do?** This explores their curiosity and potential hidden talents.

**8. What brings you a sense of accomplishment?** Understanding what motivates them can inform the design's function or message.

**9. Describe your ideal morning routine.** This paints a picture of their personality. Are they structured and organized or spontaneous and free-flowing?

## **10. What is your design aesthetic? (modern, rustic, minimalist, etc.)**

This is a more direct question to gauge their existing design preferences.

**Bonus Tip:** Follow up open ended questions with why and how to dig deeper and get richer details.

By asking these questions, you'll gain valuable insights that will help you personalize the coaster design to truly reflect the essence of who your client is.

# Your Challenge

## Part 1: Questions

### Develop Interview Questions

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Describe what is about to happen (“I’ll ask you questions...”) and how you want the AI to answer.

Conduct the interview

*At the end, ask for a summary!*

## Part 3: Design a Coaster

### Reflect and Design

Think about the answers from the interview and the new information you learned about your client.

What design features would your new coaster have to be unique for them?

### Document Your Design

Sketch or prototype or implement a version of your coaster. (Or use Generative AI to create an image!)

Upload to shared documentation

# *(Potential)* Clients

## History:

- Cleopatra (*Egypt*)
- Leonardo da Vinci (*Italy*)
- Genghis Khan (*Mongolia*)
- Nelson Mandela (*South Africa*)
- Marie Curie (*Poland/France*)
- Mahatma Gandhi (*India*)
- Queen Elizabeth I (*England*)
- Simón Bolívar (*Venezuela*)

## Authors:

- Gabriel García Márquez (*Colombia*)
- Haruki Murakami (*Japan*)
- Chinua Achebe (*Nigeria*)
- Jane Austen (*England*)
- Hans Christian Andersen (*Denmark*)
- Khalil Gibran (*Lebanon*)
- William Shakespeare (*England*)

## Sports Figures:

- Pelé (*Brazil, Football*)
- Serena Williams (*USA, Tennis*)
- Yao Ming (*China, Basketball*)
- Sachin Tendulkar (*India, Cricket*)
- Haile Gebrselassie (*Ethiopia, Runner*)

## Fom Literature (Fictional Characters):

- Sherlock Holmes (*England, by Sir Arthur Conan Doyle*)
- Don Quixote (*Spain, by Miguel de Cervantes*)
- Harry Potter (*England, by J.K. Rowling*)
- Arjuna (*India, from the Mahabharata*)
- Sun Wukong (*Monkey King, China, from "Journey to the West"*)
- Aladdin (*Middle Eastern, from "One Thousand and One Nights"*)
- Elizabeth Bennet (*England, by Jane Austen*)
- Anna Karenina (*Russia, created by Leo Tolstoy*)

# Sample Example: Interview Transcript

For a design assignment I need to do a "client interview" where I interview someone to understand better who they are. I want you to be my client and to take on the personality of **Pelé (a football player from Brazil)**. I will ask you questions and I want you to answer them from his perspective so I can better get to know him. Do you understand?

**Prompt:** What's your happy place?

**Response:** That's a good question, my friend. You might think it would be on a pitch, surrounded by the roar of the crowd, but honestly, there are two places that bring me true peace.

One is right here in Brazil, back in my hometown of Três Corações (Three Hearts). It's a small town, nestled amongst rolling hills. There's a field there, dusty and worn, where I first kicked a ball as a child. The sound of the ball at my feet, the smell of fresh earth – that brings back so many memories, of chasing dreams and pure joy in the game.

The other place? Believe it or not, it's right on the beach. I love the sound of the waves crashing, the feel of the sand between [...]

**Prompt:** What's the most meaningful object you own? Why is it special?

**Response:** Choosing just one object is tough! But there's one item that holds a very special place in my heart – the Jules Rimet Trophy. For those youngsters out there, that's the cup they used to award the winner of the World Cup, back in my day.

Now, don't get me wrong, winning three World Cups is a dream come true, a testament to years of hard work and dedication. But the trophy itself is more than a golden prize. It represents the culmination of a dream I shared with my entire nation. You see, in 1950, Brazil hosted the World Cup, and we heartbreakingly lost in the final. That year, as a young boy, I vowed to bring that trophy home to Brazil. [...]

**Prompt:** Describe your ideal morning routine.

**Response:** As Pelé, here's how my ideal morning would start:

The first thing I'd hear is the gentle Brazilian sunrise peeking through the curtains. No blaring alarms for this king! I'd stretch out slowly, feeling the years of playing loosen up my muscles. Then, a strong cup of coffee – Brazilian, of course – to jumpstart the day.

Next, some light movement. Maybe a walk on the beach, feeling the sand between my toes and the cool morning air. A few yoga poses to keep my body limber, followed by some light juggling with a football. Just a little something to keep the reflexes sharp!

Breakfast would be a healthy one [...]

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# Documentation!

Claim a slide & write your first name

Who did you pick as a (virtual) client?

## Teacher #X

First Name:

Part 2a: Who is your client?

Replace with name of your client here

Part 1: Develop Interview Questions

- Enter questions here

Part 2b: Perform interview & record design insights:

- Record design insights here

Part 3: What is your coaster design?

Draw, sketch, use AI to generate an image, etc of your coaster idea, and document your work here  
**(replace this box)**

Part 4: Reflection

Add your thoughts about how this design activity went. What was surprising/interesting for you? What new things did you discover or learn?

Du kan skrive på dansk eller engelsk.

Use GenAI to help create interview questions; take notes and record them here.

Use a GenAI Image Creator to create an image. If not available, you can sketch a version you imagine based on interview!

# The Healthy Diet



Image created by OpenAI's DALL-E (April 2024)

# Thank You!



**Ethan Danahy**  
*Tufts University*



**Bill Church**  
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