Eclectic Methods for Designing Self-Service Systems

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Abstract
This workshop proposal describes methods for envisioning and evaluating self-service concepts. These methods make use of techniques from ideation, games, theater and traditional user experience (UX) methods.

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ACM Classification Keywords
Elicitation methods; performing arts; consumer products.

General Terms
Design; human factors; theory.

Introduction
How does a team envision new ways to provide people with self-service systems? In my role as a User Experience Architect and Adjunct Lecturer teaching prototyping and interaction design, I am often asked what methods can be used for creating visions of future systems. This workshop proposal highlights some of the methods that I’ve taught and used over the last two decades.
Envisioning Future Self-Service System
Self-service systems can range from simple dispensing devices to multi-person maker ecosystems where someone can custom design a product, have it created using 3D printers, and then have it arrive at a destination using a system that rates let a user choose the best delivery service. Methods for generating ideas for designing or improving self-service systems can range from classic group brainstorming [1], metaphor brainstorming [2], and the use of a “magic thing” [3] through various participatory design methods like future workshops [4], backcasting [5], role playing, theater techniques, and misuse scenarios [6]. This workshop proposal will describe a range of methods that can support innovation, both incremental and radical [7], in the design of self-service systems.

Brainstorming and Variations
Group brainstorming is perhaps the best known ideation method, having first been applied in the 1940s and 50s by Adam Osbome [8]. Group brainstorming is often touted as an “easy” method for generating novel ideas for creating and improving systems, but it is fraught with problems including poorly trained facilitators, too much or too little diversity, production blocking, and evaluation apprehension [1]. Let’s look at several other approaches that can complement group brainstorming for coming up with ideas for innovative self-service systems.

Metaphor Brainstorming
Metaphor brainstorming [2] is a powerful technique that involves:

1. Generating metaphors around the basic question “What metaphors might give us ideas about how to improve self-service systems?” Those metaphors might include: facial recognition, security, crowdsourcing, questionnaire, video communication, RFID Tags, affinity badges, preferences, status, 3D Printers, customers, doctors, diagnostics, distance learning, banking, communication, mood, delivery, friendship, trust, licenses....

2. Deconstructing promising metaphors into objects, attributes, and interactions.

3. Examining the list from your metaphor deconstruction for items that evoke novel ideas for requirements. For example, trust might be deconstructed into items like: expertise, credibility, reliability, fairness, integrity, feedback, consistency, loyalty.

4. Considering features/requirements that support these attributes of “trust” and apply those to your self-serve system.

Braindrawing
Braindrawing [2] is a type of visual brainstorming where individuals are asked to draw ideas (e.g., for new types of self-service) and then pass those ideas onto another person who then adds or modifies the ideas, and then passes those ideas on. A variation on braindrawing is the gallery method where people work in two-person teams on ideas for a particular self-service system and at a designated time, walk around, examine other ideas, and then “steal” ideas from others to add to their design. I did this exercise with a group of students about 13 years ago. They were asked to design a better way to order pizza on the web. Some
of the ideas for better self-service takeout from 2001 are now common on pizza delivery web sites.

Theater Methods
The HCI literature is replete with methods that employ various theater techniques including props, improvisation, skits, role paying, and dialog between performers (or user interface elements that talk).

The Magic Thing
Sometimes simple props can support imagination and innovation. The “magic thing” [3] is a “small” method where a group of participants are asked to use something that resembles a magic wand and walk around an area using that wand to support creative thinking. For example, at a conference in Las Vegas, I asked people to walk around the casino complex with a wand in hand and come up with new ideas for mobile apps. One example of the output from this session was an application that would provide prices for various pieces of art on the walls and allow a person to get information on the art, buy the art, and have it delivered to a particular location. Another colleague described how he would like a smart restaurant menu system that had reviews of the menu items and a way to choose a table and have the meals ready when he arrived.

Bodystorming
Bodystorming is physical brainstorming where you role play with physical props. This simple technique was used by my students to conjure ways to improve supermarket self-service checkout using a smart shopping cart. We used a chair as the “smart cart” and small boxes to represent different types of food. They role played purchasing items with the “smart cart” and considered some of the problems and promises of a cart that tracked what you bought. Many ideas emerged from this physical interaction with a simulated smart shopping cart.

Focus Troupes
Focus troupes combine theater with focus groups. A small group of actors (sometimes professionals) are asked to act out various scenarios related to a particular self-service concept. At various points, members of the team observing the actors request a “pause” while they ask questions. A similar concept, “interface theater” might ask team members to actually play the roles of interface elements (menus, screens, dialogs, feedback mechanisms) and “answer” questions about how the interface components would work in different scenarios.

Scenarios
The exploration of self-service technologies requires different types of scenarios that include: typical scenarios, misuse scenarios, confusion scenarios, extreme scenarios, and timeline scenarios. Sometimes we focus too narrowly on typical scenarios forgetting that self-service systems are subject to misuse and in some cases, extreme usage. As part of our workshop, we might consider a range of scenario types.

Design Workshops
Design workshops are often used to jumpstart the design of self-service systems. I recently attended a “service design jam” where about 16 interaction designers brainstormed ideas for new services (e.g., a disaster relief hub with physical habitation modules and dancing instruction and meet-ups in public places). This workshop used a mashup of methods that included:
brainstorming, braindrawing, role-playing, paper prototyping, requirements prioritization methods, speed dating interviews [9], and 3D prototypes made of tape, paper, and cardboard. The goal of design workshops is generally to have a prototype and service story to present for feedback at the end of a 1 to 4 day session. In my work, I've used different types of design workshops including future workshops [4] and backcasting workshops [5] which I will describe briefly.

Future Workshops
The future workshop is a way to involve all stakeholders in public projects [10]. Here, “stakeholder” means anyone who is affected by a future product, project, or service. There are 4 general phases in future workshops:

1. Preparatory
2. Critique
3. Fantasy
4. Implementation

The basic procedure for a future workshop is to:

- Identify a common problem with a service (or lack of a service).
- Create future visions that are possible using methods like brainstorming, braindrawing, role playing, and storyboards.
- Discuss the pros and cons of possible future visions. A method like claims analysis [11], where the pros and cons for each group of stakeholders (not just users) is explicitly considered, can be a powerful tool for examining the effects of a service.
- Develop an implementation strategy based on the future visions, obstacles, and constraints.

A wide variety of methods can be used in a future workshop.

Backcasting
Backcasting [5] is a strategic planning method that can be applied to self-service systems. In backcasting, you generate a series of ideal future scenarios for a project, product, or service. Then you use a variety of ideation and design methods to work backwards from that ideal state, repeatedly asking the question “What assumptions and actions must we take to get to the ideal state?”

Summary
I've described a sample of the methods, both tactical and strategic, that can be used to support incremental or radical innovation for self-service systems. I would like to share my methods research with the workshop team and support
“...more focused and systematic interaction design explorations into self-service technologies.”

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