AI Design Education Toolkit

5 teaching briefings for AI-literate design educators in Brazil

Why the Toolkit?

What if, by 2035, Brazilian universities were graduating designers unprepared to navigate a world increasingly shaped by generative AI? As 71% of Brazilian students adopt these tools at accelerating rates [1], the lack of structured AI literacy among faculty raises an urgent concern: educators may be unable to guide students in using these technologies ethically, creatively, and critically.

This toolkit responds to that challenge. It supports design faculty in Brazilian higher education to proactively integrate generative AI into teaching—not merely as a technical skill, but as a space for reflection, experimentation, and ethical decision-making. While AI in education is often framed around productivity, without robust pedagogical frameworks, it risks promoting shallow engagement, widening inequalities, and replacing learning with automation.

Design students are increasingly using AI tools not as extensions of thought, but as shortcuts that bypass core intellectual processes. In classrooms lacking critical guidance, automated outputs may become normalized—undermining creativity, ethical reasoning, and problem-solving [2].

Meanwhile, educators are navigating this shift without adequate training or conceptual scaffolding. Technological unfamiliarity [3] and a perceived clash with design values [4] create hesitation. The result is a fragmented landscape of passive adoption or justified resistance [5], especially in under-resourced institutions.

This toolkit was co-developed with design faculty across Brazil to imagine new pedagogical futures. Through speculative thinking and practical activities, it invites educators to reclaim agency and explore AI not as a threat, but as an evolving design material—one that demands ethics, literacy, and collective imagination.

[1] ABMES & Educa Insights. (2024). Panorama do uso de IA no ensino superior brasileiro.
[2] Portal da Indústria Brasil. (2024). Inteligência Artificial e os desafios educacionais no Brasil.
[3] Chiu, T. K. F., & Chai, C. S. (2020). Digital literacy and teachers' attitudes toward e-learning adoption in higher education.
[4] McCarthy, J., Wright, P., Wallace, J., & Dearden, A. (2016). The experience of enchantment in human–computer interaction.
[5] Tomelin, C. A. (2024). Pedagogias do futuro: Inteligência Artificial, crítica e criatividade no ensino de design.
[6] Silva, M., & Almeida, R. (2022). Desigualdades tecnológicas e o futuro da educação superior.

What is the AI Design Education Toolkit?

The AI Design Education Toolkit is a collection of practical and critical resources to help educators navigate the impact of artificial intelligence in design teaching on higher education. Built around three emerging trends, each presented as a two-page "teaching brief," the toolkit translates complex AI topics into accessible, actionable classroom strategies.

The Three Emerging Trends

Generative AI for Ideation & Visualization

Tools that help students rapidly generate ideas, sketches, and visual references from text prompts.

AI-Assisted Prototyping & Simulation

AI tools can automate mockups, simulate user interactions, and suggest design variations, speeding up the prototyping process.

AI-Mediated Collaboration in Design Projects

AI facilitates group work by generating shared ideas, translating communication, tracking progress, and promoting inclusive participation.

Each teaching brief includes:

- A clear trend description;
- Key insights for the future;
- Ethical reflections on the trend;
- A ready-to-use activity designed for immediate classroom application.

The goal is not only to showcase what AI can do—but also to encourage thoughtful, inclusive, and critical engagement with these technologies. The toolkit is especially mindful of educational inequalities in Brazil, aiming to support both public and private educators in developing AI literacy that is locally relevant and pedagogically meaningful.

From generative ideation tools to AI-assisted collaboration, the toolkit provides a starting point for educators to experiment, adapt, and lead the conversation about AI in design learning.

AI-Assisted Prototyping & Simulation

Trend description

Artificial intelligence is beginning to transform how students prototype and test design ideas. Instead of starting from scratch with paper sketches or physical models, learners can now use AI tools that automatically generate design suggestions, turn drawings into digital 3D models, or even simulate how a product might behave in real-world conditions [1]. These technologies help students explore more ideas in less time, making it easier to test, refine, and compare different options quickly.

For example, generative design systems can suggest multiple visual or structural variations based on a simple prompt. Simulators, on the other hand, allow students to anticipate how a chair might respond to weight, or how a user might interact with a mobile app—before anything is physically built [2]. This doesn't just speed things up. It changes the role of prototyping itself—from making a single model to curating among many possibilities.

In the future, these tools could expand students' creative range while also surfacing deeper questions. Will everyone have access to the same AI capabilities, or will under-resourced schools be left behind? Will design students become overly reliant on machine-generated ideas, or learn to critically evaluate them? The challenge for educators is to ensure that AI doesn't replace judgment but sharpens it. Used intentionally, these systems can train students not just to build faster, but to think more deeply—about aesthetics, usability, ethics, and social impact [2].

🔮 Key Insights for the Future

Findings gathered from the discussion with Brazilian higher education design faculty

Acess is not agency
AI makes mass prototyping accessible—but mostly in privileged contexts. In Brazil, this may deepen divides: private institutions experiment more, while public ones lag. The future tension lies not in who can test more, but in who learns how to make sense of it—and whose design questions get amplified by AI in the first place.

From teaching tools to shaping questions
AI literacy in Brazil can't be reduced to learning new software. Educators must help students craft prompts that question whose data is represented, whose voices are missing, and how to adapt outputs to local realities. Without this shift, students risk reproducing imported biases with local polish.

Synthetic testing is only the beginning
AI-generated users simulate behavior, but not context. In Brazil's unequal landscape, real testing with real people remains essential. If design education leans too heavily on synthetic validation, it risks designing for abstraction, not for lived, diverse Brazilian realities.

Ethical Reflection

Using AI to assist in prototyping and simulation can open powerful new possibilities, like testing with users we rarely reach—but it also raises deep ethical questions. If students start trusting AI outputs too easily, they may stop questioning what's behind them: whose needs are being simulated, what assumptions are hidden, and what voices are missing. AI doesn't understand context or meaning—it reflects patterns from its training data, which often excludes diverse realities.

Ethically, the challenge is helping students see AI not as a final answer, but as a tool that must be guided, questioned, and interpreted with care. Teaching them to critically shape inputs and reflect on outputs is key to avoiding a future where automated decisions replace thoughtful design.

[1] Yin, H., Barakat, R., & Wu, L. (2023). AI-Augmented Creativity in Design Education: Opportunities and Challenges. Journal of Design Research, 21(3), 212–229.
[2] Khan, A., dos Santos, R. M., & Oliveira, T. (2025). Rethinking Prototyping: The Role of Artificial Intelligence in Design Pedagogy. International Journal of Educational Technology in Higher Education, 22(1), 1–19.

Activity: Compare the Outputs

In this activity, students prototype the same design challenge twice—first using traditional tools, then with generative AI. They critically compare outcomes, decisions, and process differences to examine how AI alters design authorship, judgment, and creative direction.

Learning Objectives

For students:

- Understand how different tools influence the design process and outcomes.
- Develop critical thinking by comparing human-made and AI-assisted outputs.
- Practice curating and justifying design decisions.

For educators:

- Exercise AI literacy by observing how students interact with generative tools.
- Reflect on how to critically integrate AI into pedagogy.
- Facilitate ethical discussions on authorship, bias, and design agency.

Estimated Duration

Educator prep time: 1h

- Prepare a UI/UX design brief
- Test AI tools to ensure access and familiarity

Session with students: 3h

- Introduction: 30 min
- Prototyping without AI: 45 min
- Prototyping with AI: 45 min
- Critical comparison & discussion: 1h

Required Materials

Design Brief

Design Task: Design a shopping cart interface for a fashion e-commerce platform that is intuitive, accessible, and efficient for elderly users living in the suburbs of Recife.

Traditional Design Tools (no AI)

- Figma - https://figma.com: Manual interface design and prototyping
- Canva - https://canva.com: Simplified layout creation for less advanced users
- Pen and paper or whiteboard: For sketching initial ideas without digital tools

Generative AI Tools

- Galileo AI https://www.usegalileo.ai/:Generates UI mockups from prompts
- Uizard https://uizard.io/: Converts text/sketches into wireframes
- Visily https://www.visily.ai/: Creates complete UI proposals from screenshots or text
- ChatGPT + Midjourney / DALL·E: For visual references, icons, or moodboards

Step-by-Step Instructions

1. Introduction (30 min)

- Explain the objective: to critically examine how AI shifts the design process.
- Introduce the tools and the concept of human–AI collaboration.
- Share the design brief and ask students to track their reasoning throughout both rounds.

2. Prototyping Without AI (45 min)

- Students prototype the interface using only traditional tools.
- They document key decisions—Why this layout? Why that interaction?

3. Prototyping With AI (45 min)

- Students repeat the task using one or more AI tools.
- They record:
  - The prompts used
  - What the AI generated
  - What was accepted, modified, or rejected
  - What felt missing or off

4. Critical Comparison & Discussion (1h)

- Display outputs side-by-side using slides or a shared board.
- Facilitate a critique using prompts like:
  - Which parts were automated—and did that help or hinder?
  - What felt more efficient? What felt less meaningful?
  - Did AI replicate helpful patterns—or default aesthetics?
  - How did responsibility and authorship shift across versions?

Notes for Educators

- Encourage students to go beyond appearance: which design better met user needs?
- Observe whether AI outputs reinforce templates or enable originality.
- Save screenshots and student notes for future activities.
- Use this session to build deeper discussions on judgment, bias, and agency in AI-supported design work.

Generative AI for Ideation & Visualization

Trend description

Generative AI tools are reshaping how students begin the design process. Platforms like ChatGPT (for writing) and DALL·E or Midjourney (for images) allow learners to quickly generate idea sketches, visual references, moodboards, and concept variations by simply describing what they want in words [1].
This drastically lowers the barriers to visual experimentation—especially for students who may struggle with traditional sketching or have limited design training.

In Brazilian classrooms, this can feel like a creative equalizer: more students are able to participate in early ideation regardless of their technical background. It also opens room for surprise—students encounter visuals they hadn't imagined, prompting new questions and possibilities. But this ease comes with new risks. When ideas are so easily generated, how do students learn to evaluate their originality, relevance, or bias? Whose cultural references are encoded in the model? And what happens when students bypass personal exploration in favour of aesthetic shortcuts [2]?

Looking ahead, educators will need to help students use AI as a springboard—not a substitute—for creativity. This means fostering critical reflection: teaching students to question what the AI suggests, trace the sources behind those outputs, remix ideas thoughtfully, and bring their own context
and values into the work. In Brazil's unequal educational landscape, this shift is especially urgent. Without it, generative AI could reinforce passivity and cultural dependency—making students consumers of foreign-trained systems rather than authors of situated, meaningful design [2].

🔮 Key Insights for the Future

Findings gathered from the discussion with Brazilian higher education design faculty

Acceleration does not equal depth
Generative AI accelerates visual production, allowing students to create dozens of concepts in seconds. But in Brazil—where many students enter design education without prior exposure to critical making—this speed can obscure the deeper work of forming a perspective. Educators must resist the cult of efficiency and revalue slowness as a space for ethical reflection, local framing, and authorship.

Reference curation becomes a core design skill
AI tools often draw from image sets biased toward Eurocentric or North American aesthetics. In Brazil, this means Afro-Indigenous narratives, regional textures, and vernacular forms are frequently absent. Teaching students to feed the machine with local references—and to critique what it returns—will be key to resisting cultural flattening.

Creative authorship is reconfigured
As AI-generated content becomes the norm, the act of designing shifts from "creating from scratch" to "shaping from abundance." In Brazil's unequal classrooms, this raises urgent questions about plagiarism, originality, and intention. Future design education must prioritize process literacy—students must explain not just what they made, but how and why they made it that way.

Ethical Reflection

Using generative AI in early ideation raises key ethical concerns. When students rely on AI to generate visual outputs, they risk skipping deep exploration—favoring quick appeal over meaningful intent. The systems they use are trained on vast but biased datasets, often dominated by Western aesthetics and assumptions. Without guidance, students may unknowingly reproduce stereotypes or overlook local values.
Ethical design begins with awareness: Who is being represented? Whose stories are missing? Educators must help students question not just what the AI produces, but why. Critical engagement is essential to avoid a future where visual design becomes passive consumption rather than cultural authorship.way.

[1] Fathoni, M. H. (2023). Prompting Creativity: A Study on Generative AI in Design Education. Design Learning Review, 18(2), 55–70.
[2] Téllez, L. A. (2023). Cultural Bias and Generative AI: Educational Implications for the Global South. Journal of Critical Technology Studies, 9(4), 101–118.

Activity: Before and After Prompt

This activity helps students explore how the quality and context of a prompt shapes AI-generated visuals. By comparing "generic" and "context-rich" prompts, students critically examine authorship, cultural defaults, and how language drives image-making in generative tools.

Learning Objectives

For students:

- Understand how prompt quality directly impacts AI-generated outputs.
- Practice adding contextual, cultural, and emotional nuance to prompt design.
- Build skills in evaluating the relevance, originality, and specificity of AI visuals.

For educators:

- Develop awareness of how student prompts reflect design intent (or lack of it).
- Learn to facilitate conversations around cultural authorship and algorithmic defaults.
- Expand their own AI literacy by observing how language shapes generative results.

Estimated Duration

Educator prep time: 1h

– Prepare the visual design brief
– Ensure tool access (DALL·E, Midjourney, Ideogram.ai)

Session with students: 3h

– Introduction: 20 min
– Round 1 – Generic prompting & generation: 30 min
– Round 2 – Contextual prompting & generation: 30 min
– Comparison & critical reflection: 1h10

Required Materials

Design Brief - Visual Design Task:
Design a visual poster for a public awareness campaign about sustainable food consumption in Brazil.

Traditional Design Tools (no AI)

- Laptops with internet access

Generative AI Tools

- DALL·E (via ChatGPT or Bing): High-resolution visuals from text prompts
- Midjourney (via Discord): Stylized, emotional visual aesthetics
- Ideogram.ai: AI image generator with integrated text support

Screenshot capture tools
Shared board (Miro, Jamboard, or Google Slides)

Step-by-Step Instructions

1. Introduction (20 min)

- Introduce prompt engineering as a form of visual authorship.
- Explain how AI responds to language—and often defaults to Western or commercial aesthetics.
- Present the design brief and clarify the comparison goal: what changes when we embed context?

2. Round 1 – Generic Prompt (30 min)

- Students write a generic prompt, e.g., "A poster about sustainability and food."
- Generate 2–3 visual outputs using an AI tool.
- Save screenshots without editing.

⚠️ Emphasize observing what the AI defaults to.

3. Round 2 – Refined Prompt (30 min)

- Students revise their prompt with more specificity.

Examples:
– Cultural setting: "A small-scale farmer in Northeast Brazil..."
– Emotional tone: "A hopeful message about community resilience..."
– Social context: "A low-cost street fair with accessible food options..."

- Generate 2–3 new outputs and save them.

4. Critical Comparison & Discussion (1h10)

- Organize all outputs side-by-side on a shared board.
- Guide discussion using questions like:

– What changed visually and contextually?
– Did AI capture the intent—or revert to cliché?
– How did prompt wording shape emotion and culture?

- Close with a short reflection on prompt as authorship and its implications.

Notes for Educators

- This activity surfaces algorithmic bias and cultural erasure in generative visuals.
- Push students to go beyond visual polish—ask whose stories are being told.
- Connect findings with readings on AI bias, authorship, or design colonialism.
- Encourage experimentation: local slang, historical symbols, or emotional cues can all shift the AI response.

AI-Mediated Collaboration in Design Projects

Trend description

Artificial intelligence is starting to reshape how students collaborate on design projects. Beyond supporting individual tasks, AI is becoming a shared creative partner—suggesting ideas, generating visuals, translating messages, and tracking team progress. For example, in group settings, students may use AI brainstorming tools that listen to conversations and suggest ideas in real time, or visual generators that convert spoken input into mock-ups. These technologies act as a “third voice” in the room, prompting reactions, remixing, and collective critique [1].

In Brazilian classrooms, where collaboration is common yet often shaped by inequality and limited resources, AI can help balance participation. Students less comfortable speaking may find safer ways to contribute through AI interfaces. Real-time translation can support multilingual collaboration across regions. In hybrid or online settings, AI systems can track engagement and offer prompts whe discussions stall.

Still, these benefits surface tensions. Could students begin to see AI as the creative driver rather than a support? Might shared authorship become so diffuse that accountability is lost? And given unequal access to technology in Brazil, will only elite institutions be able to implement AI in meaningful ways?

For AI to enrich rather than replace collaboration, design education must prepare students to negotiate machine inputs, critique biases, and reclaim authorship. The goal isn’t automation, but deeper, fairer, and more reflective co-creation—where AI enhances human dialogue and imagination rather than narrowing it [1].

🔮 Key Insights for the Future

Findings gathered from the discussion with Brazilian higher education design faculty

Co-authorship needs clarity
As AI takes part in student collaboration, Brazilian educators must help students document when a design idea originated from the group, from AI, or from their interplay. This clarity is crucial in avoiding passive acceptance of machine outputs and fostering student agency.

Third voice, not final word
When AI offers suggestions or critiques in group projects, it should be seen as a provocateur—not an authority. In Brazil, where students often feel insecure in academic settings, educators must guide them to challenge AI responses, remix ideas, and reclaim authorship as a collective process.

Equity requires mediation
Real-time translation or participation prompts powered by AI can increase inclusivity in multilingual and hybrid classrooms. But without equitable infrastructure and AI literacy, only elite students will benefit. Instructors must actively mediate the use of AI to ensure it amplifies diverse voices and doesn’t reinforce existing silences or gaps in participation.

Ethical Reflection

As AI joins student teams, authorship becomes harder to trace. Who made the decision—the group or the machine? When AI suggests design directions or critiques work, students may follow its lead without questioning its assumptions. In Brazilian classrooms, where technological access is unequal, this risk is amplified: students in under-resourced contexts may rely more heavily on AI defaults, reinforcing mainstream aesthetics and globalized norms.

The danger isn’t just dependency—it’s erasure. Whose cultural references get overlooked? Whose input gets framed as “noise”? Educators must train students to track, critique, and negotiate machine contributions, making authorship explicit and shared. Otherwise, we risk replacing collaborative learning with invisible automation and reinforcing the very inequalities design should challenge.

[1] Baytas, C., & Ruediger, D. (2024). Generative AI in Higher Education: The Product Landscape (Issue Brief, March 7). Ithaka S+R.

Activity: Design with an AI Teammate

This activity lets students experience collaboration with an AI "agent" embedded in a design team. The agent plays a specific role—such as client, usability expert, or visual critic—and actively shapes ideation. By comparing team dynamics and authorship with and without AI input, students examine how machine contributions reshape creativity, communication, and decision-making.

Learning Objectives

For students:

- Learn how to collaborate with AI as an active team member in design projects.
- Practice evaluating, negotiating, and integrating AI suggestions during group ideation and prototyping.
- Reflect on how AI involvement shifts authorship, agency, and team communication.

For educators:

- Observe how students incorporate AI within team dynamics and decision-making.
- Develop strategies to foster critical reflection on AI's role in co-creation.
- Identify ethical and pedagogical boundaries for AI participation in collaborative design.

Estimated Duration

Educator prep time: 1h30

– Create 2–3 AI agent profiles (e.g., Usability Expert, Client Persona, Visual Critic) using GPT-based tools.
– Prepare a teamwork design brief and ensure tool access.

Session with students: 2h30

– Introduction & agent setup: 30 m
– Round 1 – Human-only ideation: 45 m
– Round 2 – AI-integrated ideation: 45 m
– Reflection & discussion: 30 m

Required Materials

Design Brief

Team Task: Design a system that improves food access for low-income urban communities through community gardens, mobile delivery, or policy advocacy.

Traditional Design Tools (no AI)

- Laptops with stable internet access
- Sticky notes, whiteboards, or FigJam for sketching and mapping ideas.
- Screenshot capture for documenting AI interactions and design iterations.

Generative AI Tools

- ChatGPT (Custom GPTs / TeamGPT): Configure role-specific agents with tailored system prompts.
- Poe.com: Rapidly switch between multiple GPT-based personas for comparative feedback.
- Character.ai: Create agents with distinctive personalities for playful, critical viewpoints.
- Pi (Inflection) or similar: Lightweight conversational partner for empathic or ethical critiques.

Step-by-Step Instructions

1. Introduction (30 min)

- Present the design brief and the pre-built AI agents, clarifying each role.
- Explain expectations: teams must log AI inputs and note how these influenced decisions.

2. Round 1 – Human-Only Ideation (45 min)

- Teams brainstorm solutions without AI assistance.
- Require documentation of idea flow, decision points, and emerging concepts.

3. Round 2 – AI-Integrated Ideation (45 min)

- Each team selects one AI agent and begins live or asynchronous collaboration.
- Students prompt the agent to critique, extend, or redirect ideas; they track which suggestions are adopted, modified, or rejected—and why.

4. Reflection & Discussion (30m)

- Display human-only and AI-assisted outcomes side by side.
- Facilitate a dialogue:
  - Did AI broaden or narrow creativity?
  - How did participation patterns shift?
  - What does co-authorship mean when an algorithm "speaks"?

Notes for Educators

- Encourage students to "talk back" to the AI—probe, challenge, and refine machine input instead of accepting it at face value.
- Observe whether AI alters leadership roles or turns some voices passive.
- Emphasize that effective collaboration includes critical questioning of both human and AI contributions.
- Collect student reflections to refine future activities on AI-mediated teamwork.