Eureka!

Capstone Thesis Document

Eureka: A toolkit designed to assist student designers in generating ideas through curveballs and constraints while promoting collaboration within groups

Course: MS HCI/d

SP24: I695 - HCI/d Capstone | Michael Stallings

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1. Introduction:

Student designers, especially those just starting their first semester or year, often face a common challenge: sparking creativity during ideation in a collaborative setting. It's easy to fall into the trap of relying too heavily on digital resources, design precedents, or analyses of competitors' work. While these can be helpful, they sometimes limit creativity by encouraging mimicry rather than innovation. Initially, the focus was on how to help students think differently in a project scope. However, after conducting two usability tests on my rogue deck of cards, this only solved a little of the problem. The observations and research have shown that there's a real opportunity to inspire student designers to think more imaginatively, embrace different perspectives, and engage in lateral and divergent thinking. The main area of focus is to introduce a framework in the ideation phase. The project frame of this capstone project is around ideation with respect to the project scope for first-year design students. To address this, I have ideated and developed a CICD Framework (Context, Idea Generation, Curveball, and Decision) and incorporated activities into this framework. The main objective is to encourage students to think beyond the usual boundaries—moving away from reliance on digital sources, existing design examples, and comparisons with competitors' work. The goal is to inspire student designers whose rigid frameworks, set ways of thinking, or a shortage of creative ideas may be limited. The outcome of the CICD framework is to foster a creative mindset, divergent thinking, embrace ambiguity, and foster collaboration.

1.1 Problem Space

What is the issue designers face?

Designers often need help generating unique ideas and frequently turn to digital resources, design precedents, or competitor analyses, which can inadvertently limit their creative potential.

Why is this problem worth looking into?

Relying on digital stimuli often restricts creativity by encouraging designers to mimic existing solutions. Insights from observational studies and primary research indicate that there's room to promote divergent thinking and boundary-pushing collaborations to boost creativity within a group.

Who does this initiative target?

This effort is directed toward student designers working on projects in their first semester or year. It aims to infuse their process with more creativity and collaboration during the ideation stage of the design process.

When should this activity take place?

The activity is designed for integration into team settings at design schools during the ideation stage. It is a creative and fun exercise for teams feeling stuck or overwhelmed during a design sprint or task.

How do I plan to address the issue?

The strategy involves introducing the CICD framework, which sets the context, generates ideas, offers curveballs, and facilitates decision-making, helping nurture creative thinking. This framework helps designers with exercises and prompts encouraging fresh perspectives and lateral thinking. The goal is to equip designers with the tools to think differently and innovate beyond traditional frameworks.

1.2 Problem Frame

The problem frame I focused on was ideation rather than inspiration and expression. I initially thought I had solved the major ideation problem and wanted to branch out to express ideas. Still, through usability tests, the Eureka cards' solution could have more ideally solved this messy space. In the following sections, I give a detailed analysis of the themes and areas of focus. Existing effective storytelling techniques can be used for the expression stage.

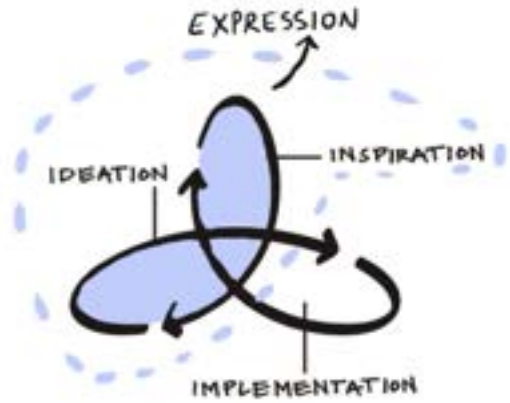


Figure 1. Project Frame

1.3 Objectives

My primary goal was to develop a toolkit that assists student designers in embracing ambiguity through unexpected challenges and limitations while encouraging teamwork during the ideation phase. The toolkit is designed to avoid the problem of overly relying on existing design inspirations. The toolkit aims to familiarize designers with various design patterns and constraints, helping them think differently and generate unique ideas.

1.4 Design Activities

Throughout my capstone project, the emphasis was not merely on engaging in various activities but on understanding the insights they provided. Rather than adhering to a linear, waterfall approach, my process was iterative and dynamic, resembling a sprint. It began with initial research, followed by design and feedback phases. This feedback led to further research and adjustments in my scope, which helped me develop new ideas that I finally tested and iterated.

1.5 Outcomes

The main outcome of the Eureka toolkit is to transform how student designers approach creative thinking. Eureka cultivates a creative mindset by introducing curveball constraints, enabling students to navigate ambiguity confidently. It also fosters group collaboration, encouraging students to draw on diverse perspectives and skills. This accelerates the idea-generation process, pushing students to think quickly and beyond traditional ideas. Ultimately, Eureka equips student designers to think differently and innovatively, reshaping their creative processes for better outcomes.

2. Research Insights

2.1 Primary Research and Observations

Primary Research

Four semi-structured interviews were conducted with **Masters in Design Students** from Bloomington and New York. The **interviews were transcribed and coded as U1, U2, U3 and U4.** Revisiting the insights from interviews with design students highlighted that sketching significantly helped divergent thinking. A student stated, *"I think more and come up with better ideas when I am timed 6 minutes for four ideas,"* suggesting that such restrictions enhance

creativity. The **restrictive environment, such as time, curveballs, and prompts, helped students think differently**. Another student stated, *"When I open my laptop, I tend to latch on to existing solutions or concepts and try to build something on top of it."* Most did not know the techniques when asked about brainstorming techniques. Some of them merely used them because they were asked to use them. The Interview protocol and the detailed interviews are in the appendix section.

Audit of Exiting Brainstorming Techniques

While creative thinking techniques can help generate ideas, common methods like basic brainstorming, braindumps, and brainwriting may unintentionally lead to groupthink, **fixation on a single solution, or stunted creativity**. These techniques focus on rapid ideation but **provide little structure to push thinking in new directions**, causing **teams to latch onto the first viable idea without enough exploration.** More complex methods like SCAMPER, analogies, and gamestorming **aim to promote lateral thinking but may fall into linear thought patterns if not facilitated effectively**. The key is to use techniques that enable divergent and convergent thinking - allowing open idea generation and mechanisms to analyze ideas, harness promising concepts, and refine solutions. Rotating individual and collaborative work modes can help balance independent and group creative thinking.

Technique	Pro's	Con's
Brainstorming	-Encourages lots of ideas quickly -No need to justify or evaluate ideas at first	-Can lack focus without clear goals -No prompting to push thinking in new directions -Risk of groupthink and fixation on early ideas
Mindmapping	-Visual connections spark new associations -Central concept allows related ideas to branch out	-Tendency to fixate on the central idea -Structure may limit divergent thinking
Worst Possible Idea	-Prompts lateral thinking by reversing assumptions -Breaks fixation on obvious ideas	-Examples are critical to understanding context, ideating, and validating across design fields. -Random browsing gives novel connections.
SCAMPER	-Prompts new perspectives systematically. It is a useful rubric to push lateral thinking.	-If used too rigidly, it may limit organic creativity. -Time-consuming to apply fully

Observations

During observations at the HCI/d design club session, which focused on ideation for the new iPhone's island design, notable observations included **evaluation apprehension, slacking of teammates, poor team coordination,** and facilitation that hindered generating more than 3-5 ideas. Despite a flexible design challenge, **12 out of 15 students** resorted to existing solutions, significantly relying on existing design solutions/inspiration rather than exploring new and unique concepts. This indicated comfort with the familiar that potentially stifles creativity and innovation in design thinking. The detailed observation studies and protocol can be found in the appendix below.

2.2 Secondary Research Insights

After reading multiple papers, I reviewed them again. I picked only the interesting themes that further led me to research the **nature of inspiration, examples, activities, constraints, production blocking, and evaluation apprehension.**

Theme	Insights	Details
Nature of Inspiration	"Inspiration happens when outside information makes new possibilities apparent to designers" (Zhao, 2013).	Make designers think beyond what they can design. This would open more possibilities with endless, unique ideas.
Role of Examples	"Examples are critical throughout the creative process for understanding context, ideating, and validating across design disciplines" (Herring et al., 2009).	Examples are critical to understanding context, ideating, and validating across design fields. Random browsing gives novel connections.
Production Blocking	"Due to limited air time, individuals often have to hold onto their contributions until they get a chance to report them, and as a result, they might forget them or decide not to offer them. In either case, holding on to them will prevent them from other ideas." (Shih et al., 2009)	Students need to remember their ideas and contribute more effectively at times. Holding prevents ideas from flowing around the group and building upon

Key takeaways and insights:

- Through the theme of the **nature of inspiration, I** came up with the idea of introducing the **"Rogue Deck of cards"** to introduce the concept of giving prompts and information that helps students think about new possibilities. (Zhao, 2013).
- **Examples are essential for understanding context during critical thinking** (Herring et al., 2009). This theme, through the research findings, could have helped me incorporate ideas into my initial concept. This would need fixing by latching onto examples.
- Production blocking was another theme I should have incorporated into my initial activity. This broad scope would not fit into my frame and would deviate from the expression of ideas. However, revisiting this paper was an important aspect of how student designers report or note ideas. Since this solution aspect failed, I incorporated it into my new ideas.

Learning Outcomes: For the initial set of secondary research, I needed to gain more insight into how to develop activities that would aid student designers with the project prompts. I planned to conduct detailed user research to determine the patterns of successful ideation techniques. I followed a simple strategy to maximize the information I wanted from the papers I read.

3. Initial Themes of Focus

After analyzing the research and observations, I decided on some potential themes to draw my ideas

Fostering a Creative Mindset

Unlocking Ingenuity

Overcoming Design Fixation

- **Fostering a Creative Mindset** - Designers should actively seek varied inspiration, not passively wait for sparks. Student designers need support building creative confidence and ideation skills to translate examples into novel concepts.
- **Unlocking Ingenuity** - Rattle rigid thinking by questioning assumptions and challenging orthodoxy. Encourage curiosity, play, and exploration beyond the obvious

- **Overcome lack of associative and creative thinking because of fixation** - Overreliance on digital platforms promotes mimicking. Physical sketching sessions allow more organic ideation.

4. Initial Ideas

After brainstorming, I realized my ideas needed restructuring. I had focused heavily on individual creative thinking techniques, but this project is more centered on group collaboration. The main goal is to make student designers think differently and reflect on their design thought processes in a team setting. So, for my next set of ideas, I refined them to fit better the key themes we identified: Fostering a Creative Mindset, Achieving Synergy in Collaborative Ideation, and Overcoming Fixation. The **new ideas needed to spark divergent thinking and rattle students' thought processes** among groups while also providing mechanisms to analyze and refine concepts. Combining individual and collaborative exercises could help balance independent and shared creative thought. I tried to craft activities to make students think differently and draw insights into their and their teammates' design processes.

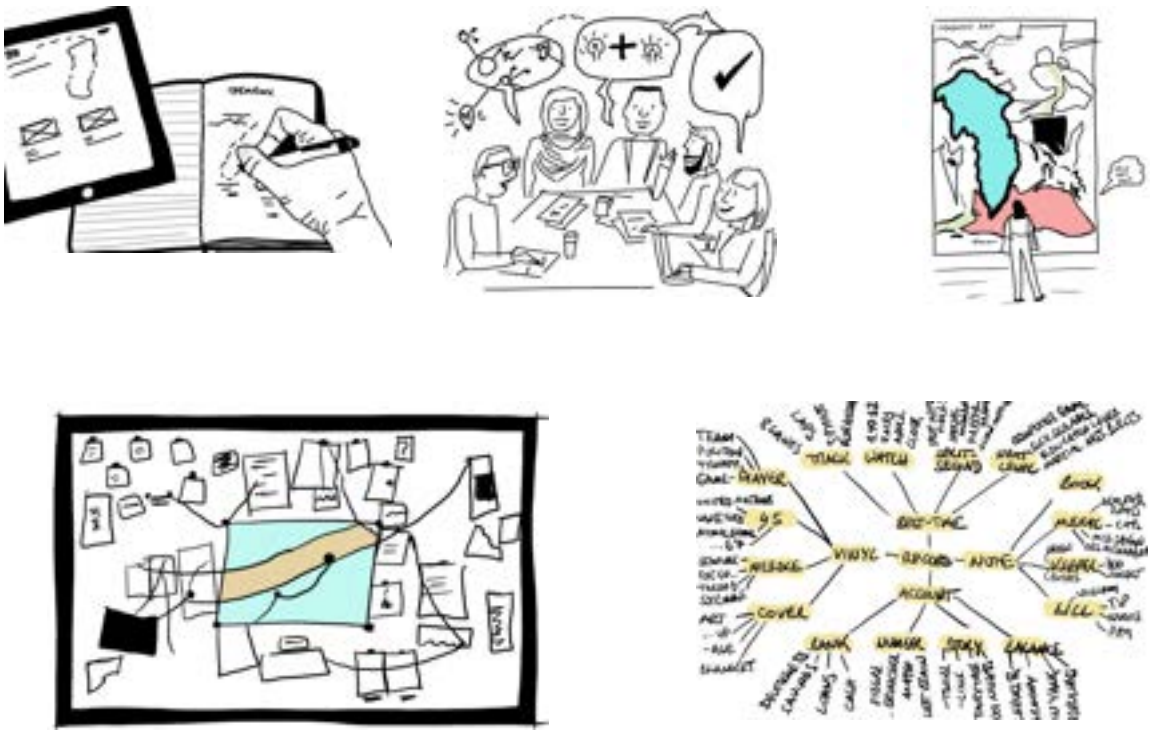


Figure 2. Initial Ideas

The detailed initial concepts can be found in the appendix below.

5. Insights after the First Usability Test

Last semester, my main focus was adding a unique twist to the ideation process: a game featuring unexpected challenges, or "curveballs," to stimulate creative thinking. I conducted two usability tests to see if a deck of cards presenting a different challenge could help designers approach their projects from new angles. The participants appreciated the concept, enjoying the fresh perspective it brought to their thought process—however, the ability to truly integrate this tool into the project context needed to be recovered. I needed to understand how these curveball challenges influenced the relationship between their ideas and the project prompts. This meant looking for patterns or connections that showed whether the game was effectively expanding their creative horizons and helping them think outside the box.

Figure 3. Initial Card Deck

5.1 What Worked

- The Eureka deck of cards helped spark new ways of thinking and generate varied ideas among students.
- The Rogue Cards served as a curveball that nudged students to explore ideas from various angles, enhancing their creativity and helping them think out of the box.
- What stood out was the Eureka deck's minimal learning curve. Students found it easy to understand and quickly jumped into the creative flow.

- “Lateral thinking” was achieved, showcasing the deck’s effectiveness in broadening students' perspectives and approaches to problem-solving.

5.2 What Did Not Work

- Some of the prompts from the Eureka deck needed to align with the projects at hand. This mismatch occasionally led students to explore paths to better align with the student designer's project objectives.
- Not all ideas generated were considered valuable or practical by the students. In some instances, the creative process led to ideas that, while unique, needed to be more feasible and relevant to the student's goals.
- There was still a noticeable lean towards digital sources for inspiration. Even with the card deck, the transition from digital dependency could have been more seamless for everyone.
- I should have considered how students would translate these ideas based on feasibility and the next steps.

Learning Outcome: The usability tests helped me understand that my initial concept does not solve the problem space, especially regarding the project scope given to students. After the usability test, I revisited my secondary research, observations, and interviews. I sought insights to help rationalize restricting my project to fit the scope of student designers' project prompts.

To better understand and ground my research to support my concept and validate my idea. I went through my past primary, secondary research and observations. This exercise gave me a better understanding of finding relevant insights. It helped me develop some exciting themes that led to new insights related to the secondary research.

6. The Pivot and Change in Focus

After further analysis of the space, I divided a student's typical design process into three main parts: research, ideation, and design. The scope would further divide the ideation process into the new framework, as shown in Figure.

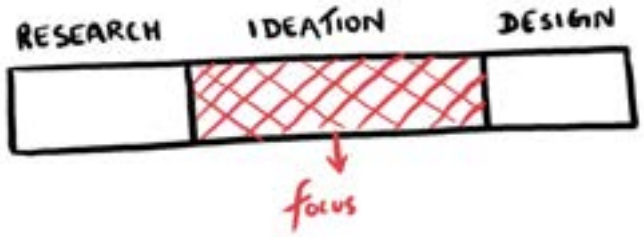


Figure 4. Project Scope

7. Additional Secondary Research

7.1 Secondary Reserach Insights

Initially, I wanted to deviate from the main focus of incorporating activity into a project scope and deviate to an icebreaker activity. I focused on three themes: fostering a creative mindset, unlocking ingenuity, and overcoming design fixation. While these themes remain the primary focus, I read more papers that helped me add on these themes to come up with new ideas. To back up my activity of Eureka and gain insights into new ideas and concepts. I read three papers focusing more on lateral thinking, group dynamics, and past idea-generation techniques to get broader ideas. The main aim was to make the activities more rational and solve parts of the main problem of ideation and creative thinking.

The Outcome of New Secondary Research

Theme	Insights	Details	Ideas
Divergent Thinking in groups	Measurement of creativity has considered the **number of ideas** and the creative quality of ideas to be indicators of creativity (Warr & O'Neill, 2006)	This paper gave a lot of ideas on a concept called "free riding," prevalent in groups during ideation. Not communicating the ideas to the group.	To make the rules of the activities more concrete, this paper gives some guidelines that I plan to incorporate: -**Not communicate** with each other. -**Ideas done individually** and not

			in a group or pair. -**design environments** effectively support creativity.
Creative Thinking Strategies	"Creative thinking processes involve a set of cognitive operations and behaviors to help generate more ideas."	Strategies that help with creative thinking involve cognitive operations and behaviors such as questioning assumptions, applying **reverse thinking,** and **adopting different perspectives.**	-An activity with strategies that encourage divergent thinking creates multiple solutions for a single problem. -Reverse thinking, the role of **seeing the solutions through different perspectives/lenses**
Patterns of Creative Thinking	The "Idea Generation Examples" paper by Christian Kohls presents **four patterns** for fostering creativity: Idea Quota, encouraging the generation of a set number of ideas to push beyond the obvious; Modification, which involves altering existing products or ideas to create new ones (Kohls, 2015)	This paper has some ideas and concepts that helped determine patterns. A lot of ideas were tested and worked. This gave me ideas to incorporate these patterns into my activities	-Idea Quota - Set a **target number of ideas** to push past apparent solutions and boost creative output. - Modification: Alter existing products or concepts to create innovations, **focusing on iterative changes.** - Combination: Merge **elements from different areas** to form unique solutions, fostering cross-industry creativity. - Perspective Shift: **Change your point of view** to discover fresh solutions, enhancing empathy and diverse thinking.
Creative Thinking Long-Term	An external clue drives most non-intentional idea generation**.**	IdeaManager and iBox are systems for managing ideas that work together to enhance non-intentional idea generation by suggesting related problems and ideas upon new information entry.	- **External clues and prompts drive nonintentional prompts**. -With this concept, I plan to add more **design prompts**, such as minimalistic, neumorphism, skeuomorphism, etc.

Outcome: From the additional secondary research, I narrowed down certain patterns that would fit into my solution. The key insights were reverse thinking, idea quota with time constraints, modification, combination, perspective change, and external cues. These patterns helped develop a framework and incorporate them into certain activities.

7.1.1 The New Focus

Through more secondary research and findings, I plan to create activities with the primary goal of helping student designers become innovative pioneers (it takes a lot of effort and has a high lateral thinking ability).

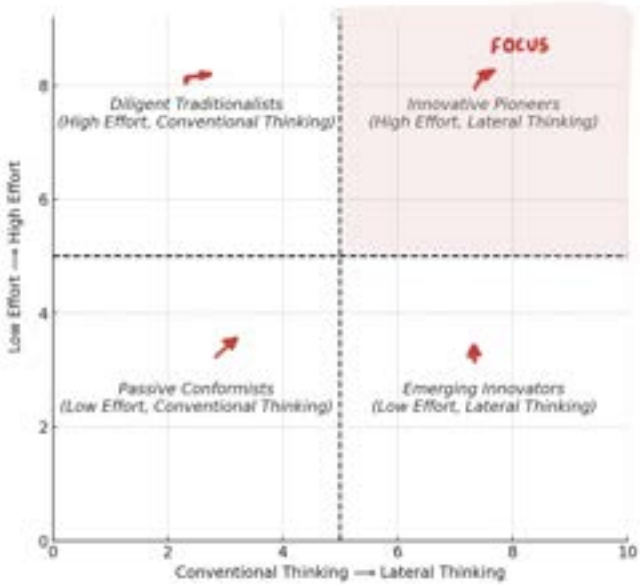


Figure 5. The Thinking vs Effort Graph

The focus is creating a framework that helps students think differently and develop creative ideas and concepts. Through my observations, I realized most students fall under the “Passive Conformists” and “Diligent Traditionalists” - - Conventional thinking and low effort. This often leads to the slacking of certain team members in the group, and student designers build upon others' ideas at the end.

7.1.2 The New Goal

The concept I've developed is named "Amoeba Design," as shown in Figure 5. The nature of an amoeba inspires this idea – it has an irregular shape with a nucleus at its center. In our analogy, the nucleus represents the initial design prompt, while the amoeba’s boundaries symbolize the typical constraints and challenges encountered in design. My observational studies showed that most students’ ideas remain confined within the amoeba's boundaries, adhering closely to the initial prompt and existing limitations. However, introducing the new framework and activities encourages students to extend their creative reach beyond these confines. The aim is to foster a mindset where ideas transcend the conventional 'amoeba' boundaries, promoting innovative thinking that surpasses traditional constraints.

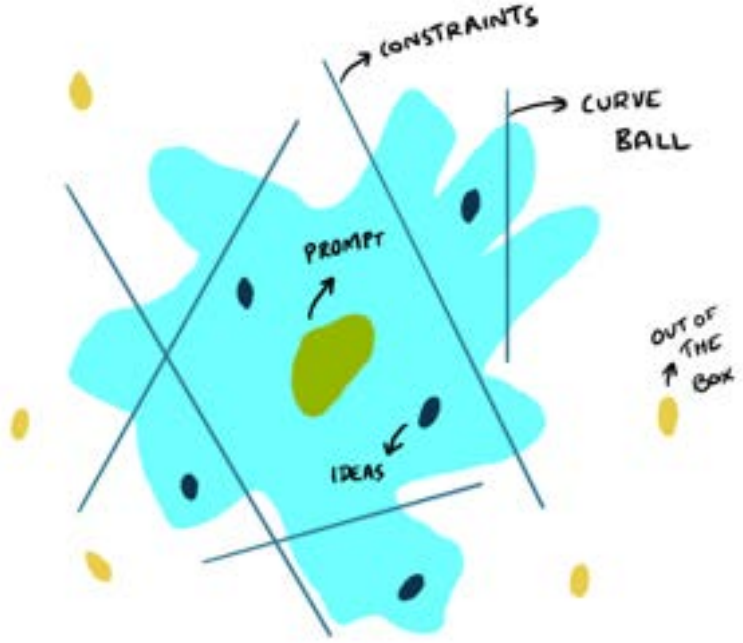


Figure 6. The Amoeba Design

8. New Ideas

After a lot of brainstorming and reflection, I've devised a new approach designed to enhance the creative process for students. The main aim is to encourage them to explore ideas beyond the conventional thinking. I've termed this approach the 'CICD Framework,' structured into four distinct phases:

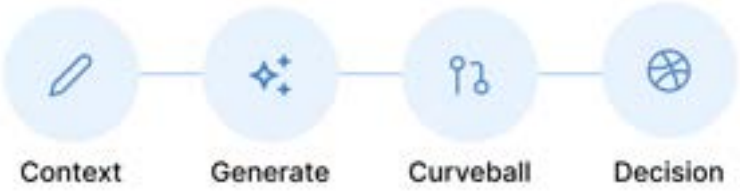


Figure 7. CICD Framework

8.1 The Framework

1. Context:

Students will be grouped in pairs to foster collaboration. They'll provide context for the project prompts, setting a solid foundation for ideation. This step is crucial as it encourages the pair of students to ask questions and build on each other's thoughts, establishing a collaborative environment right from the start.

2. Generate (Idea Generation):

In this stage, students start brainstorming; they follow a structured approach. This differs from the usual free-for-all brainstorming; pushing boundaries within a defined framework often leads to more creative, out-of-the-box thinking.

3. Curveball:

When students think they've figured it all out, they are thrown a curveball. This unexpected challenge is designed to shake up their conventional thinking and encourage them to look at their ideas from a new perspective. The main aim is to challenge their assumptions and push them to rethink what's possible.

4. Decision:

In this phase, students critically assess their ideas, considering how well they align with the project prompts. Students sift through their concepts, combine the best elements, and refine their approach. This step is crucial for transitioning from broad thinking to actionable ideas.

As they move through these stages, students are not just coming up with ideas; they're learning how to navigate the entire ideation process—from understanding the context to making collaborative decisions. This framework is about building a mindset that approaches problems from various angles and develops well-rounded solutions.

8.2 Activities for the CICD Framework

8.2.1 Pick a Card - Hero vs Villian

Flg 8. Hero vs. Villain Card

This is a group activity (4-6 members) in which two students each receive a “What if” card segmented into Market Trends, Customer Trends, and Technological Trends. Once the card is flipped, the other student will see what could go wrong.

Examples of these cards:

What if: (Customer Trends)

Was your product so simple that a child could use it?

What could go wrong with making an application too simple?

What if: (Technological Trends)

You could only interact with users by using voice without adding visual cues.

What could go wrong with only using a voice interaction?

Outcome: The main outcome is collaborating and thinking about the positives and negatives to develop a concrete solution.

8.2.2 Sketch Out Ideas

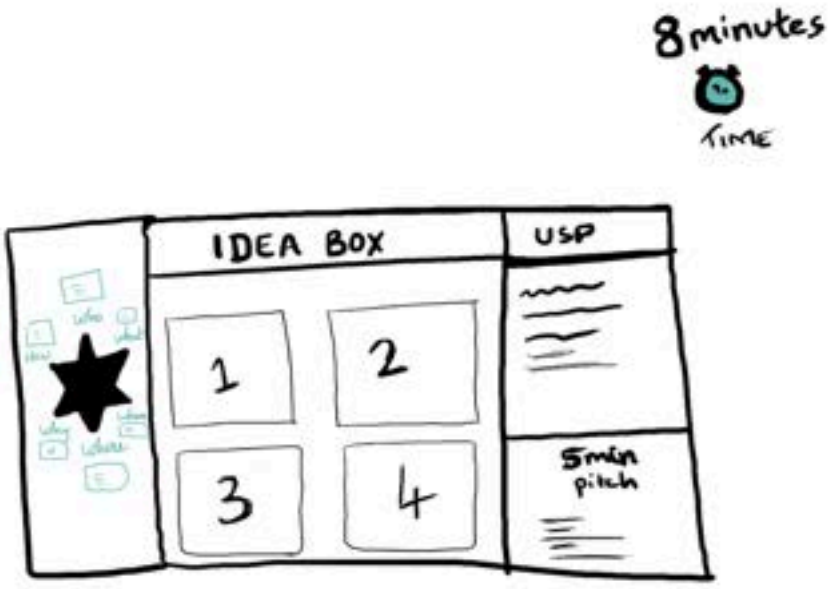
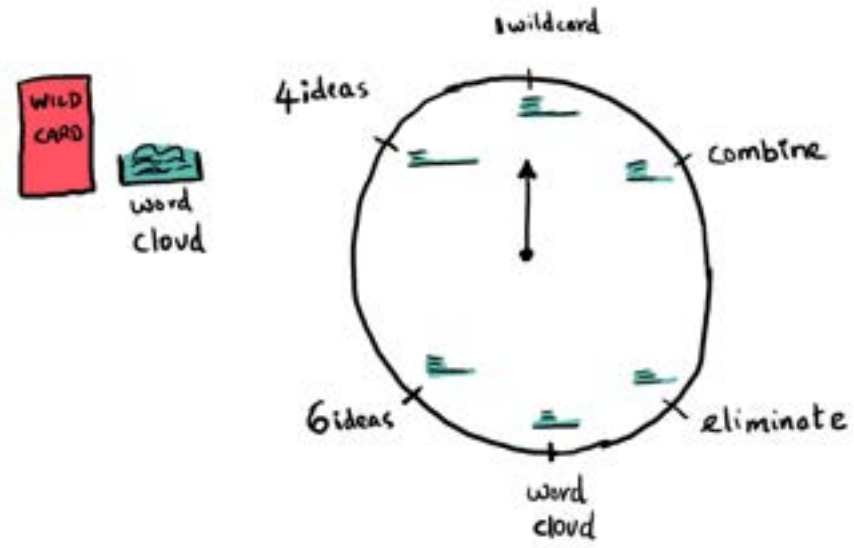


Fig 9. Hero vs. Villain Card

The student with the “Hero” card has to generate four ideas, and the “Villain” card notes what could go wrong. After the 8 minutes, the students work for 5 minutes to collaboratively develop a concept.

Outcome: This task aims to set a pattern of time constraints and questions to spark a questioning mindset. The student also sets some unique selling points for the concepts to understand them better.

8.2.3 Curveball Spinner



Flg 10. Curveball Spinner

Students spin a wheel containing different prompts, scenarios, and wildcards in this independent activity. As they land on various tasks, students are encouraged to pick cards or words from the wheel to inspire new ideas and alter their existing concepts.

Outcome: According to research papers, I found a pattern where teams were successful when a curveball was introduced. This activity would help students think in a different direction. SCAMPER was the most effective brainstorming technique. The same principle I have taken inspiration and introduced a spinner. Students would come up with different ideas based on curveballs or word clusters.

The first set of ten wild cards was generated with the help of ChatGPT, as shown in Fig. 9. I gave initial prompts to create wild cards that would eventually help student designers think from a different perspective. This is the first set of iterations, and it's still a work in progress. To make this more integrated, I plan to add blank cards where students can come up with their prompts, which can be added to the deck, increasing the curveball deck.

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FIg 11. Curveball Spinner

8.2.4 The Feasibility Matrix

In this group activity, students collaboratively place all their ideas on a matrix to identify trends and patterns. They map out these ideas within the project's scope, which could lead to the discovery of new concepts previously unconsidered by the students.

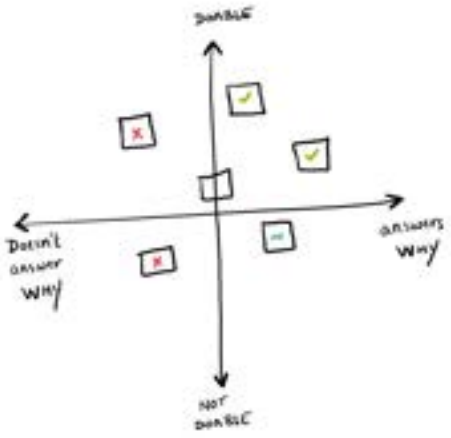

Fig 12. Hero vs. Villain Card

Outcome: The most challenging part of this capstone has been relating the ideas to the project's scope. Students collaborate on this matrix and determine patterns and feasibility of the ideas with respect to the project prompt and scope.

What am I trying to achieve through the new approaches?

This activity nurtures creative thinking by providing designers with exercises and prompts encouraging fresh perspectives and lateral thinking. The goal is to equip designers with the tools to think differently and innovate beyond traditional frameworks.

9. Outcomes of the CICD Framework

Fostering a Creative Mindset: This framework would help student designers take a creative approach to solving problems. The aim is to introduce patterns that students can use later during ideation sessions. This framework gives design students a hands-on approach to developing creative problem-solving skills. Rather than solely lecturing on theory, it introduces patterns and techniques students can practice applying during ideation sessions. The goal is to build their "creative muscles" by exposing them to different innovative methodologies early in their education. That way, when working on real-world projects later on, students will have a whole toolbox of strategies to draw from when tackling design challenges. By fostering an inventive mindset now, the framework aims to nurture students' ability to generate original ideas and solutions throughout their design careers flexibly.

Divergent Thinking: Student designers often get too comfortable in the safe school environment, resorting to conventional thinking methods and ideation techniques. This can lead to sluggishness or generating ideas heavily influenced by others' thoughts. However, this framework aims to shake things up by introducing curveballs that push students towards more divergent thinking. Challenging them to break from the norm encourages innovative approaches to ideation over time. The goal is to foster a mindset where unique concepts can flourish rather than relying on derivative or predictable solutions.

Embracing Ambiguity: When ideating concepts lacking clear context, embracing ambiguity in a corporate setting can be tough. The expectations and pressures of a business environment often

make it difficult to diverge from established paths and explore truly novel territory. However, getting comfortable with that sense of uncertainty is vital for unlocking innovative thinking and breaking new creative ground.

Collaboration: The framework encourages healthy collaboration among student designers. It teaches them how to effectively question each other, work together to solve problems through ideation sessions, and ask the right questions. Building these skills early on helps prepare students to collaborate productively with others throughout their design careers. By fostering an open yet respectful environment for exchanging ideas, students learn to value diverse perspectives and develop more innovative solutions as a team.

10. Usability Testing

I conducted two tests with two groups of three to four first-year Master's students. I came up with a design challenge around Optimizing Tourist Attractions for Enhanced Comfort, Feasibility, and Time Efficiency. The main objective of this usability test is to asses how students come up with varied ideas/concepts through the framework and without the framework. At the end of the activity, I wanted to check how students come up with ideas and what these ideas are about.

For Group 1: Ideation without the toolkit

In this group, students will be free to explore their creative horizons without limitations. I aim to observe their ideas' natural flow and understand how they navigate the ideation process when unconstrained. This will allow us to gain insights into their pure, unguided thought processes and evaluate the originality and feasibility of the concepts they generate. It's a chance to see students' unfiltered creativity, how they collaborate and brainstorm, and what solutions they can develop.

Figure 13. Group 1 Usability Test

Insights:

In this usability test with three first-year master's students in the Human-Computer Interaction program at Indiana University Bloomington, I aimed to observe how freely students ideate and the types of concepts they develop. Even though the ideation sessions were spontaneous, I noticed significant differences in how the students communicated, often leading to a disconnect. Here are some key insights:

- Students often rushed to propose solutions, while others were less active.
- Many ideas were merely extensions of existing ones found on the internet or other sources of inspiration.
- Collaboration needed to be improved, with students frequently circling back to previous ideas.
- A few students recommended using the ‘Crazy Eight’ brainstorming technique, but this approach also led to repetitive ideas and idea saturation.
- The students generated three ideas as a group, which primarily involved adding features to existing products rather than creating new concepts.

For Group 2: Ideation with the first version of the toolkit

Students engaged with the new CICD framework, which included unexpected curveballs to stimulate their creative thinking. This setup challenged them to think outside the box, adapt to unforeseen challenges, and develop ideas they had never considered. The process used paper cards and sticky notes during the first iteration. The aim was to observe how they handled structured guidelines combined with unexpected elements and how this influenced their creative output. As part of this usability test, which I conducted, valuable insights were gained into the effectiveness of the new framework in enhancing creativity, fostering teamwork, and encouraging students to approach problems from unique angles.

Figure 14. Group 2 Usability Test

Key takeaways:

What went well:

The curveballs introduced engagement among the students, adding an unexpected and intriguing element to the activity as curveballs.

What did not go well:

- Students appeared **confused and somewhat overwhelmed**. This confusion highlighted **several gaps** in the ideation process facilitated by my toolkit.
- Some participants resisted **the constraints of** the 'Hero vs Villian' activity. They felt that the hero vs. villain cards overly **restricted their creative process**, which could have been more conducive to generating a broad range of ideas.
- Additionally, the **time limits** set by the card deck were **not well thought out,** and the ideation process felt too rushed.
- The **prompts provided needed to be more extensive**, which allowed **little room for creative exploration** beyond the initial ideas sparked by the cards.
- The **word cloud did not work out**, the patterns and words I chose did not create an impact, and the outcome was not achieved.
- Overall, the toolkit's **game manual was unclear**, leaving students unsure about how to proceed effectively within the framework laid out by the hero vs. villain roles and other game elements.

Outcomes after the usability tests

This usability test compares and contrasts how students navigate the creative process under different conditions. The tests help students understand how constraints and freedom affect their design thinking, ideas' quality, and problem-solving approaches. Analyzing both groups' outcomes helped me understand the dynamics of creative ideation and the potential benefits of introducing curveballs into ideation frameworks in design education.

11. Iteration

The original concept, featuring hero vs. villain cards, was not effective and lacked contextual clarity, leading to a redesign. I introduced the Mad Libs-concept, which provided a structured way for student designers to articulate their vision and foundational questions before diving into ideation. This adjustment aimed to better align the creative process with their initial intents and outcomes.

Students initially struggled with the complexity of the toolkit, particularly with managing the timing of each activity. To make the toolkit more user-friendly, I integrated detailed visuals and drawings directly onto its surface. These enhancements served as clear, at-a-glance guides that helped students easily navigate the activities and understand the sequence of events.

The spinner, originally had eight colors that proved to be restrictive, limiting the range of possible curveballs and iterations. To increase the dynamism and unpredictability of the toolkit, I redesigned the spinner to include 16 colors. This expansion allowed for a wider variety of challenges, making the activities more engaging and less predictable.

Additionally, to maintain interest and engagement over extended use, I introduced a DIY element to the card decks. By including ten blank cards per deck, students were given the freedom to contribute their own prompts. This not only diversified the challenges they faced but also encouraged them to think creatively about the kinds of prompts that could spur innovative ideas.

Figure 15. Final Usability Test

Following these significant iterations, I ran another usability test with a group of students as shown in the figure. Students reported feeling much more at ease with the toolkit and demonstrated a clearer understanding of how to effectively engage with the activities. This positive feedback confirmed that the revisions had significantly improved the usability of the toolkit.

12. Final Design

After multiple iterations, some changes were made to the toolkit. The toolkit consists of four phases that follow the CICD framework, which were curated according to particular tasks for each phase. Here is a quick video of how Eureka works.

Figure 16. Eureka Toolkit

I broke down the CICD framework with the respective activities mentioned below:

12.1 Madlibs Concept (Context)

An MIT study (Mothersill, n.d.) inspired me with the mad libs concept and has been adapted to enrich the prompts given during class projects. To deepen student designers' understanding and set a clear context for each project, the starbursting brainstorming technique is incorporated into the first activity, which lasts 30 minutes. This requires the entire group to participate in creating a storyline, fostering a thoughtful exploration of the project at hand.

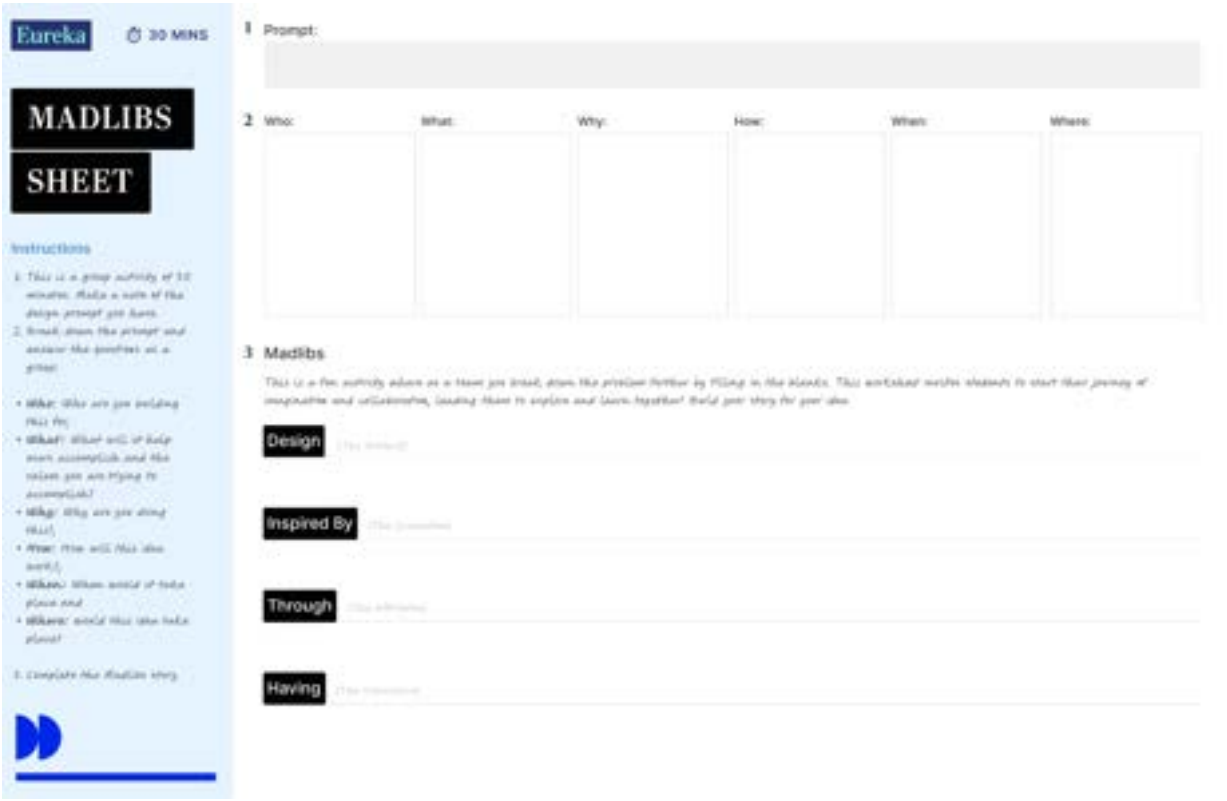

Figure 17. Madlibs Sheet

Breakdown:

1.**Design**: Consider the artifact being created. Focus on its purpose, appearance, and functionality.

2.**Inspired by:** Select an influence or theme to integrate into the creation.

3.**Through:** Identify the key attributes and features that the design will embody.

4.**Having**: Visualize the impact. What effect will the design have on its users?

Outcome:

This method helps to avoid the common rush into idea generation without a solid grasp of the context. By building a narrative through this structured approach, each project is grounded within a clear framework, aiding in developing thoughtful and well-contextualized solutions.

12.2 Idea Generation (Ideas)

After thorough research and testing, it was found that sketching four ideas in ten minutes is highly effective for student designers. This format allows for a free-flowing idea-generation session where students can brainstorm independently. Each worksheet is thoughtfully designed, with space below each sketch for a few descriptive sentences, helping to clarify and expand upon each idea.

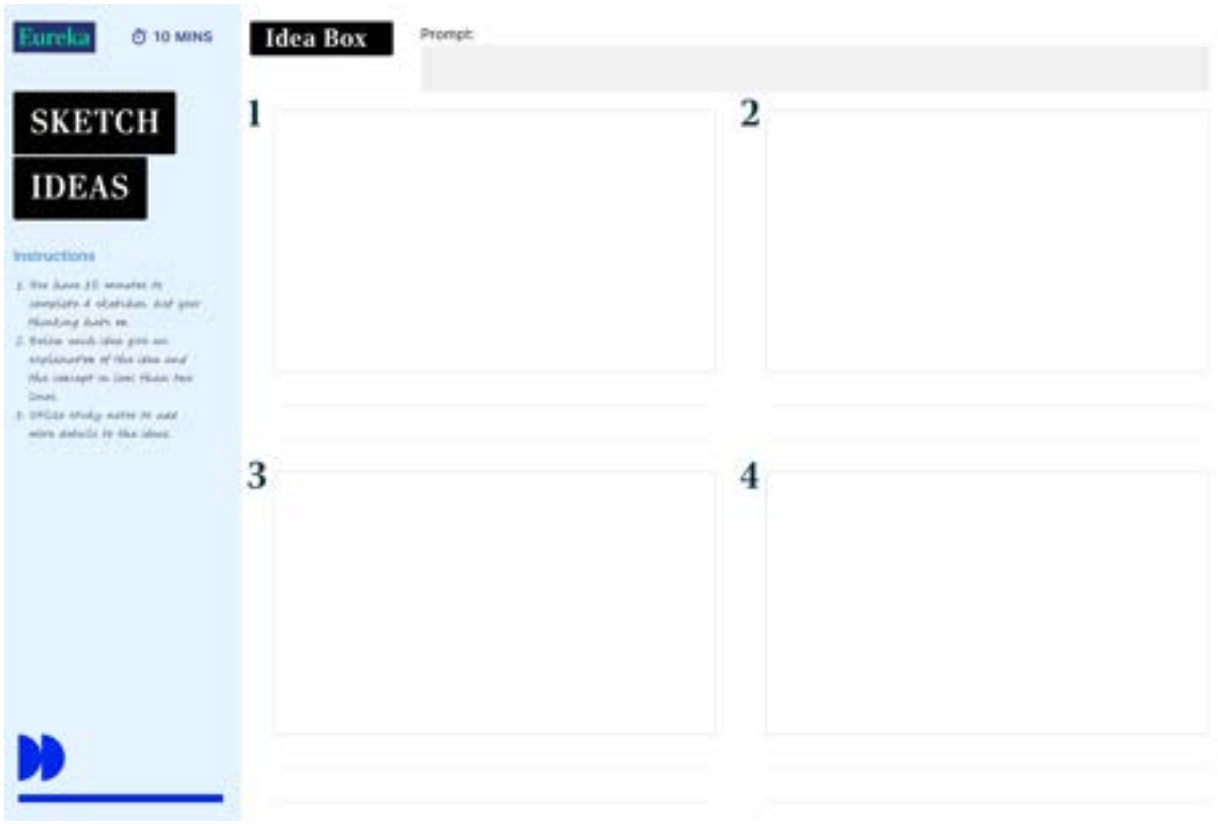

Figure 18. Idea Box

Outcome: The worksheet provides a structured yet open-ended environment that encourages student designers to ideate freely without constraints, promoting creativity and a deeper exploration of their concepts.

12.3 Curveball

This activity aims to challenge student designers and sharpen their idea-generation skills. It's designed to help students become more familiar with design patterns, curveballs, and constraints. The card deck is divided into three types, each aligned with different prompts. This activity encourages students to either expand on existing ideas or brainstorm completely new ones, depending on what the solution calls for. This method stimulates creativity and prepares them to think differently, making it a part of design learning. The three different card types are:

Figure 19. Curveball and Constraints

Constraint Cards: These cards would help you think differently with constraints in place. The main goal is to help you work around certain constraints and think differently.

Figure 20. Constraint Cards

Wild Cards: The wildcards serve as curveballs, making you expect the unexpected. Each card is curated to exercise your creative side and has an outcome.

Figure 21. Wildcards

Design Pattern Cards: These cards have a few design prompts that not only make students aware of what they could incorporate into their solution but also familiarize them with patterns in the future.

Figure 22. Design Pattern Card

Outcome: This activity boosts creative confidence by encouraging students to embrace ambiguity and navigate unexpected challenges. It also fosters group collaboration as students share and refine ideas, learning to value diverse perspectives and approaches in the design process. Ultimately, this activity equips them with the skills to innovate and adapt, enriching their overall design expertise.

12.4 Feasibility Matrix (Decision)

Some ideas and solutions generated in this exercise might not fully answer the "why" or may not be feasible. This group activity encourages students to merge their ideas into unique concepts they might not have considered before. It's important to note that this toolkit doesn't guarantee solutions for the prompts given in class; its main purpose is to stimulate creative thinking and idea-sharing among students.

Figure 23. Feasibility Matrix

Outcome: This exercise cultivates a creative mindset, encouraging students to explore the potential of combining diverse ideas. They learn to appreciate different perspectives and develop innovative solutions by working together. This collaborative environment enhances their problem-solving skills and prepares them to adapt and think creatively in real-world scenarios.

12.5 How Eureka Works?

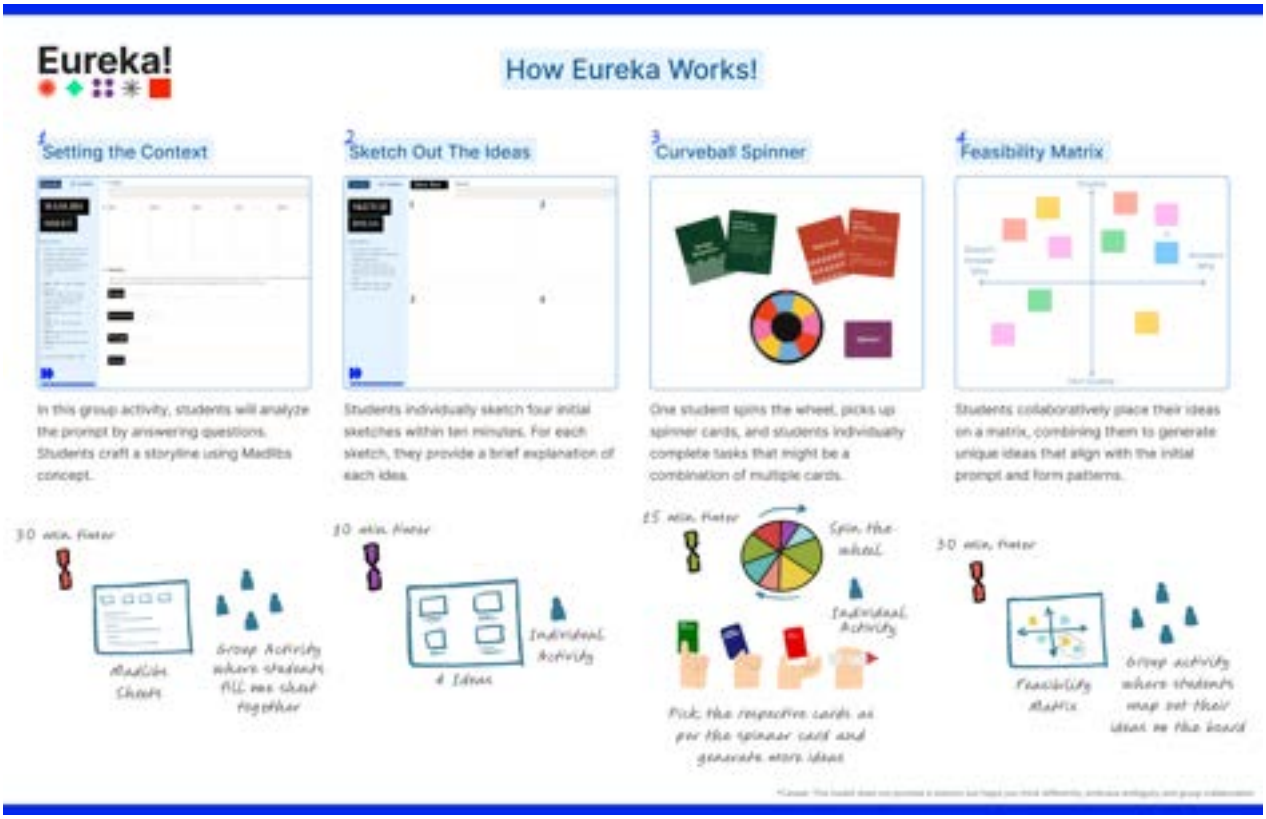

Figure 24. Game manual

1. Setting the Context:

Everyone gets together and fills out a Mad Libs sheet. This is where the group hammers out the backstory for their project. It's like warming up before a run, setting up everyone's brains for the creative sprint.

2. Sketching Solo:

Next, everyone goes solo for a bit, quickly drawing out four ideas. This part is fast and furious, only ten minutes to get those sketches down. Then, everyone shares what they've drawn, giving a snapshot of their thoughts.

3. Curveball Spinner:

A student gives the spinner a whirl and depending on where it lands, picks up cards that throw a curveball into the mix. It's a nudge to think differently, and embrace ambiguity. Students ideate further depending on the spinner card prompts.

4. Feasibility Matrix:

In the end, Students collaboratively place their ideas on a matrix, combining them to generate unique ideas that align with the initial prompt and form patterns.

13. Future Scope

Many students wanted to see this toolkit integrated into a digital platform like FigJam, which would make it more accessible and interactive when working remotely. Additionally, some of the prompts felt off-topic, making it harder for students to connect with the scope of their projects. Addressing these issues would help refine the toolkit's relevance in the context of school projects.

The Wins:

The toolkit was appreciated for its ability to encourage different ways of thinking with a focus on divergent thinking. Students liked the unique prompts that challenged their conventional problem-solving approaches. This positive feedback underscores the toolkit's potential to enhance creative learning experiences during the ideation process.

Future Explorations:

- **Expanding the Card Deck:** A broader range of cards will be introduced to provide various prompts and challenges.
- **Providing Outcomes and Examples:** Future versions of the card decks would include specific outcomes or examples to give students a clearer understanding of how to apply the concepts.
- **Storytelling Integration:** In the next version of the toolkit, the inclusion of incorporate storytelling cards to aid in narrative development.
- **Industry-Specific Toolkits:** I envision making a digital version of the toolkit tailored for professional settings. The main aim would be to help teams collaborate across boundaries through ice-breaker activities.

14. Reflection

Reflecting on my capstone project has been a great experience filled with learning for me as a designer. Throughout, I've focused on designing digital screens for mobiles and websites.

However, I wanted this project to push me out of my comfort zone as I ventured into creating a physical artifact to help student designers move away from design fixation. This space needed more research, and finding research papers and solutions proved challenging.

One major takeaway from this experience was stepping beyond what feels familiar and challenging myself with ambiguity. Although I was tempted to stick to digital design, challenging myself with something new proved incredibly rewarding. I faced several setbacks throughout the project, which initially felt like failures. Yet, with consistent support from my professors and instructors, I learned to see these moments as opportunities for growth rather than setbacks.

Another key lesson was learning to detach from my initial designs; I have always been attached to them, and it has been difficult to let go. While my first ideas may seem great, they might only sometimes resonate with others. Collaborating with my peers, gathering their feedback, and then constantly iterating based on their insights helped me refine my approach and embrace a more collaborative way of working.

This project also helped me overcome my imposter syndrome, which often made me doubt my capabilities, especially since I was used to working in a team environment. Working on this project independently forced me to enhance my self-reliance and accountability skills, pushing me to manage my time and exercise my project management skills more effectively.

In the future, I aim to rigorously incorporate diary studies to test my solutions with incoming students and develop a digital tool to enhance ideation sessions. I'm also considering developing two versions of my product—one for design students and another for professionals. This could foster better collaboration and exchange of ideas across different experience levels.

Through this capstone, I learned to embrace challenges, accept feedback constructively, and understand the value of resilience and adaptability in the creative process. This would help me progress in my design career. I thank the faculty and teaching instructors for their invaluable support throughout my capstone.

15. Acknowledgements

I would like to thank my Professors Michael Stalling, Kayce Reed-Buechlein, and Dr Colin Gray for their guidance and expertise, which were crucial to my capstone project. I am also grateful to the teaching team instructors, Fereshteh and Patrycja, for their encouragement and assistance throughout these two semesters. Additionally, I appreciate the first-year students of IU HCI/d for their willingness to engage with my project by volunteering for observational studies and contributing through interviews. Finally, I must acknowledge my peers for their continuous support throughout the duration of my capstone project. Their collaboration has been invaluable.

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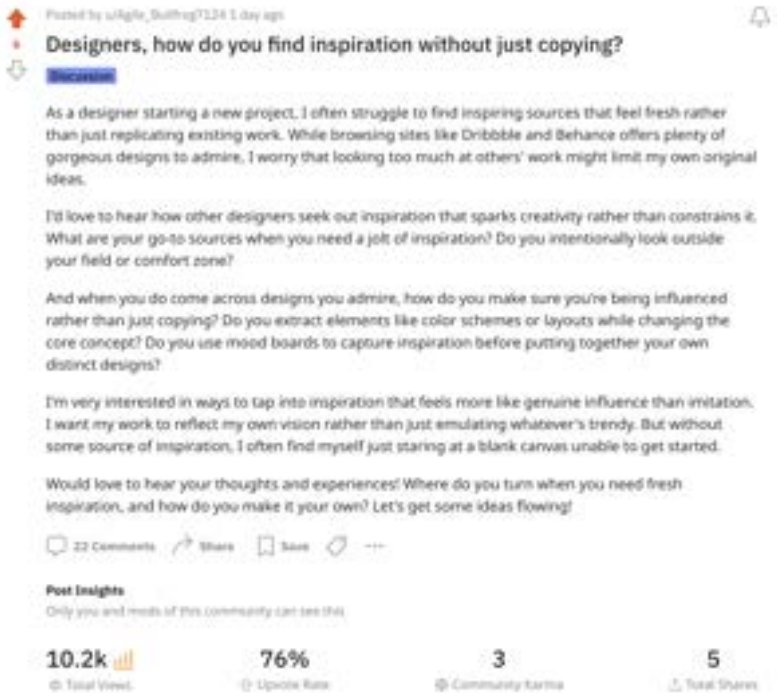
17. Appendix

Digital Ethnography

I was curious to understand what designers worldwide think about finding inspiration and copying. I posted a subreddit and got an overwhelming response that was extremely insightful and that I would be using further to strengthen my research.



Designers, how do you find inspiration without just copying?

Discussion

As a designer starting a new project, I often struggle to find inspiring sources that feel fresh rather than just replicating existing work. While browsing sites like Dribbble and Behance offers plenty of gorgeous designs to admire, I worry that looking too much at others' work might limit my own original ideas.

I'd love to hear how other designers seek out inspiration that sparks creativity rather than constrains it. What are your go-to sources when you need a jolt of inspiration? Do you intentionally look outside your field or comfort zone?

And when you do come across designs you admire, how do you make sure you're being influenced rather than just copying? Do you extract elements like color schemes or layouts while changing the core concept? Do you use mood boards to capture inspiration before putting together your own distinct designs?

I'm very interested in ways to tap into inspiration that feels more like genuine influence than imitation. I want my work to reflect my own vision rather than just emulating whatever's trendy. But without some source of inspiration, I often find myself just staring at a blank canvas unable to get started.

Would love to hear your thoughts and experiences! Where do you turn when you need fresh inspiration, and how do you make it your own? Let's get some ideas flowing!

22 Comments Share Save

Post Insights

Only you and mods of this community can see this

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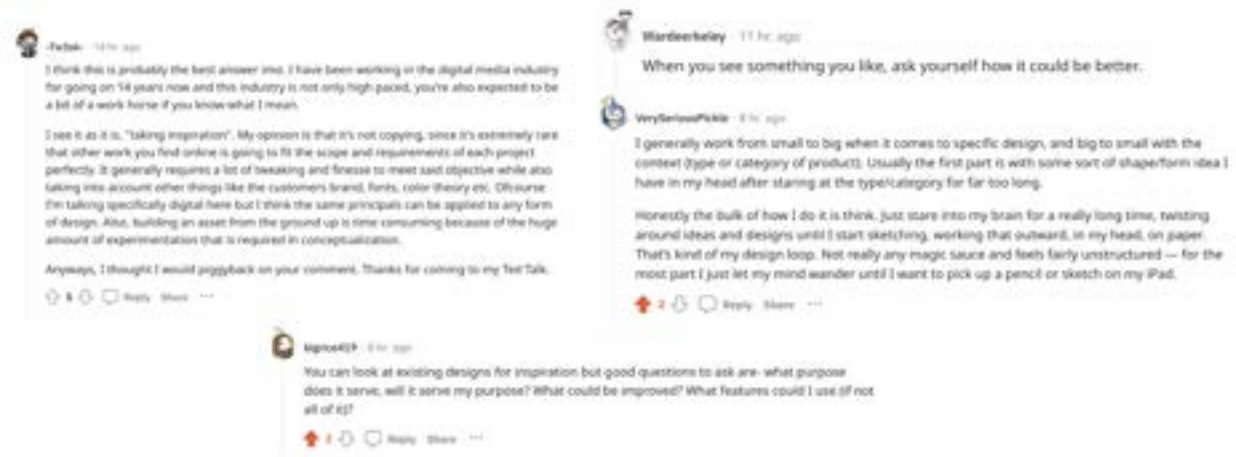


Interview Protocol

Project: Sparking Creativity in Student Designers Seeking Design Inspiration

Introduction Script
Hello, my name is Nikith. I am a graduate student at IU conducting research for my capstone project. Thank you for agreeing to participate in this interview.

I am exploring how student designers seek inspiration and spark creativity when working on design projects. My project aims to understand the challenges designers face in finding inspiration and develop strategies for helping designers creatively adapt examples into original concepts.

This interview should take 30-45 minutes. I will audio record it for transcription, but your responses will remain anonymous. You can skip any question you are not comfortable answering. Do you have any questions before we begin?

Warm-up

- What is your background in design?
- How much previous experience with design projects did you have before starting your program?

Day-to-Day Process

- Walk me through your typical process when working on a new design project. What are the very first steps you take?
- When in this process do you start seeking inspiration and examples?

- How do you find inspiration sources and examples to look at?
    - Probe on specific websites, physical spaces, journals, social media, etc.
    - How do you track/save examples you might want to reference later?
- What makes an example useful for inspiration versus not useful?
    - Probe characteristics like aesthetics, interactivity, precedents, problem spaces, etc.

Inspiration Sources

- When do you seek inspiration for a project? (Begining research before designing)
- What types of sources do you find most helpful to get inspired?
    - Probe on categories like websites (Behance, Pinterest), physical world, competitors, and academics
    - Ask for specific examples of helpful sources
- Are there any sources you need help finding for inspiration?
    - Probe on potential issues like being too polished, too niche, or discouraging
- Beyond the source itself, what makes a specific example inspirational for you?
- Do you use anything from precedent (The field you have worked in, your educational background, etc.)?

Challenges + Pain Points

- What challenges do you face in finding good inspirational examples and sources?
- Have you ever felt stuck or uninspired when starting a new project? What did you do to overcome that?
- Are there times you felt too influenced by examples, where it inhibited your creativity? Tell me more.
- What barriers do you encounter in translating inspiration into original concepts?

Physical Space

- How much does your physical workspace and environment impact your ability to find inspiration or get creative?
- Do you seek inspiration in the surrounding world/environment or mostly from digital sources?
- What qualities help make a space feel more inspirational and creative for your work?

Closing

- If you could advise other design students about finding inspiration effectively, what would it be?

- Is there anything else you'd like me to know about how you find and use inspiration?
- Do you have any questions for me?

Physical Space

How much does your physical workspace and environment impact your ability to find inspiration or get creative?
Do you seek inspiration in the surrounding world/environment or mostly from digital sources?
What qualities help make a space feel more inspirational and creative for your work?

Thank participants, reiterate confidentiality of responses, and provide contact info in case they have anything to add later.

Interview Details

Interview 1

Code: U1
Education: Masters in HCI/d Student
Age: 23 years
Experience: No prior design experience
Background: IT Engineering with a year of Front End Dev Work Experience

Summary:
The speaker in the meeting discussed their IT engineering background and interest in front-end development. The participant discussed their design process, including research, target audience identification, and user testing. The participant mentioned seeking inspiration from platforms like **Dribbble and Instagram**. **Creative blocks and the benefits of working in a team** were also mentioned. The participants **shared locations that inspired them, such as a fishbowl room and a library. Drawing down ideas was noted as helpfu**l in coming up with solutions. The participant emphasized pattern analysis in design.

Key Takeaways:

Insights:

- The participant is **new to design** and sometimes needs help finding inspiration.
- **Inspiration** for the participant is something that l**ooks cool and fancy.**
- **Sketching/drawing gets into the mindset** of thinking differently.
- When fatigued, the participant decides to **leave digital inspiration sources and return** with a fresh mindset.
- The participant relies on **Dribbble, the Figma community, and sometimes Instagram reels** to get the creative spark. Working in collaboration helps this participant think better, and loves getting ideas across the table by building stronger connections.
- Getting **opinions from mentors and peers would help the participant get better.**

Interview 2

Code: U2

Education: Masters in Professional Studies - Design Student

Age: 24 years

Experience: 1 year of Design Experience/ Front End Development

Background: Computer Science Engineering and 1 year as a product designer

Summary:

The speaker discusses their **background in design and experience as a product designer** in a startup. They emphasize the importance of designers in the development process and share

their design process, sources of inspiration, and preferred tools. They mention using platforms like Dribbble and Google for new design concepts and finding Medium articles more manageable and informative than UX forums. They discuss the influence of aesthetics in their designs and the importance of considering preferences. They value feedback and collaboration in a team setting and emphasize the importance of workspace environment and tools. They also mention sketching and drawing as part of their creative process and advise design students to be open to new perspectives.

Key Takeaways:

Insights:

- **Looks for inspiration on sites like Dribbble and Behance** to understand trends and best practices
- Starts the design process with **low-fidelity paper and pen sketching**
- When **stuck, explores completely different topics and perspectives to spur new ideas**

- Spends time studying existing products and designs to understand why things work in certain ways
- Reads **Medium articles to gain insights** on different design perspectives
- Checks competitor websites and apps to understand why a new solution is needed
- Searches for inspiration when starting a new project but refers back later when ideating specific features
- Appreciates **whiteboard sketching for idea generation and clustering**
- Tries **not to get attached to any one design idea** too early
- Values being able to document sketches and notes thoroughly
- **Takes breaks when hitting creative blocks**

Interview 3

Code: U3
Education: Masters in HCI/d
Age: 24 years
Experience: 1 year in the Marketing Industry
Background: Psychology and English literature

Summary:
The speaker has a **background in psychology and English literature** and 22 years of experience in marketing. They discuss their approach to starting a new design project, which includes understanding the problem, researching existing solutions, and drawing inspiration from various sources. They mention visiting a friend's website for visual inspiration and emphasize the importance of breaks and a refreshing mindset for finding inspiration. They advise design students to explore and analyze the work of famous and lesser-known individuals for inspiration, question design choices, sketching, and drawing as part of their creative process, and advise design students to be open to new perspectives.

Key Takeaways:

Insights:

- Researches existing solutions and products to understand the problem space and user needs
- Draws inspiration from solutions from existing applications.
- Approaches problems from various perspectives like design, interaction, practicality
- Eliminates less useful ideas to focus on the optimal solution
- Has an innate creative side that manifests in different forms of expression
- Reads articles and watches videos to learn how people experience products
- May utilize layouts or visual elements from sites they find inspiring
- Takes breaks like getting coffee when stuck on a problem for too long
- Has "eureka" moments of inspiration when not actively thinking about the problem
- Believes inspiration comes from exploring what others are doing not just copying
- Tries to understand the rationale behind existing design choices

Interview 4

Code: U4

Education: Masters in HCI/d - Design Student

Age: 26 years

Experience: 2 years of Design Experience

Background: Computer Science Engineering

Summary:

The speaker has a background in psychology and English literature and 22 years of experience in marketing. They discuss their approach to starting a new design project, which includes understanding the problem, researching existing solutions, and drawing inspiration from various sources. They mention visiting a friend's website for visual inspiration and emphasize the importance of breaks and a refreshing mindset for finding inspiration. They advise design students to explore and analyze the work of famous and lesser-known individuals for inspiration and to question design choices mention sketching and drawing as part of their creative process and advise design students to be open to new perspectives.

Key Takeaways:

Insights:

- Starts with **low-fidelity prototypes and iterates as problems emerge**

- Finds visual inspiration from other apps and websites during high-fidelity prototyping
- **Believes creativity comes from within, not by copying others' work**
- Looks **at a wide variety of inspirations, not just direct competitors**
- Studying physical and digital products to understand design decisions
- Reads books and checks sites like Dribbble for visual inspiration
- Takes **breaks and scribbles ideas when stuck on a problem**
- **Prefers working independently at first and then collaborating later**
- Appreciates **group brainstorming sessions for new perspectives**
- Gets **inspired by art, surroundings, random websites, and apps**
- **Keeps bookmarks of visually appealing sites** and fancy apps
- Uses tools like Notion, Apple Notes, and WhatsApp to capture ideas

Observation Protocol

Study Groups:
- 3 student designer teams of 3-4 people
- 3 individual designers

Design Prompt:
- Ask groups and individuals to concept a mobile app to discover local events and activities.

Observation Sessions:
- Schedule 60-90 minute sessions for each group and individual.
- Obtain permission and assure confidentiality.

Focus Areas:
- Ideation process
    - Methods used for inspiration-seeking include brainstorming, competitor analysis, etc.
    - When inspiration-seeking happens in the process.
    - Time spent on inspiration vs. other tasks.
- Sources
    - What sources do they turn to and find useful or not useful?
    - How do they record and discuss examples found?
- Group dynamics (for teams)
    - Is inspiration sought individually or together?
    - Do you need help finding common inspiration sources?

- Roadblocks
    - Are there points where they seem stuck or need to be more inspired?
    - How do they overcome these roadblocks?

Individuals:

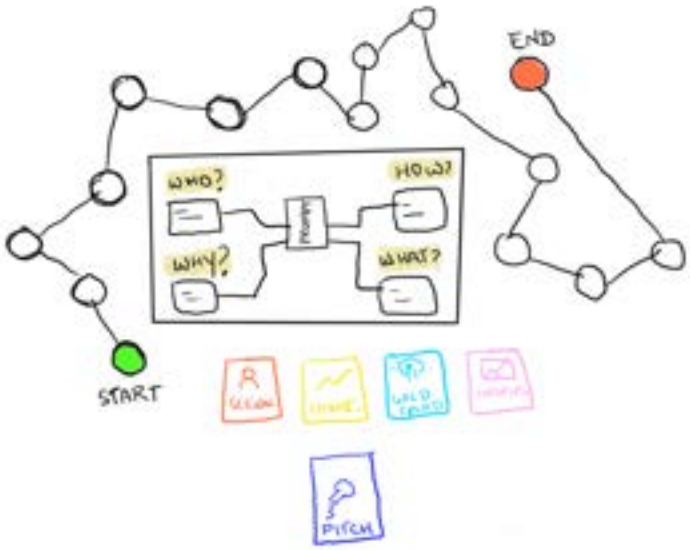
- What sources and idea-generation methods do individuals rely on?
- Do they have a more structured ideation process without group discussion?
- Do individuals get stuck or abandon sources quicker without group input?

Notes:
- Document insights, behaviors, and quotes related to the above focus areas.
- Note environmental factors like classroom layout, materials, etc.
- Sketch key idea boards and materials referenced.

Initial Ideas

Idea #1 The Game of Collaborative Thinking

Insight: Achieving Synergy in Collaborative Ideation and Fostering a Creative Mindset. The themes helped me develop my first idea and concept of the collaborative game.



The game is called "**Ideation Exploration Collaboration**" and involves different types of card prompts team members can pick from to guide the ideation and translation process. The topic or design challenge is introduced and placed in the center. The participants need to answer **Who? Why? How? What?** The participants must associate various words associated with the prompt

together and form a word cluster to spark themes and analogies, and start the stages by picking cards.

"**Scenario**" cards have different user personas, scenarios, or moments to ideate around.

"**Constraints**" cards - These impose limiting factors like no digital media, precedent, and only Pen paper/whiteboard.

"**Wildcard**" card - This has random prompts like metaphors, analogies, creative springboards, or speculation.

"**Inspiration Card**" - These cards would have an empty side to draw or annotate designs.

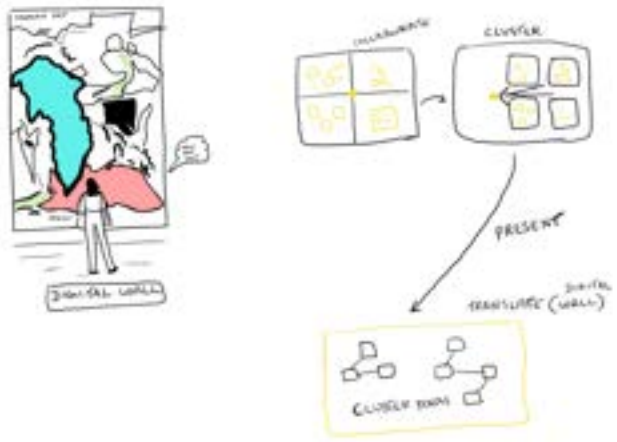
"**Pitch Card**" - Prepare a pitch to translate ideas at the end of the game.

Idea #2: The Room of Creativity

Insight: Student designers stated that they do need a break to rejuvenate and have a system to organize their ideas to develop a pattern to save their ideas and concepts.

It is a nascent **speculative concept** where a room is converted to a digital screen to express creativity. A digital table where students draw and associate patterns, annotate websites, and cluster terms based on searches. Once each participant draws and annotates from inspiration. The things drawn get shifted on the room's walls, where participants can cluster, discard, and build upon ideas.

- **Digital table** can be used to search resources on the web
- A device that can be placed on flat surfaces and captures drawings on tables and can be placed on boards to transfer ideas
- Auto generates a word map/vocabulary based on search
- **Write the text** as short descriptions to translate thoughts and ideas
- **Generate the concepts** on the digital board to solve a murder mystery maze and find correlations



Idea #3: The Rogue Deck of Cards

Iteration 1

The **Rogue Deck** contains **constraint and challenge cards** to **shake team dynamics and spur unconventional thinking**. This thinking may force team members to collaborate and translate their ideas effectively. After a 10-minute session, each participant has to **give an elevator pitch by annotating, drawing, or demonstrating their thoughts/ideas/inspirations.**

"The Contrarian" - What assumptions does your idea rely on? Reverse them and reimagine the concept. Forces new perspectives.

"Nemesis" - What would your idea's worst critic say? Pitch counterarguments. Develops critical thinking.

"Mad Scientist" - Combine your idea with something randomly different. What new possibilities emerge from the mashup? Sparks unconventional connections.

Fortune Teller - Act out how your idea will be used. What potential pitfalls or windfalls do you see? Visualizes scenarios.

"Interpreter" - Draw your idea without words or numbers. Can teammates guess what it is? Distills visual communication.

"Anti Technologist" - Avoid using digital artifacts and draw using only pen and paper.

"The Sage" - Advise how your idea can impart wisdom or meaning to society. Consider higher ideals and social impact.

"The Mentor" - Explain your idea to a child. What details can you omit? It focuses on clarity and simplicity.

"The Wordsmith" - Generate clusters beyond the prompt to draw narratives and strong relationships. Move beyond literal descriptions.

Iteration 2

After reviewing the cards, I felt like I missed out on an important insight of team members shooting down ideas, and these cards gave this authority. I came up with another iteration to change this.

Alternative Perspectives - Consider your idea from other viewpoints. How might it look different? Broadens thinking.

Constructive Critique - What potential issues could arise with your idea? Address constructive criticism. Sharpens ideas.

Creative Mashup - Combine your idea randomly with something different. What innovative possibilities emerge? Sparks imagination.

Future Visioning - Act out potential uses of your idea. What opportunities or challenges do you see? Envisions impact.

Visual Metaphor - Draw your idea symbolically, without words. Can your peers interpret the meaning? Communicates creatively.

Unplugged Brainstorm - Sketch your idea with simple tools like pen and paper. Removes technology constraints.

Wider Relevance - How might your idea positively affect society? Consider larger significance. Inspires purpose.

Simple Explanation - Explain your idea clearly and simply. What details can you omit? Distills message.

Rich Narrative - Build out the story and context around your idea. Draw connections and descriptions. Brings ideas to life.

Future Speculation - Think ahead 5-10 years. How might your idea evolve or be used in the future? Consider long-term possibilities and implications. Visualizes future potential.

Observation Studies

I observed three teams of 3-4 students, comprised of both experienced designers and student designers, work on the *"Live Activity Notification System"* design challenge. Each session lasted 60-90 minutes. I aimed to observe group dynamics, ideation processes, inspiration sources, and roadblocks.

Team 1:
Topic: F1 Live Notification
Team Dynamics: 3 Males who have prior design experience

Ideation Process:

- The team spent meaningful time upfront analyzing the design prompt as a group, ensuring they had a shared understanding.
- Team members independently researched existing notification designs through Apple guidelines, Google searches, Reddit, and mobile apps. This helped build foundational knowledge.
- The bulk of ideation occurred on whiteboards rather than computers. The moderator facilitated drawing sessions where members built on each other's ideas.
- Periodically, members returned to digital sources like Dribbble and Google Images for visual inspiration and incorporated it into the whiteboard concepts.
- Team members drew from their expertise, recalling how notifications work on their phones to inspire ideas.

Group Dynamics:

- A designated member served as moderator to guide each phase of the process - research, ideation, and visual design. This kept the team focused.
- The moderator ensured balanced participation by soliciting input from all members during ideation.
- Team members displayed camaraderie by constructively building on each other's ideas and complimenting promising concepts.
- No major disagreements occurred. The moderator role helped align the team.

Key Takeaways:

- Consider designating a moderator role on teams to streamline collaboration and ensure participation.
- Dedicate time upfront to thoroughly analyze the design prompt before ideating.
- Allow for independent research to build foundational knowledge, then converge for collaborative whiteboard ideation sessions.
- Draw inspiration from both competitor analyses and non-competitor sources to spark creativity.

Team 2:

Topic: Betting Live Notification

Team Dynamics: 1 Male and Female designer with no prior design experience

Ideation Process:

- The team relied heavily on visual inspiration by searching Google Images and Figma community files using terms like "notification" and "floating notification."
- One member observed their mobile apps to understand how notifications functioned but kept these insights private from their teammate.
- Since the team focused their limited time on inspiration-seeking, there needed to be more time left for collaborative ideation or creating concepts.

- In the end, the team only produced basic notes and a few notification interface screenshots but no synthesized concepts.

Group Dynamics:

- One team member assessed each person's strengths and delegated research tasks accordingly. However, communication needed to be improved to align findings.
- The team sought inspiration online before discussing their vision or user needs. This led to frustration when examples did not surface.
- There was no moderator to facilitate discussion, so the team did not effectively build off each other's perspectives. Each worked independently.

Key Takeaways:

- Discuss the design vision and user needs before searching for visual inspiration. This provides helpful context.
- Maintain open communication and share research findings to improve synergy.
- Set time limits for inspiration seeking and reserve adequate time for collaborative sketching and ideation.
- Designate a moderator to facilitate discussion and promote participation.
- Leverage individual strengths but reconvene frequently as a team to align efforts.

Team 3:

Topic: Waze Notifications

Team Dynamics: 2 Males and 1 Female designer with prior design experience

Group Dynamics:

- A moderator guided the process by actively sketching concepts on a whiteboard while teammates researched articles and visual inspirations.
- The moderator solicited constant feedback on their sketches, leading to building up and improvising ideas.
- Teammates openly contributed insights from their research and inspiration searching to inform the concepts.
- Collaboration was effective, given the moderator's visual ideation role and teammates' research.

Ideation Process:

- Competitor analysis was a key part of their process, with the team studying Apple Maps and Google Maps features.
- The moderator drove ideation through continual whiteboard sketching rather than relying on digital inspiration searches.

- Teammates researched articles and visual inspiration sources like Dribbble to spur creative concepts.
- The group developed various ideas by combining the moderator's sketches with teammates' inspirational findings.
- They did not check their mobile notifications as inspiration, relying more on collaborative sketching.

Key Takeaways:

- Consider designating a **visual ideation moderator role** while other members provide research insights.
- **Balance inspiration-seeking with open-ended collaborative sketching sessions.**
- Build in **competitor analysis to better understand how others have solved similar problems.**
- Maintain **open communication and feedback loops to build up and evolve concepts**.

Eureka Card Game [Last Semester Final Concept]

Eureka is more than just a game; it's a thoughtfully constructed educational tool designed to spark creativity among student designers. This card game can be used as an icebreaker and for in-class projects. The main aim is to consider design students' unique challenges and needs and break traditional learning methods' monotony. It introduces an interactive and engaging approach to stimulating creative thinking and problem-solving skills.

The game's essence lies in its ability to blend fun with learning. By turning the ideation process into a playful experience, Eureka encourages students to step outside their comfort zones and explore new avenues of creativity. This approach makes learning more enjoyable and effective, as it aligns with the experiential learning theory, which posits that students learn best through experience and reflection.

Eureka!

In Academic and Project Settings,

Eureka finds its prime usage in brainstorming activities, particularly in educational settings like design schools and universities. During projects, instructors can seamlessly integrate Eureka into brainstorming sessions, leveraging it as a dynamic tool to stimulate creativity and diverse student thinking. This approach is particularly effective in helping students to conceptualize and develop innovative ideas at the early stages of their projects. Moreover, it serves as a valuable method to teach and reinforce creative problem-solving techniques, aiding students in navigating the challenges of design projects with more agility and inventiveness. Furthermore, instructors can employ Eureka as a regular part of their teaching methodology. Its use in classrooms goes beyond just an icebreaker; it catalyzes students' understanding of design principles and encourages a more interactive and collaborative learning environment. By integrating the game into their curriculum, instructors can create a more engaging and stimulating learning experience that resonates with the dynamic nature of design education.

In Informal Settings

Beyond the academic sphere, Eureka also offers great value in informal settings. It can serve as a creative kickoff for team meetings or brainstorming sessions. The game's structure, which prompts unconventional thinking and idea generation, is ideal for initiating projects or tackling creative blocks in ongoing work. This enhances the creative output and fosters a culture of open-mindedness and collaboration within the team. Similarly, individuals seeking to enhance their creative skills can use Eureka as a fun and engaging way to challenge themselves alone or in group settings.

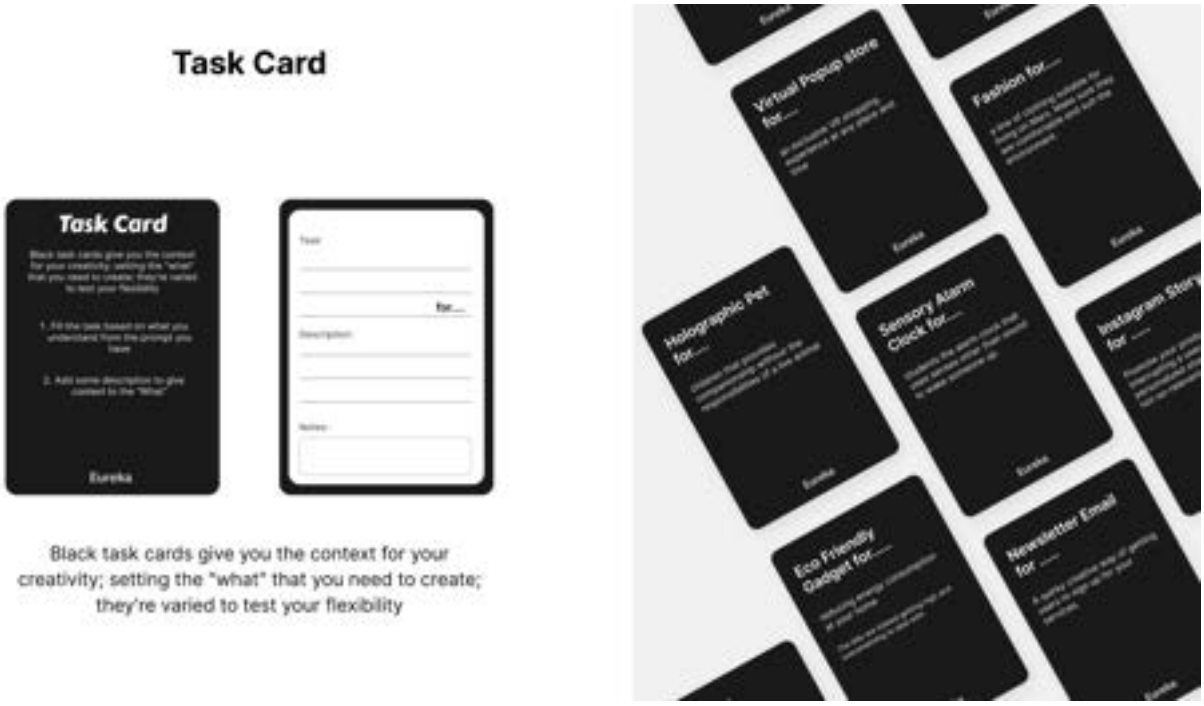
How does the game work?

The game consists of different card types, each serving a unique purpose. Black Task Cards present design challenges, White Client Cards offer scenarios with specific client needs, and Rogue Cards introduce unexpected twists. The game can be played individually or in groups, making it adaptable to various settings. Group play encourages collaborative thinking and collective brainstorming, while individual play allows for deeper personal reflection and idea generation. This flexibility makes Eureka an inclusive tool that caters to different learning styles and group dynamics.

1. A black task card is picked up or customized depending on the activity (icebreaker or project).
2. A white client card is picked up or customized depending on the activity (icebreaker or project).
3. Get the creativity flowing by drawing, sketching, or planning on the design task.
4. After 20 minutes, a rogue card should be picked up, serving as a curveball.

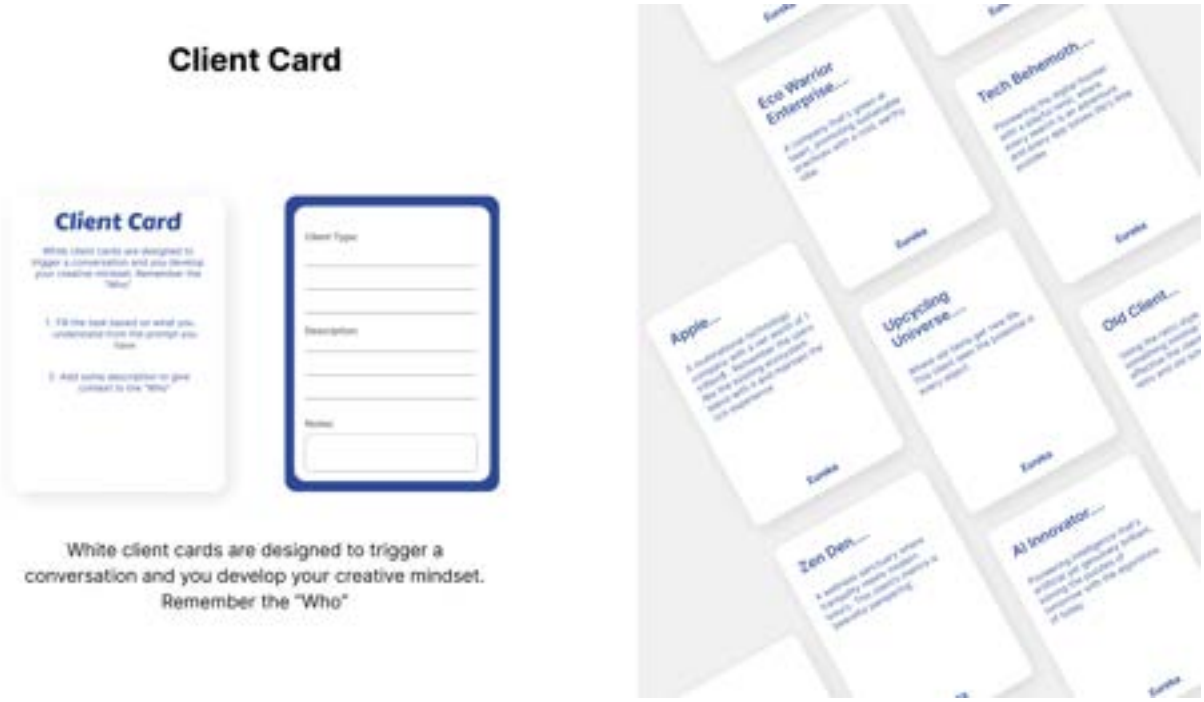
A deeper look into the black, white, and red rogue deck of cards

Black Task Cards: These cards provide the creative challenge - the "what" needs to be conceived and designed. The prompts span diverse contexts, pushing student designers to flex their skills across different areas.



Task Cards

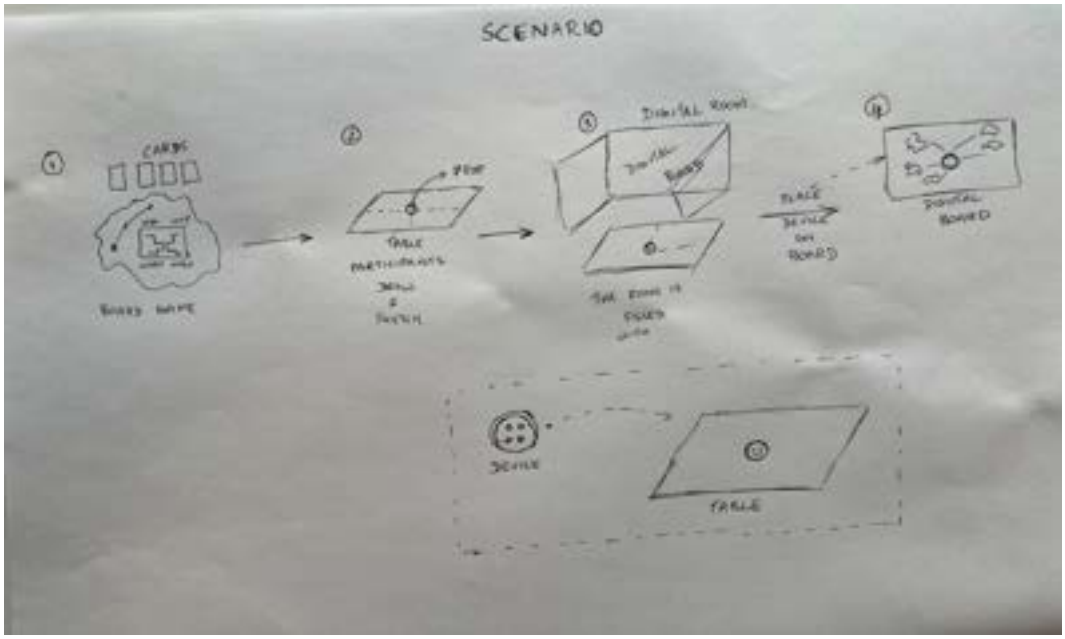
White Client Cards: These cards represent the target audience, making student designers consider the "who" for their designs. The profiles and quotes are meant to spark deeper perspective-taking as they empathize with user needs.



Client Cards

Scenario Envisioned

After coming up with the ideas, I decided to include three and create a scenario. I foresee this solution, but it's still in a nascent stage.



Scenario of Game

1) The game is played on the table or any surface. The game consists of different cards and is explained in detail under idea #1
2) A table is chosen to ideate and collaborate with a portable circular device. Once the device is placed, participants double-tap it and can start drawing on the table, with each drawing recorded.
3) Once the drawing and ideas are done and color-coded based on quadrants, the member takes this device on the digital boards in this creativity room.
4) The drawings and scenarios get transferred to the board, where students can combine trends and draw conclusions to save their ideas and easily remember them.

Design Challenge For Usability Testing

As global interest in travel and tourism continues to rise, tourist attractions face the critical challenge of providing high-quality, enjoyable experiences while accommodating large numbers of visitors efficiently. The design of these attractions must prioritize comfort, ease of use, and time management to meet tourists' evolving expectations.

Key issues to address include:
Comfort: How can tourist attractions be designed to ensure physical comfort for all visitors, including ample seating, shelter from weather elements, and easy navigation?
Time Efficiency: What strategies can be implemented to minimize wait times and streamline the visitor experience, allowing tourists to enjoy more attractions in less time?
Accessibility: How can designs accommodate diverse visitor needs, including those with mobility issues, families with small children, and the elderly, to ensure a barrier-free experience?
Engagement: How can attractions keep visitors of all ages and backgrounds engaged and entertained throughout their visit?
Crowd Management: What innovative layouts and technologies can be used to manage the flow of visitors more effectively, reducing bottlenecks and enhancing the overall experience?
Feasibility: What practical, cost-effective solutions can be employed in designing and operating tourist attractions to ensure long-term operational success?

The objective is to develop design strategies that enhance the functionality and enjoyment of tourist attractions, making them more appealing and comfortable for visitors while ensuring that the attractions can be feasibly maintained and operated.