The Three R's of Problem Identification
Thinking Creatively

So many problems to solve and improvements to make. How do you decide which one to tackle?
In *The 3R's of Problem Identification,* revisit and refine your broad list of problems, needs, and improvement ideas (started in Session 1, *Jump Into Design*) to identify one design opportunity as your project. Use a variety of observation and data collection strategies to consider what exactly needs fixing, developing, or improving.

In the first activity, *7A: Revisit*, revisit your list of design opportunities started earlier in Session 2, *The Designed World*. Here, you'll develop the criteria for choosing a problem to pursue. In *7B: Research and Refine*, make changes to your list of problems and then conduct market research by gathering information about the nature of the problem. You will probably go off site to conduct a survey and collect data about the user, the user's preferences, and the realities of the user's life, environment, and behaviors. The SCAMPER brainstorm technique is used in *7C: SCAMPER to Solutions* to help you begin to think about the solutions for your design opportunity. By the end of this session, you should have one project in mind and about five possible solutions.

Revisit

Handout: Session 7, Activity A

You will now begin to think about what design project you will work on and use the design process to plan your own design. This exercise will help you sort through and prioritize your list of problems and improvements. Remember the first step of the design process:

> Identify a design opportunity: Opportunities are everywhere and often come from a need, problem, or improvement to an existing solution.

Add to your list. What problems would you like to solve or what improvements would you like to make on a current product? Write down everything that comes to mind. No editing; you can do that later. Have fun dreaming! Feel free to use the Activity Mapping as part of your brainstorming process. Do this in your design notebook.

Activity Mapping
1) Pre-activity: Describes what is done before the activity
↓
2) Activity: Explains what is involved in the activity
↓
3) Post-activity: Includes what is involved after the activity
↓
4) Assessment: Involves how one knows if the activity has been successful

After reviewing the list with your partner, now prioritize the list and select your top three based on your discussion with your partner and your interest in pursuing this problem. Next to each, explain why you chose that one.

Where could you gather data about other people's uses and impressions of the problems and improvements that you identified?

Research and Refine

Handout: Session 7, Activity B

You will now have a chance to do some market research on the three design challenges.

Choose a Method

Observing
This method involves observing and recording behavior within its context, without interfering with people's activities. Just watch people and record what you see.

Shadowing
Tag along with people to observe and understand their day-to-day routines, interactions, and contexts. Be sure to take notes and bring along a camera (if available) to take photos.

Narration
This method involves asking participants to describe aloud what they are thinking while they perform a process or execute a specific task.

Interviewing and Asking the Five Whys
Talk to people about the design problems. Be sure to prepare questions in advance. Use Five Whys method, which asks "Why?" questions in response to five consecutive answers.

Surveying
Survey a variety of people to learn more about their design opportunity. Be sure to have survey questions prepared in advance and decide how you are going to conduct the survey (by asking people the questions or by having them fill out a survey form). Survey at least 10 people.

Prepare

1. Prepare your opening script for introducing who you are and what you are doing.

2. Develop an observation, shadowing, or narration plan. Prepare questions for interviewing and surveying. Remember, you probably do not want too many questions. In a survey; you are looking for short answers.

3. Come up with a list of things that you will be looking for as you watch people interact with the products.

4. Practice with a friend.

Remember

- Approach people with courtesy.
- Identify yourself and your intent.
- Describe how the information will be used and why it's valuable.
- Get permission to use the information and any photos that you take.

7B Handout: Research and Refine (continued)

- Keep all information anonymous and confidential.
- Let people know that they can choose not to answer questions or stop participating at any time.
- Keep your opinions to yourself.
- Maintain a relaxed and nonjudgmental atmosphere.

Review the Results

5. Using your results, write the pros and cons next to each item.

6. Select one design opportunity that seems most compelling.

Develop a Problem Statement

7. Write a clear problem statement. This is intended for someone who knows nothing about this problem. The problem statement should:

- Begin with a clear, concise, well-supported statement of the problem to be overcome.
- Include data collected during the survey/observation in order to better illustrate the problem.
- Establish the importance and significance of this problem.
- Describe the target population.

SCAMPER To Solutions

Handout: Session 7, Activity C

You will now begin to think of the solution for your design. In doing so, it is important to consider the outcome of the design—what do you want the product to do? Use SCAMPER to come up with some solutions. You do not have to use all the steps of SCAMPER.

Substitute (What else can be used instead? Other ingredients? Other materials?)
Combine (Combine other materials, things, or functions.)
Adapt (Can it be used for something else?)
Minimize/Magnify (Make it bigger or smaller.)
Put to other uses (New ways to use as is? Other uses if modified? Other people or places to reach?)
Eliminate/Elaborate (Remove some part or materials, or make one section more detailed or refined.)
Reverse/Rearrange (Flip-flop some section of the item or move parts around. Interchange components? Different sequence? Turn it upside-down?)

What are your design solution ideas? Write them in your design notebook.

What criteria will you use to choose a solution? Use the criteria to narrow your solution list to three solutions. Circle the three solutions above.

Meet a Design Planner
Reading: Session 7, Activity C

Bob Sweet
Senior Project Manager/Senior Design Planner
ZIBA Design

Background
I started with ZIBA Design in 1994. The new Director of Research was looking for someone with solid writing skills to crank out research reports. With a college degree in English and a fair bit of journalism experience, I soon found myself collecting data in the field, moderating focus groups, and brainstorming with designers. After a year, I left ZIBA Design for two years in Romania, where my wife had taken a job doing business development work. I returned to ZIBA Design in 1997 as a research analyst, then design planner, and project manager. Initially, I thought of myself as a creative person, let other people deal with the clients, I'll just gather information and write reports. But the more I've worked with clients, the more I've gotten to enjoy understanding their industries, how they operate and the types of problems they're trying to solve. That last bit is important; it involves much more than research or product concepts.

A Typical Day
Every day is truly different. It depends on what the workload is, who the clients are, and what stages my projects are in. In research mode, I'm out on the road interviewing an airline mechanic, spying on consumers at Target, or following a FedEx courier up and down the Sears Tower. In report mode, I'm working with a group of ZIBITES to pull together a good story for the client (report and presentation). In project management mode, I'm probably running around the office, making phone calls to vendors, generating proposals and contracts, keeping the project team together and focused on a vision, touching base with the client to exchange information, getting people the tools and materials they need to get their jobs done.

Favorite Things About the Job
I like working with very creative people who have different skills, training, and backgrounds than I do. I like working with clients from many different industries; everything from consumer goods (air fresheners, power tools, sports equipment) to services (banks and overnight package delivery). I like putting together and telling stories. That's really the heart of what we do-use research and design to tell stories about which products to make, or how they should be made.

Advice to Young People
No matter how distasteful it might seem, network like crazy. Go beyond product design and development. Learn all kinds of businesses and make good connections. All of your experiences, such as traveling, cooking, writing, biking, climbing, and fishing, will help you in product development.

About ZIBA Design

ZIBA Design is an international design firm that has designed products from many global companies, including FedEx, Microsoft, Intel, Fujitsu, Black & Decker, Sony, Pioneer North America, Dial, and Clorox. www.ziba.com*