



SAN DIEGO
Community College District

AI PLAYGROUNDS: CODING, GAME DESIGN, & SIMULATION IN EDUCATION

RODRIGO GOMEZ, II&E

11/07/25

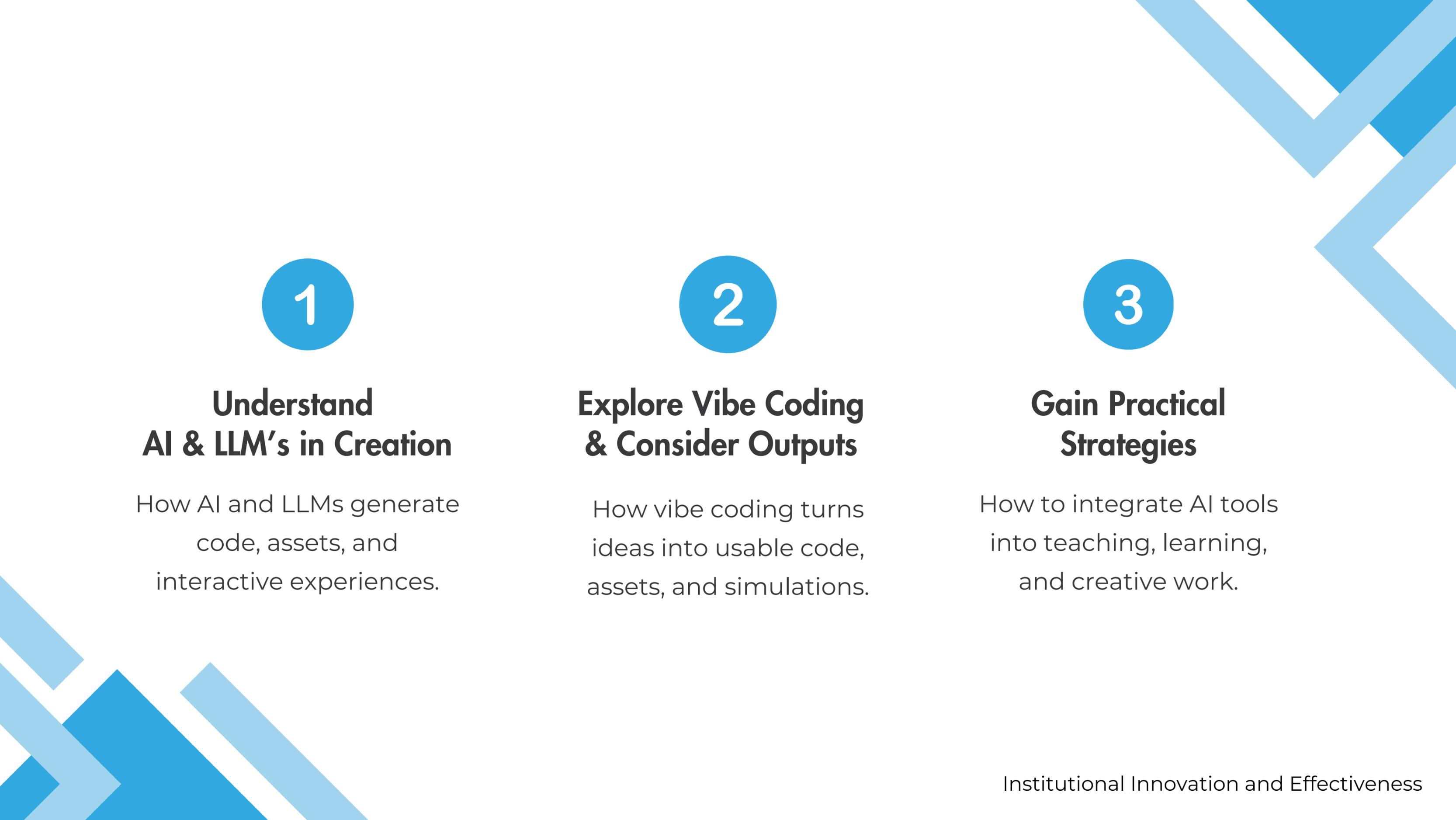


RODRIGO GOMEZ

- FACULTY SPECIALIST FOR EMERGING TECHNOLOGY,
- FULL PROFESSOR, MIRAMAR COLLEGE

I have a passion for rhetoric, pedagogy, and poetry. I also maintain a **keen interest in gamification**, edtech, and web3 technologies, like artificial intelligence (AI) and the metaverse, particularly in how they can make education more engaging, relevant, and impactful for students.





1

Understand AI & LLM's in Creation

How AI and LLMs generate code, assets, and interactive experiences.

2

Explore Vibe Coding & Consider Outputs

How vibe coding turns ideas into usable code, assets, and simulations.

3

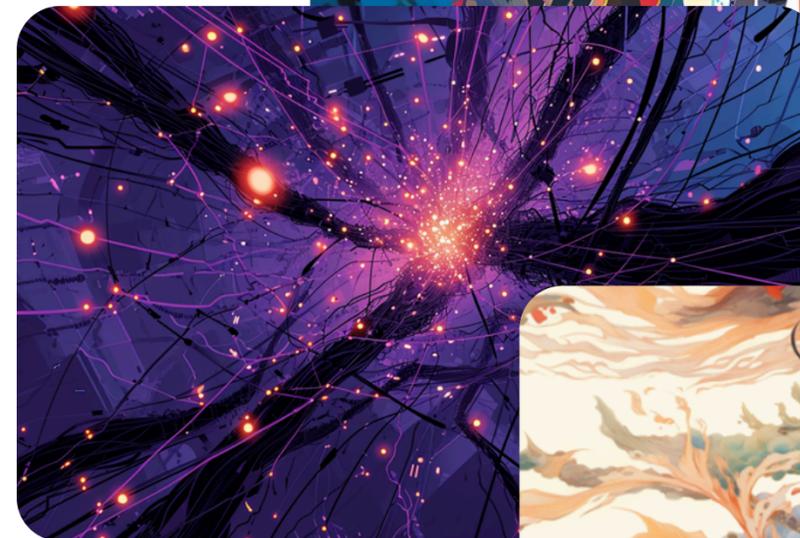
Gain Practical Strategies

How to integrate AI tools into teaching, learning, and creative work.

We've already explored how GenAI also allows users to...

Generate Artworks

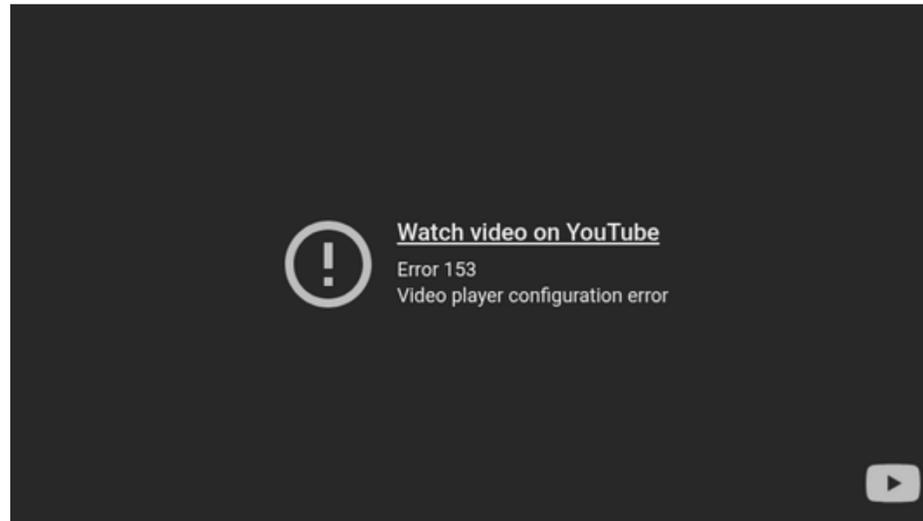
You can create characters, scenes & settings, models, graphics, and even worlds using AI!



Remember! It is essential that you be up to date on legal matters related to AI

And how it now allows you to generate...

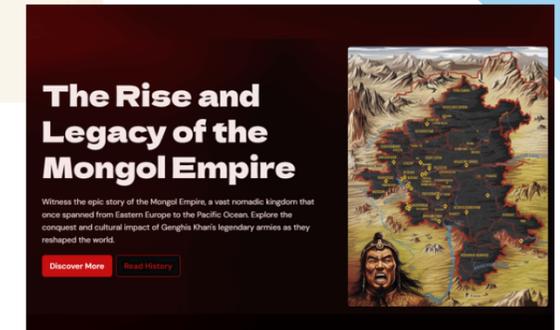
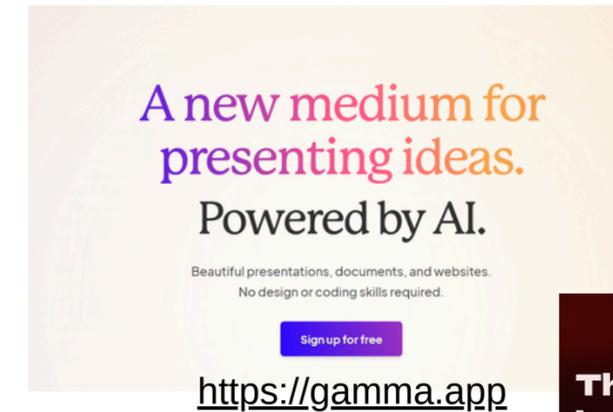
Video



Audio/Music

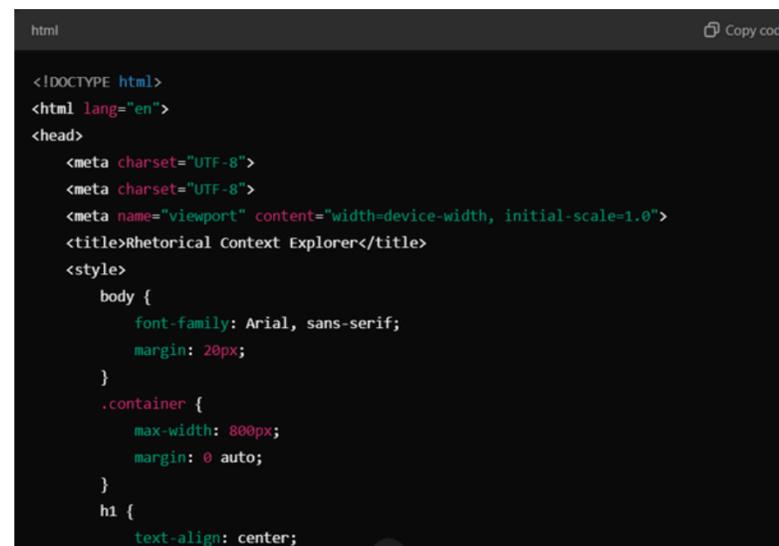


Websites



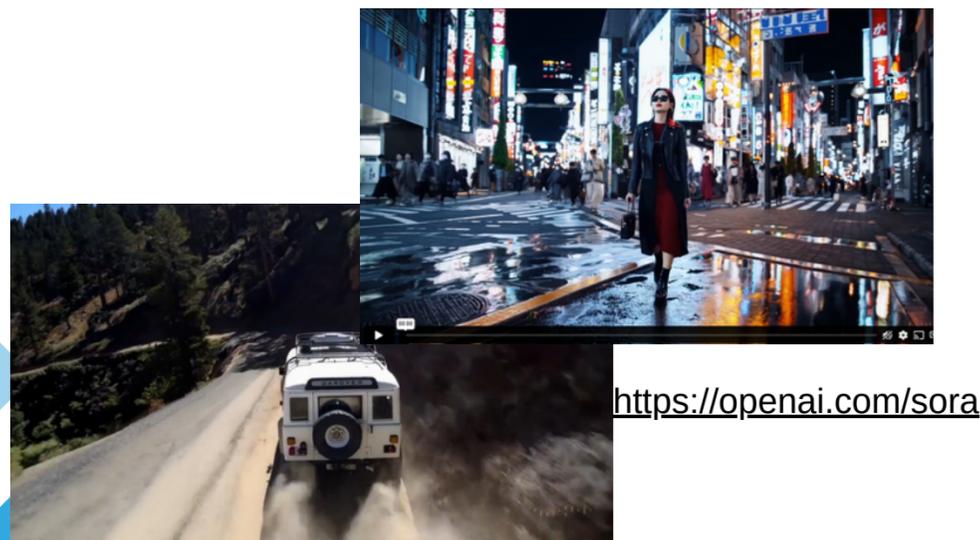
Presentations

Code



- Automating repetitive coding tasks.
- Generating boilerplate code.
- Assisting in debugging and finding solutions.
- Helping beginners by explaining code.

Institutional Innovation and Effectiveness



A New AI Taxonomy!



Distinctive Human Skills

How GenAI Can Supplement Learning*

Bloom Taxonomy Revisited

Use this table as a reference for evaluating and considering changes to aligned course activities (or, where possible, learning outcomes) that emphasize distinctive human skills and/or integrate generative AI (GenAI) tools as a supplement to the learning process.

All course activities and assessments will benefit from ongoing review given the evolving capabilities of GenAI tools.

Version 2.0 (2024)



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CREATE	Engage in both creative and cognitive processes that leverage human lived experiences, social-emotional interactions, intuition, reflection, and judgment to formulate original solutions	Support brainstorming processes; suggest a range of alternatives; enumerate potential drawbacks and advantages; describe successful real-world cases; create a tangible deliverable based on human inputs
EVALUATE	consequences of other courses of action; identify significance or situate within a full historical or disciplinary context	action; develop and check against evaluation rubrics
ANALYZE	Critically think and reason within the cognitive and affective domains; justify analysis in depth and with clarity	Compare and contrast data, infer trends and themes in a narrowly-defined context; compute; predict; interpret and relate to real-world problems, decisions, and choices
APPLY	Operate, implement, conduct, execute, experiment, and test in the real world; apply human creativity and imagination to idea and solution development	Make use of a process, model, or method to solve a quantitative or qualitative inquiry; assist students in determining where they went wrong while solving a problem
UNDERSTAND	Contextualize answers within emotional, moral, or ethical considerations; select relevant information; explain significance	Accurately describe a concept in different words; recognize a related example; translate to another language
REMEMBER	Recall information in situations where technology is not readily accessible	Retrieve factual information; list possible answers; define a term; construct a basic chronology or timeline

*AI capabilities derived with reference to an analysis of the MAGE framework, based on ChatGPT 4 as of October 2023. See Zaphir, L., Lodge, J. M., Lisee, J., McGrath, D., & Khosravi, H. (2024). How critically can an AI think? A framework for evaluating the quality of thinking of generative artificial intelligence. arXiv preprint arXiv:2406.14769.

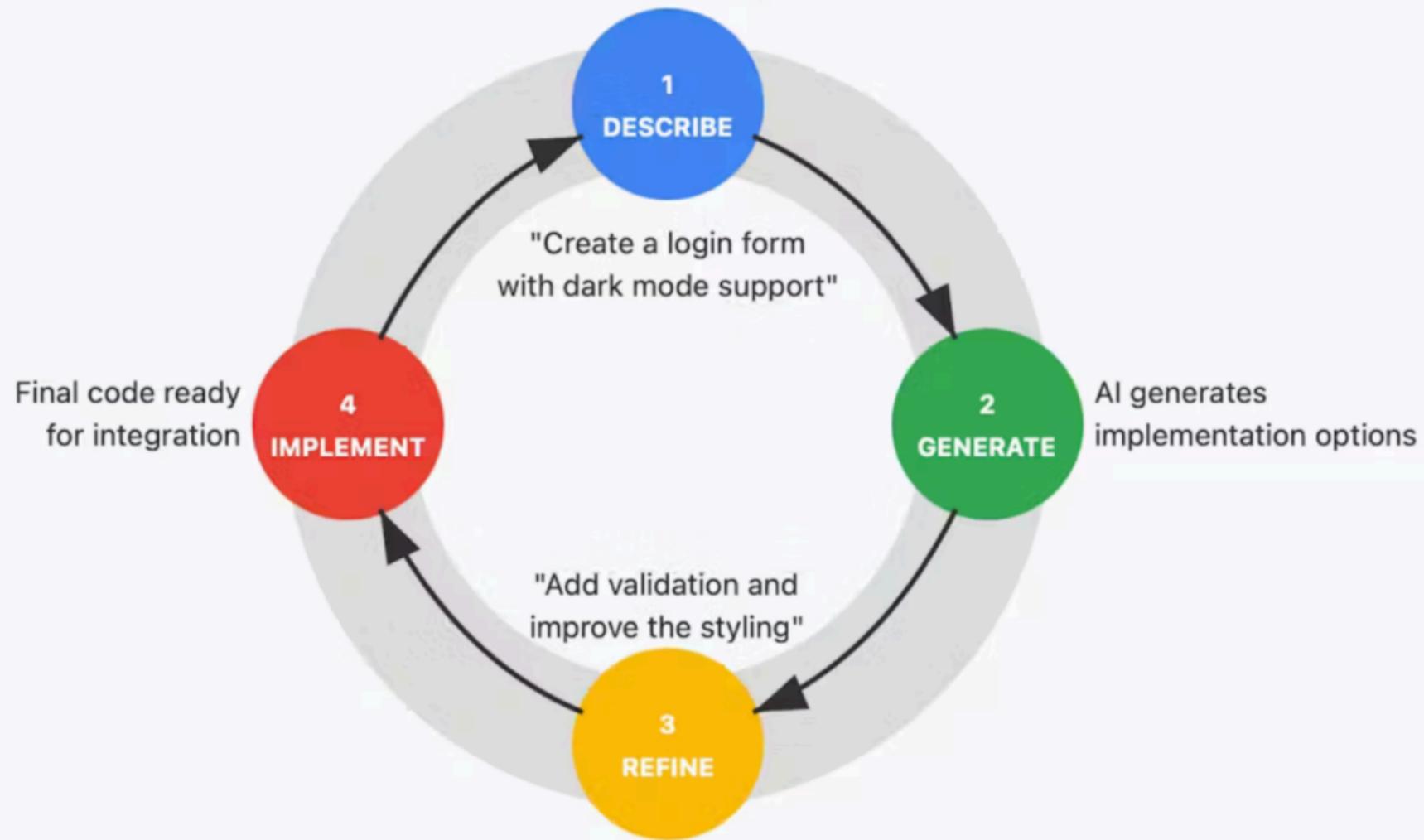
In the Age of AI, it is **Human Intelligence** that we should emphasize.

The key is seeing **Artificial Intelligence** as a tool for supplementing learning

Coding → AI → “Vibe Coding”

AI is turning natural language into production-grade code.

The Vibe Coding Workflow



Students and educators can now **build software** without traditional programming fluency.

"Vibe coding" = an AI-assisted software development practice where developers describe what they want in natural language, and a large language model (LLM) generates the code – Andrej Karpathy

Create a game that teaches AI literacy, make it fun but simple

I love the idea of creating a fun, educational game to teach AI literacy! Let's create an interactive quiz game with engaging visuals and feedback mechanisms that help players understand AI concepts while having fun.

This game will draw inspiration from popular quiz platforms like Kahoot and Quizlet, but with a focus on AI education. I'll use a colorful, playful design with a futuristic tech feel to match the AI theme.

Features for the first version:

- Interactive quiz format with multiple-choice questions about AI concepts
- Immediate feedback for each answer with explanations
- Progress tracking and score display
- Fun animations and visual cues for right/wrong answers
- Responsive design for all devices

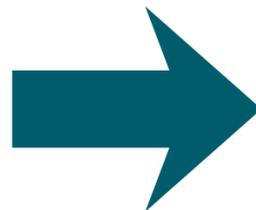
Colors and style:

- Primary color: Bright purple (#8B5CF6) for a futuristic AI feel
- Secondary colors: Teal (#0EA5E9) and soft pink (#FFDDE2) for contrast
- Fun, rounded shapes with subtle animations

← Back to Preview

</> Code

Ask Lovable...



```
Code
Read only Upgrade Close

src/pages/Index.tsx x
1 import React, { useState, useEffect } from 'react';
2 import WelcomeScreen from '@components/WelcomeScreen';
3 import ProgressBar from '@components/ProgressBar';
4 import GameOverScreen from '@components/GameOverScreen';
5 import PlayerHand from '@components/PlayerHand';
6 import GameBoard from '@components/GameBoard';
7 import { Card, getAllCards, shuffleDeck } from '@data/rhetoricalCards';
8 import { useToast } from '@components/ui/use-toast';
9
10 enum GameState {
11   WELCOME,
12   PLAYING,
13   GAME_OVER
14 }
15
16 const MAX_POINTS = 10;
17 const HAND_SIZE = 5;
18
19 const Index = () => {
20   const [gameState, setGameState] = useState<GameState>(GameState.WELCOME);
21   const [deck, setDeck] = useState<Card[]>([]);
22   const [playerHand, setPlayerHand] = useState<Card[]>([]);
23   const [playerPoints, setPlayerPoints] = useState(0);
24   const [opponentPoints, setOpponentPoints] = useState(0);
25   const [lastPlayedCard, setLastPlayedCard] = useState<Card | null>(null);
26   const [opponentLastCard, setOpponentLastCard] = useState<Card | null>(null);
27   const [currentTurn, setCurrentTurn] = useState<'player' | 'opponent'>('player');
28   const [roundNumber, setRoundNumber] = useState(1);
29   const [selectedCard, setSelectedCard] = useState<Card | null>(null);
30   const [cardsPlayed, setCardsPlayed] = useState(0);
31
32   const { toast } = useToast();
33
34   const startGame = () => {
35     const allCards = getAllCards();
36     const shuffledDeck = shuffleDeck(allCards);
37
38     const initialHand = shuffledDeck.slice(0, HAND_SIZE);
39     const remainingDeck = shuffledDeck.slice(HAND_SIZE);
40
41     setDeck(remainingDeck);
42     setPlayerHand(initialHand);
43   };
44
45   return (
46     <div>
47       <WelcomeScreen />
48       <ProgressBar />
49       <GameBoard />
50       <PlayerHand />
51       <GameOverScreen />
52     </div>
53   );
54 };
55
56 export default Index;
```

“No Code” AI represents this new paradigm, where the barrier between idea and implementation shrinks dramatically – where creative vision, rather than technical syntax mastery, becomes the primary currency of digital creation!

Traditional Coding

- Syntax-heavy learning curves
- Line-by-line manual programming
- Debugging as trial-and-error
- Technical barriers to entry



AI-Assisted Development

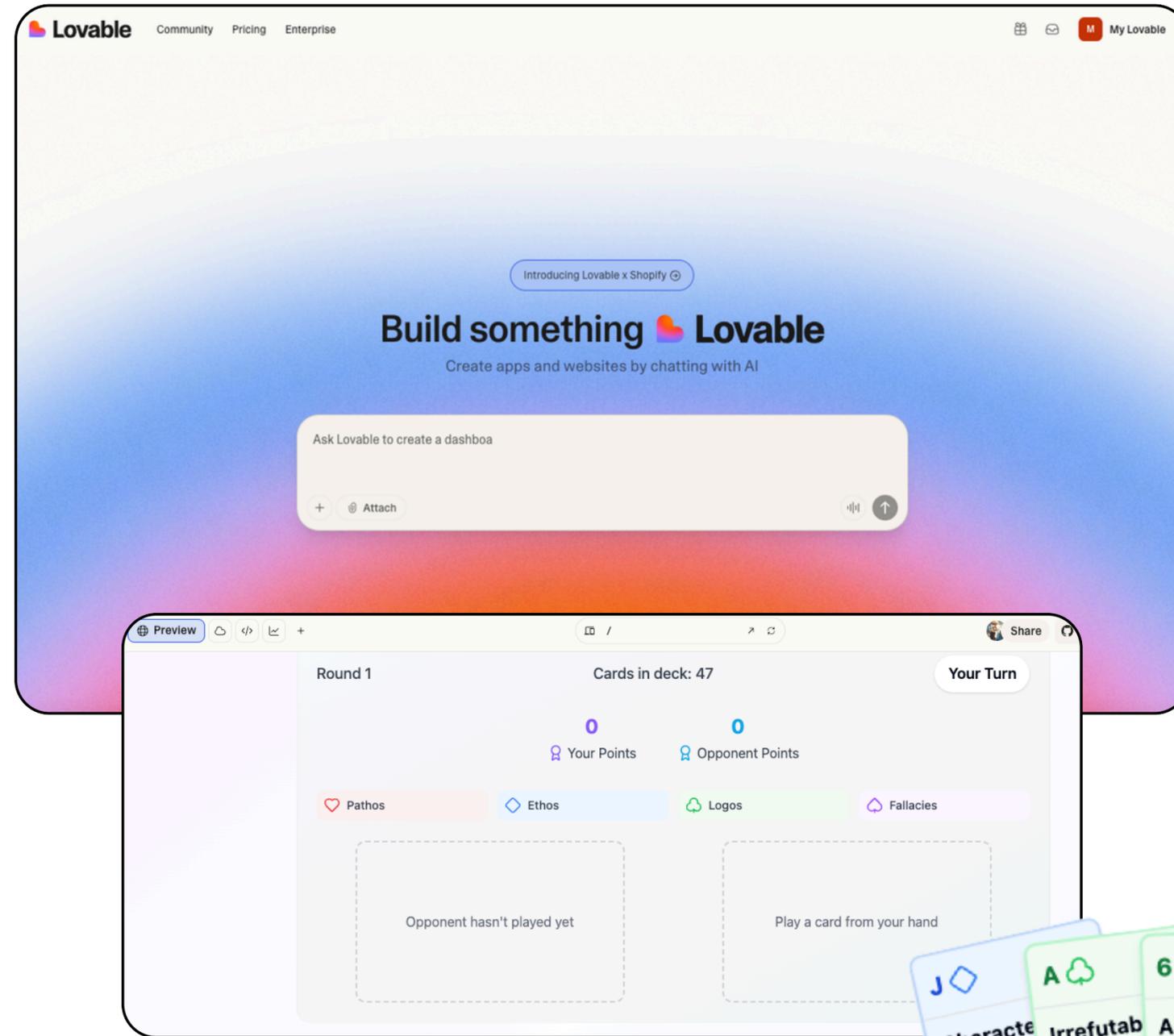
- Natural language interfaces
- Intelligent code generation
- Context-aware suggestions
- Democratized creation

AI Coding: Lovable

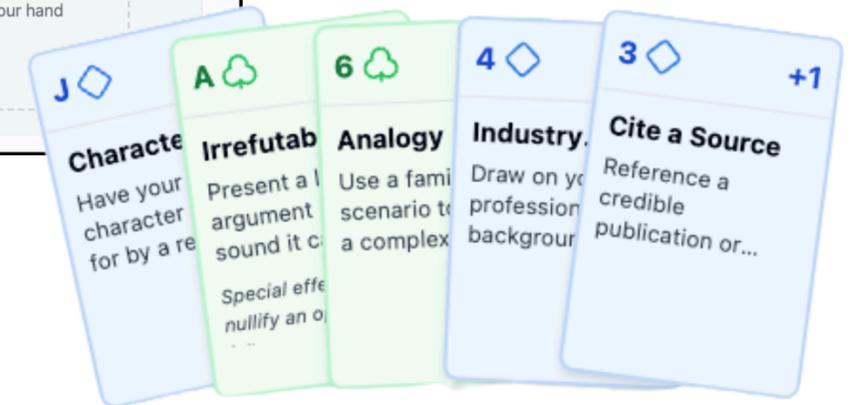
Users describe what they want and Lovable generates:

UI design
Frontend code
Backend logic
Deployment

Pro-level app creation is now prompt-driven.

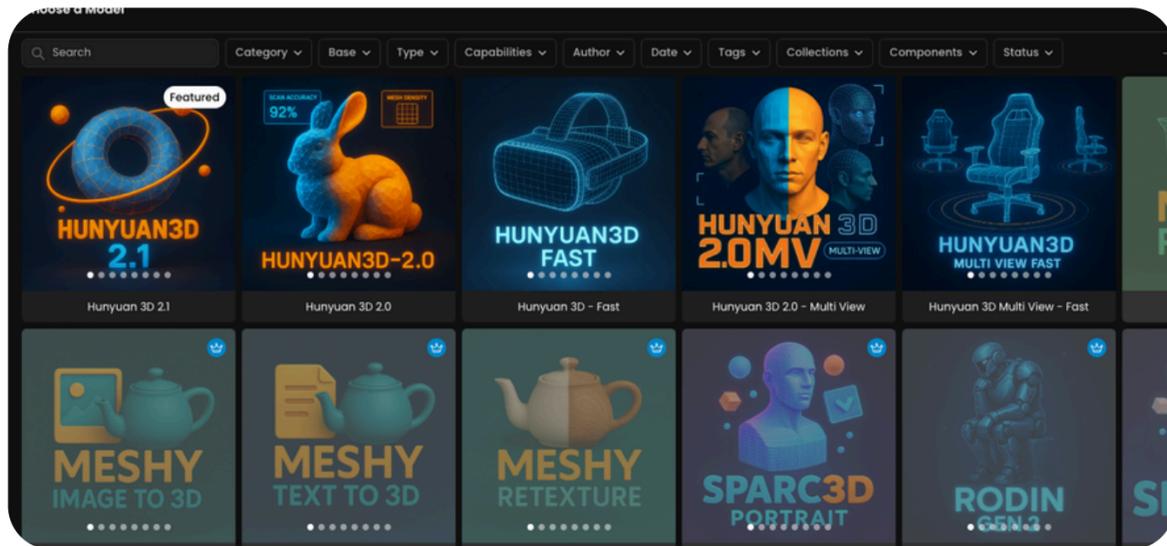


Use-case for education: teachers & students can prototype classroom tools in minutes



AI Game Design: No Code

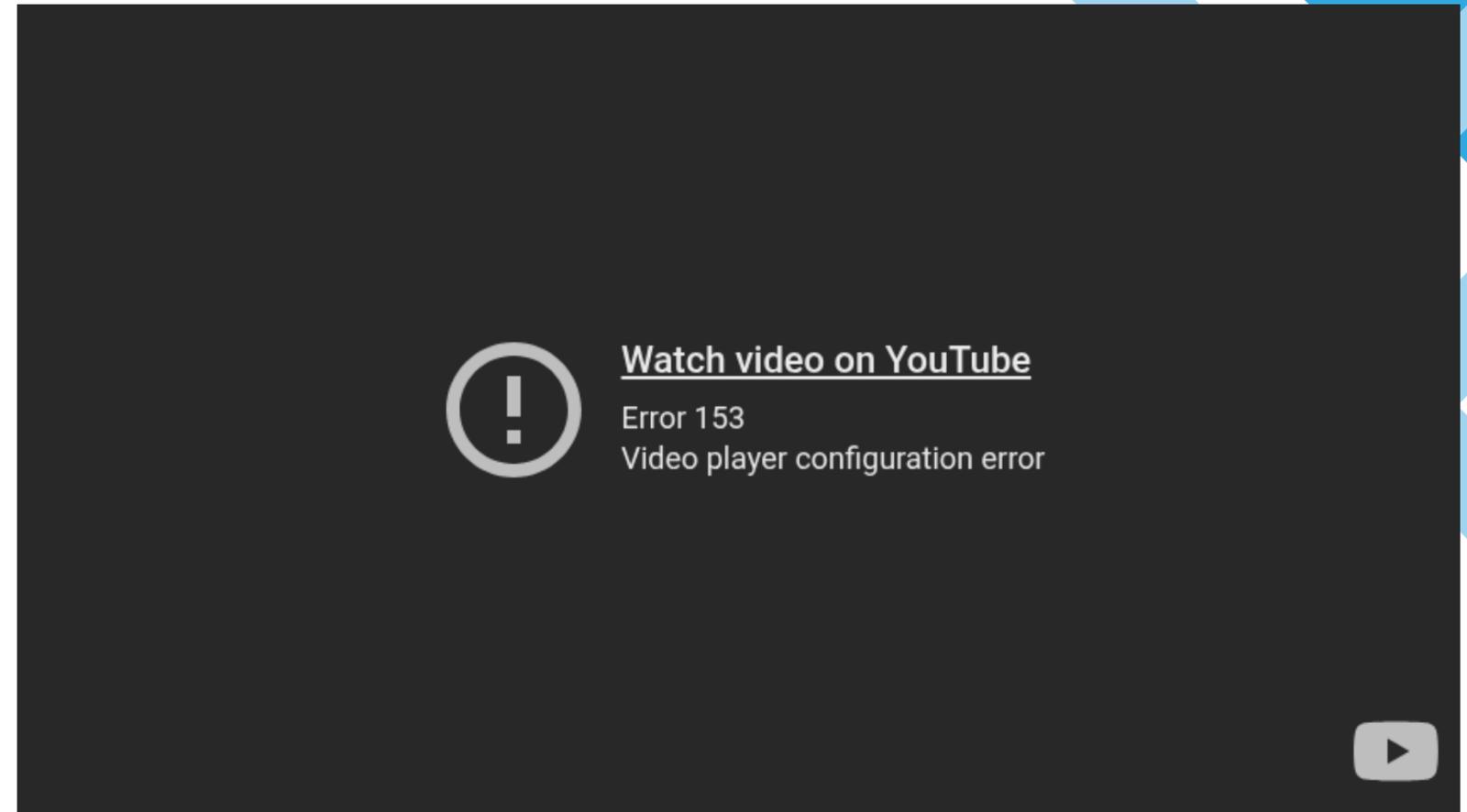
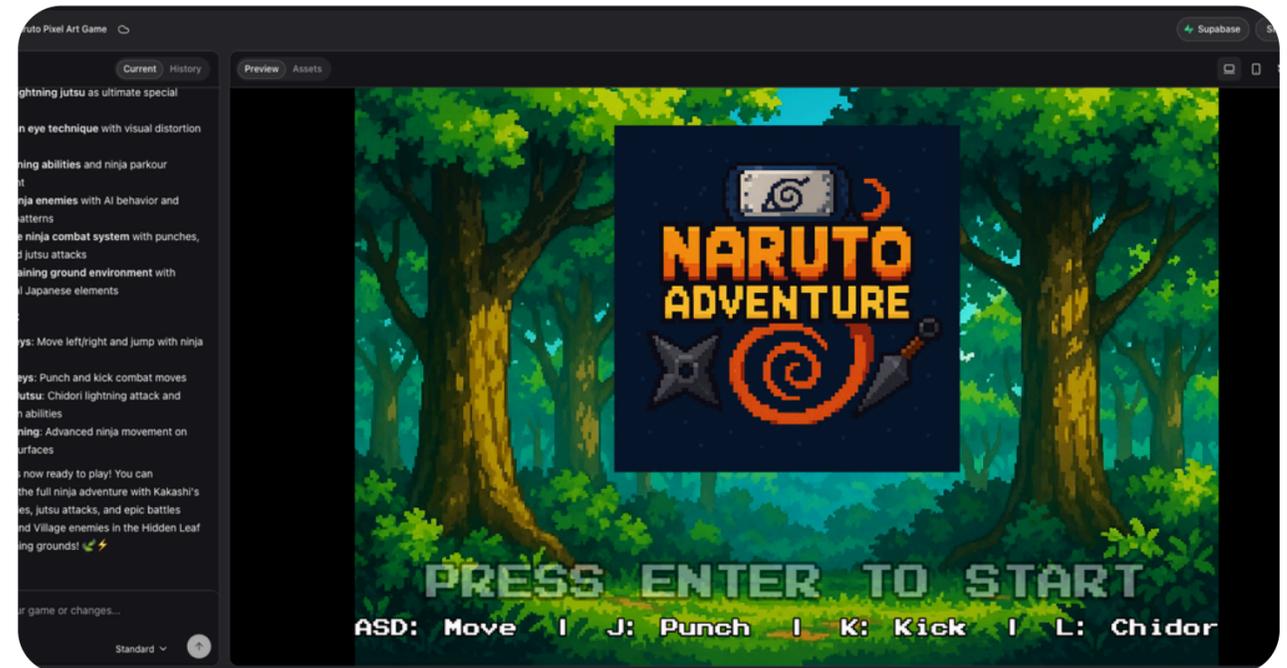
AI is lowering the barrier for creating worlds, characters, assets, and mechanics.



Students can now design games without deep Unity/Godot experience.



Example: in a few clicks on “Gumbo”, I was playing a prototype!

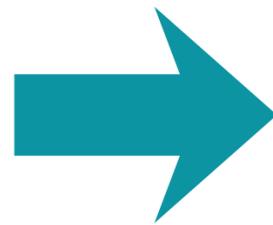


AI Simulation:

AI can now simulate complex systems, roles, procedures, or environments—allowing students to experiment inside dynamic, responsive models.

Example: NotebookLM

Students upload course readings



create a simulation of the author, or a research lab, or a debate where AI summarizes, role-plays, synthesizes

The Question is how to have students engage with these simulations

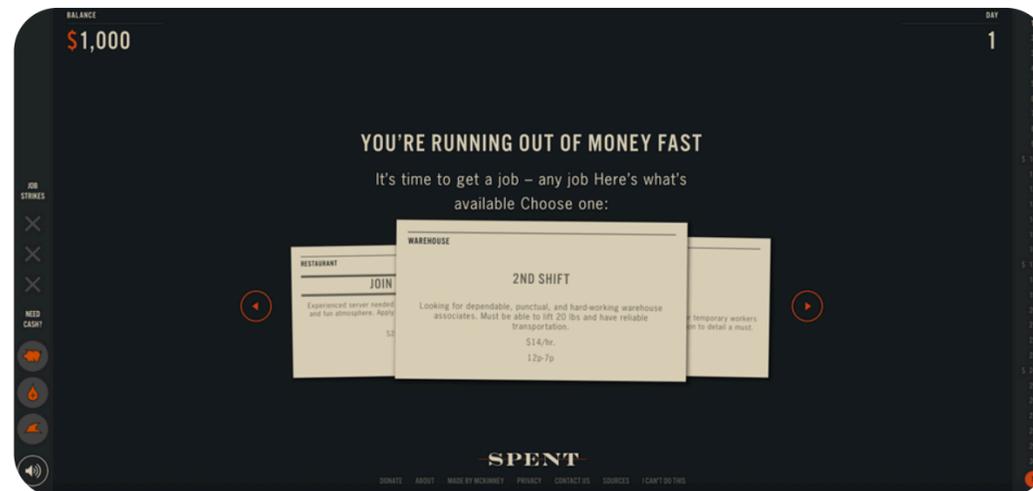
Consider the power of this old simulation:



SPENT

Think you'll never have to ask for help? Here's your chance to prove it.

playspent.org



Urban Ministries of Durham serves over 6,000 people every year. But you'd never need help, right?

PROVE IT

ACCEPT THE CHALLENGE

CAN YOU MAKE IT THROUGH THE MONTH?

FIND A JOB OR EXIT

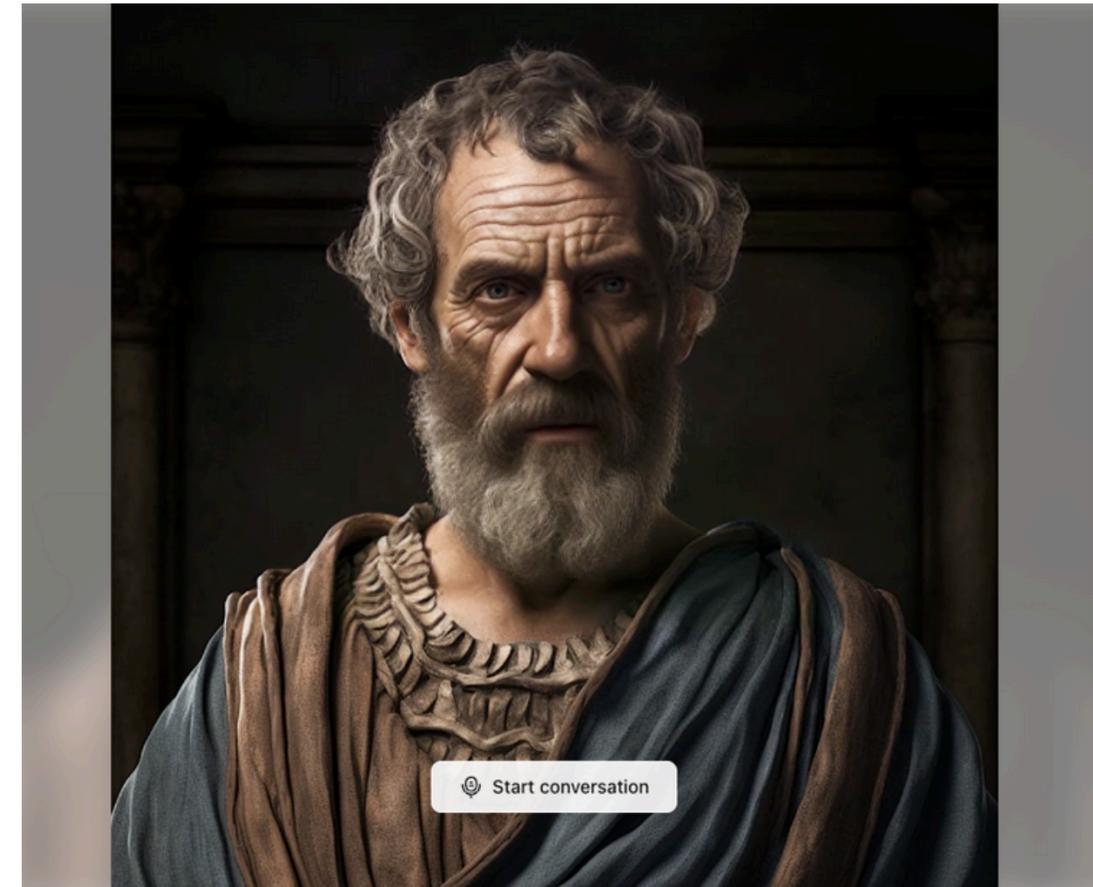


Consider some example academic uses:

Educational AI Agents



Imagine students engaging with animated recreations of figures from the past!



Using Roles in GenerativeAI:

Role ⁶	Description	Example of implementation
Possibility engine	AI generates alternative ways of expressing an idea	Students write queries in ChatGPT and use the Regenerate response function to examine alternative responses.
Socratic opponent	AI acts as an opponent to develop and argument	Students enter prompts into ChatGPT following the structure of a conversation or debate. Teachers can ask students to use ChatGPT to prepare for discussions.
Collaboration coach	AI helps groups to research and solve problems together	Working in groups, students use ChatGPT to find out information to complete tasks and assignments.
Guide on the side	AI acts as a guide to navigate physical and conceptual spaces	Teachers use ChatGPT to generate content for classes/courses (e.g., discussion questions) and advice on how to support students in learning specific concepts.
Personal tutor	AI tutors each student and gives immediate feedback on progress	ChatGPT provides personalized feedback to students based on information provided by students or teachers (e.g., test scores).

Consider UNESCO's variety of roles and types of implementation for LLM's

Co-designer	AI assists throughout the design process	Teachers ask ChatGPT for ideas about designing or updating a curriculum (e.g., rubrics for assessment) and/or focus on specific goals (e.g., how to make the curriculum more accessible).
Exploratorium	AI provides tools to play with, explore and interpret data	Teachers provide basic information to students who write different queries in ChatGPT to find out more. ChatGPT can be used to support language learning.
Study buddy	AI helps the student reflect on learning material	Students explain their current level of understanding to ChatGPT and ask for ways to help them study the material. ChatGPT could also be used to help students prepare for other tasks (e.g., job interviews).
Motivator	AI offers games and challenges to extend learning	Teachers or students ask ChatGPT for ideas about how to extend students' learning after providing a summary of the current level of knowledge (e.g., quizzes, exercises).
Dynamic assessor	AI provides educators with a profile of each student's current knowledge	Students interact with ChatGPT in a tutorial-type dialogue and then ask ChatGPT to produce a summary of their current state of knowledge to share with their teacher/for assessment.

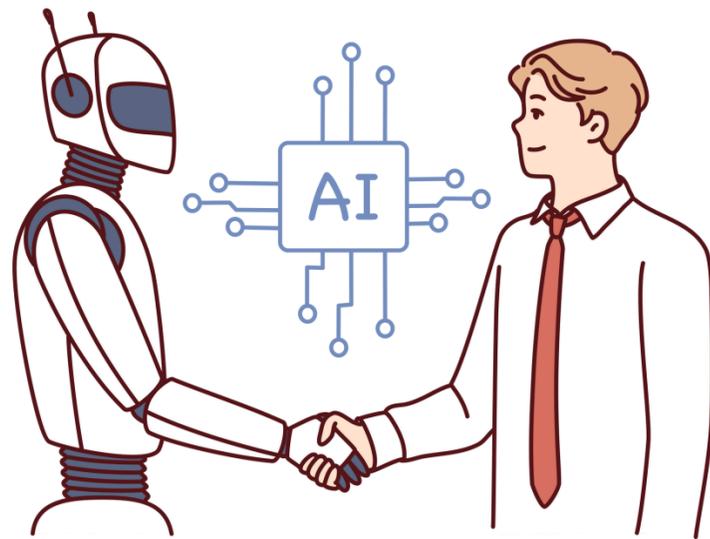
A.I in Education: A.I Bots for Education

Gomez Syllabot

A syllabus bot for English 101 & 205 with Professor Gomez. Students can engage with the content of the syllabus and get to know more about the course at their liesure.

Start

The creators of this app can review your usage, never share personal information.
AI is not intended to give professional, legal, medical or financial advice.



AI bots can now be trained on course materials to deliver basic information, answer student questions, and support learning outside of class.

These **small**, custom-trained **models** help students engage with syllabi, assignments, and expectations on their own time.

A.I in Education: Playlab Bots for Coding!

[REMIX] JOSHUA for LACCD

JOSHUA is your virtual Instructional Designer for Canvas. Equipped with a variety of templates, JOSHUA can assist faculty with designing ADA-compliant Canvas pages color-coded to their campus.

Select a color scheme:

What kind of Canvas page would you like to create with JOSHUA?

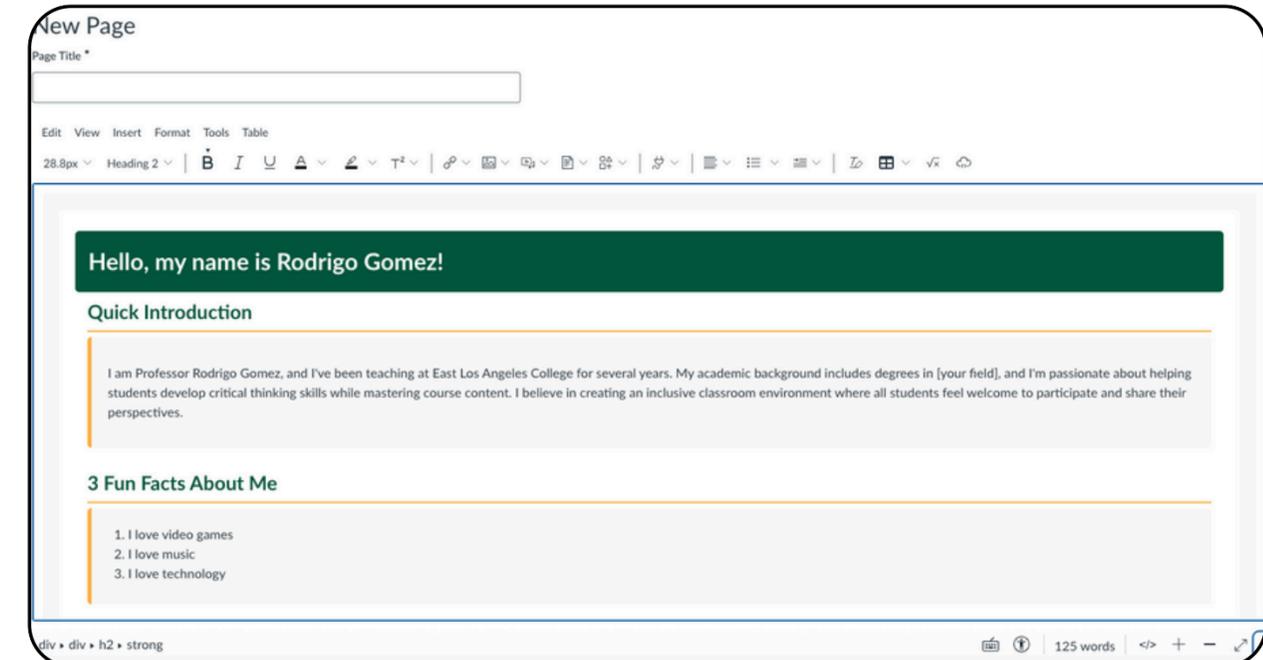
Start



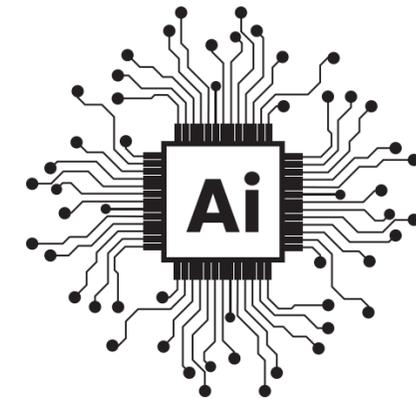
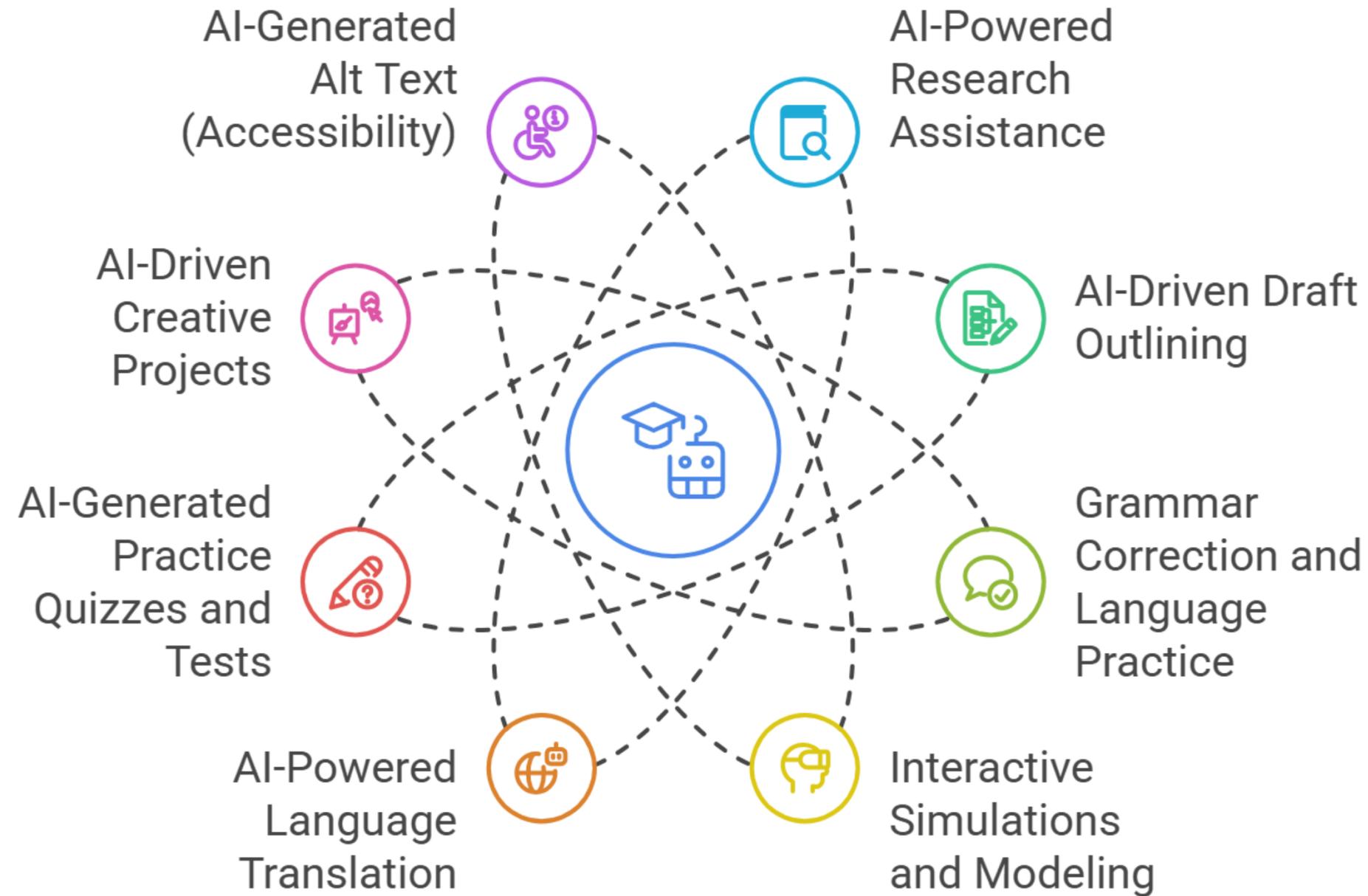
Consider this awesome example of “JOSHUA”, who will create Canvas HTML!

Thank you for all your information! Here's your completed "Meet Your Instructor" page with ELAC colors:

```
html
<div style="background-color: #F8F8F8; padding: 20px; border-radius: 5px;">
  <div style="background-color: #ffffff; padding: 20px; border-radius: 5px;">
    <h2 class="content-box pad-box-large" style="background-color: #01573D; color: white; border-radius: 5px; padding: 16px;"><strong>Hello, my name is Rodrigo Gomez!</strong>
  </h2>
  <div class="border border-b" style="border-color: #FFFFFF; padding-left: 15px; padding-right: 15px;">
    <h3 style="color: #01573D; border-bottom: 2px solid #FDB040; padding-bottom: 5px;">
      <strong>Quick Introduction</strong></h3>
```



A.I in Education: Other Applications



These emerging tools are reshaping how we design instruction and support learners.

When used intentionally, they can offer scalable ways to personalize learning, foster engagement, and improve equity across disciplines.

Conclusion & Takeaways

- ✓ AI should enhance human creativity and capability—not replace it, expanding what learners and educators can build with human judgment, imagination, and guidance.
- ✓ Responsible use requires attention to privacy, transparency, and ownership. As AI generates code, assets, and simulations, we must clarify data practices, authorship, and the ethical boundaries of use.
- ✓ AI accelerates creation by automating routine tasks and supporting rapid prototyping. From coding assistance to game asset generation, AI helps people build more, learn faster, and focus on higher-level thinking.
- ✓ With equitable access, AI can broaden participation and opportunity. Lowering technical barriers enables more students—including those historically excluded from tech pathways—to design, code, and create.



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CONTINUING EDUCATION

THANK YOU!



**Hope you found our
time productive!**

Stay in touch!

rgomez001@sdccd.edu

Institutional Innovation and Effectiveness



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SURVEY

**Please remember to fill out
our survey. It helps us make
sure we're offering you
valuable support!**

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