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# The Creativity Kernel: An Open Platform for Distributed Design Intelligence

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**Abstract**

Online crowdsourcing systems present new opportunities for open and participatory design by enabling distributed and collaborative thinking. The Creativity Kernel is a web-based, open platform that allows designers to crowd-source needfinding, identify opportunities, and collaboratively generate and evaluate ideas around a given topic amongst a range of stakeholders. The members of the Creativity Kernel network—individuals, teams or organizations—can create new projects or contribute to existing ones. The Creativity Kernel guides the users through a sequence of three method modules—Likes and Wishes, Opportunity Synthesis and Cheatstorming—consisting of quick and intuitive interactive challenges. The collective output of these three modules is a set of collaboratively generated ideas that can be used to address problems large and small. At the DIS 2019 conference, we hope to demonstrate our system to actively engage attendees in collaborative ideation on topics related to the conference theme of intersections and borders.

**Author Keywords**

Design Methods; Crowdsourcing

**CCS Concepts**

•Human-centered computing → Human computer interaction (HCI);

## The Creativity Kernel

Online crowdsourcing systems have the ability to create new kinds of distributed and collaborative thinking. They present new opportunities for open and participatory design that facilitate combinational creativity, online discourse and collective decision making [4, 2, 3]. In this spirit, the Creativity Kernel (<http://www.creativitykernel.org>) is a web-based open design platform which can be accessed over the internet using any web browser on a computer, tablet, or a mobile phone. This platform provides tools that allow designers to crowdsource needfinding, identify opportunities, and collaboratively generate and evaluate ideas among a range of stakeholders on a given topic. The goal of this system is to experiment with how people think together and establish new cultural norms for an open design culture. By providing open access to distributed thinking, the Creativity Kernel facilitates collective action around small or large scale social issues where public opinions may differ and/or creative solutions are required to overcome social logjams (e.g. what to do about climate change, policy design, management decisions, etc.).

Users of the Creativity Kernel work together on projects that share an alignment of their personal interests. Based on their interests, members of the Creativity Kernel network can create new projects or contribute to existing ones. The output of each project is a set of collaboratively generated ideas that can be used to address problems large and small. The opportunities identified and the ideas generated by the Creativity Kernel can be used by individuals, teams, and organizations looking for solutions to problems. This allows them to direct their resources to areas of greatest need expressed by the communities they originate from.

The current version of the Creativity Kernel addresses two phases of the design process: Needfinding and Ideation. It

allows participants to identify things that matter, and generate lots of possible ideas to address them. The Needfinding phase requires participants to perform two key activities: Expressing their likes and wishes about the topic of the project and synthesizing them to generate opportunities to work on. The Ideation phase enables participants to generate and develop ideas into concepts. Participants ideate on projects of interest with contextual creative support from the system. The Creativity Kernel guides the users through these design phases using a sequence of “**method modules**”—quick and intuitive interactive challenges that are part of a larger design process. Below we detail the three design method modules and user interactions using screenshots of the web interface.

### Likes and Wishes Module

This module allows participants of a project to post their likes and wishes about the topic of the project. For example, if the project topic is “Public School System”, this module requires them to answer the question “What do you like and wish about public school system?”. The interface provides a text field, which is designed using the post-its metaphor where the participants can type statements starting with either “I wish” or “I like” on virtual post-it note and submit (Figure 1). “I like” and “I wish” statements generated by each individual participant of the project are presented for synthesizing in the next module.

### Opportunity Synthesis Module

This module allows participants to synthesize likes and wishes by grouping them into categories. The generated “I like” and “I wish” statements are displayed as colored digital post-it notes that can be dragged and dropped to create groups (see Figure 2). Once a group is formed, participants can give the opportunity area a title that summarizes the opportunity represented in the cluster. These state-

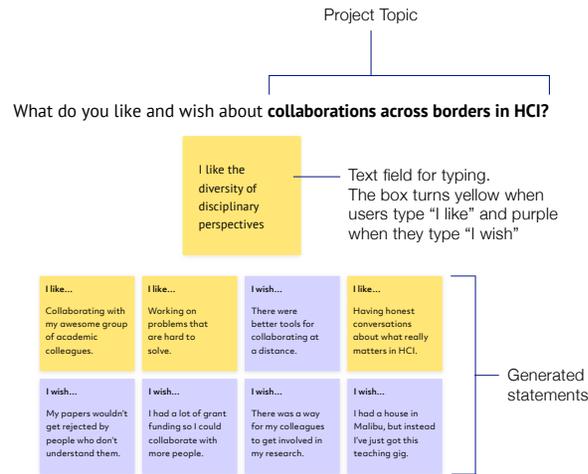


Figure 1: Interaction elements of the Likes and Wishes Module.

ments begin with the phrase “There is an opportunity to...”, allowing participants to create an actionable problem statement that can be used as a prompt for ideation in the next module.

### Cheatstorm Module

Once project opportunities have been created, participants can provide ideas for that prompt through a process called Cheatstorming [1]. Cheatstorming is a derivative of brainstorming, whereby participants use ideation inputs that may or may not be directly related to their project prompt for inspiration. These ideation inputs are randomly pulled from a pre-populated idea pool and visualized as a choice between three ideas for the user to build on (see Figure 3). For example, if the prompt asks “How might we help students self-organize to solve their own problems?,” the sys-

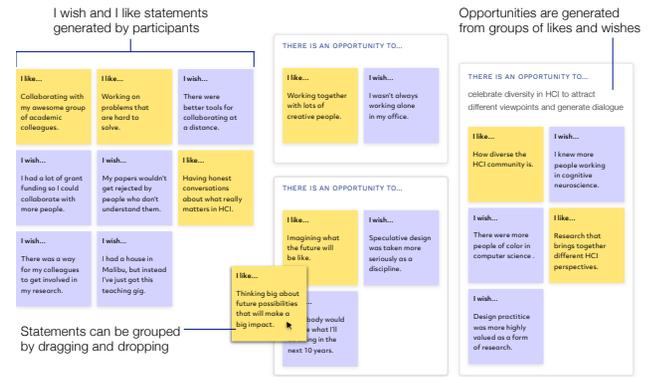


Figure 2: User interaction elements of the Opportunities Module.

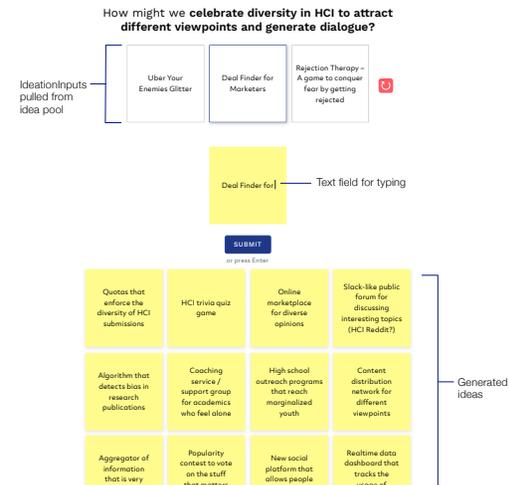


Figure 3: Interaction elements of the Cheatstorming Module.



**Figure 4:** Creativity Kernel web interface on an iPad

tem may provide inputs such as “Farmer’s Market” or “Enron for bath salts.” This nudges participants to build on the system-provided ideation inputs to create new ideas in response to the ideation prompt. In this example, an input like “Farmer’s Market” can lead to ideas such as “Weekly meeting to exchange ideas and know-how.” The interface allows participants to refresh the ideation inputs by clicking a button, or to ignore these inputs and add original ideas if they prefer. Participants can type ideas in a text field, similar to a post-it note, and submit. Every time an idea is submitted, it is added to the idea pool where it may serve as an ideation input for future cheatstorms by other users. Ultimately, the ideas generated in response to each prompt will be available to users of the Creativity Kernel web interface. Anyone who is willing to act on the identified opportunity areas can build on these generated ideas.

### Demonstration

During the DIS 2019 conference, we will demonstrate our system to actively engage attendees in ideation around topics related to the conference theme (i.e. “collaboration across borders and intersections in HCI”). The system will run during the entire conference and participants can access it via mobile phones, tablets, or personal computers. During the demo session, iPads will be used to allow participants to interact with the system (Figure 4). The participants can contribute to pre-created projects related to the DIS 2019 theme and/or create new projects on the topics of their interests and invite other DIS attendees to join, both individually and as groups. The created projects, identified opportunities and generated ideas will remain openly accessible after the conference.

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