Session 8

A Brief Focus on Your Design Problem

Thinking Creatively

In This Session:

A) User Profile
(40 minutes)
- Student Handout
- Student Reading

B) Sample Design Brief
(30 Minutes)
- Student Handout

C) My Design Brief
(60 Minutes)
- Student Handout

D) Mentor Matching
(20 Minutes)
- Student Handout

In preparing a design brief, students refine and focus on a problem to solve from the perspective of the users' needs. They write a problem statement, a description of the context for the problem, and a proposed solution. They also draw a sketch of their idea, and come up with suitable materials for constructing a solution. To understand a design brief, they look at the design brief of a former *Design and Discovery* student.

In the first activity, *8A: User Profile*, students dig into who the users of their product will be and how they will design the product to meet the users' needs. In *8B: Sample Design Brief*, students read and discuss the parts of the design brief as a group, analyze the sample, and think about writing their own. In the third activity, *8C: My Design Brief*, students prepare their own design brief. They end the activity with a short (brief!) presentation of their problem and proposed solution. The final activity in this session, *8D: Mentor Matching*, gives students the opportunity to consider their mentor needs so that an appropriate mentor match can be made.

Supplies
None

A Brief Focus on Your Design Problem

Key Concepts: Session 8

In Session 8, students begin to formalize their ideas by developing a **design brief**. A design brief is another formal tool written by professional designers and engineers to begin to gather and describe important details about the idea, the solution, and other facts. While the design process informs the steps that students follow to develop their projects, the design brief is used to record their own ideas and guide them through the design process. In this session, students start to think about realistic aspects of their projects, such as who will be using their product. This is a perfect time to bring in mentors who assist students as they develop their projects.

Key Concepts

> **Design brief:** A written plan that identifies a problem to be solved, its criteria, and its constraints. The design brief is used to encourage thinking of all aspects of a problem before attempting a solution.

Creating a Design Brief

A design brief is the blueprint or road map for a project. Writing down ideas helps students think through the problem and their ideas for a solution. The design brief is an evolving document that can and should be changed throughout the design process. In helping students develop their design brief, it is best to encourage them to think big and not limit themselves at this stage. They should do what they can to understand the problem through observation and visualizing a solution. At this point, they may even have multiple solutions. They should not see the design brief as limiting their thinking, but rather as a place to record, track, and communicate their ideas.

Session 8 provides an example of a design brief for your use, and using it as is will be helpful and sufficient. The act of writing down ideas and plans strengthens critical thinking.

Students are introduced to a design brief in *8B Handout: Sample Design Brief*. Read an example of a design brief (listed below).

> **Sample Design Brief**
> Erika is a *Design and Discovery* student. She has played the string bass for a few years and remembers as a beginner struggling with keeping her fingers together. This is Erika's design brief.
>
> **Project Name: Bass Space**
>
> 1. **Describe the problem.** Write a statement that focuses on what's wrong and not working. Recall the features of a problem statement:
>
> - Begins with a clear, concise, well-supported statement of the problem to be overcome.

Key Concepts: Session 8 (continued)

- Includes data collected during the survey/observation in order to better illustrate the problem.
- Establishes the importance and significance of this problem.

When people start playing the string bass, most beginners cannot hold their hand correctly, preventing them from being able to play properly. As a string bass player, I have had personal experience with this and have seen other beginner string bass players also struggle with this.

2. **Describe how the current product is used.** Provide a context for the problem and explain any related solutions that resemble or relate to the problem but have failed to address the problem.

   Currently, there is not a product for this. Sometimes, a string bass teacher may tell her students to tape their fingers together.

3. **Describe a typical user (user profile).** This addresses who uses the product and how their needs are or are not met. How will they benefit from a different product?

   A typical user is a beginning string bass player. They struggle with holding their hand correctly and keeping their fingers in place. They will benefit from a product that helps them keep their fingers and hands in the correct form to learn to play the string bass. They will be much more comfortable and able to practice for longer periods of time.

4. **Propose a solution.** Describe how it will work, and how it solves the problem. Explain the features.

   I'm not sure what type of material I would use, but the Bass Space would allow the player to keep her two middle fingers together and separate from her pointer finger and pinky. It would be adjustable in size depending on the size of the person's hands.

5. **Draw a quick sketch of your ideas.** This is a rough sketch and can include drawings of different angles of the solution.

Key Concepts: Session 8 (continued)

6. **Describe the basic requirements that will best suit the proposed product.** For example, this describes the quality (for example: flexible or sturdy), and the type of materials (for example: metal or plastic.)

   The material needs to be stiff yet flexible to allow hand movement, it cannot break easily, it has to be adjustable for different size hands, will need to slide on and off easily, must be low on the fingers to allow the fingers to bend, must be cost efficient, must hold hand correctly, and it must be comfortable.

User Considerations

As students develop their projects, it is important for them to remember that not all users will be like them. In the real world, design agencies develop user profiles and usability requirements by gathering information about users. There are different strategies for this—definition and observation of different kinds of users, conducting formal usability studies, or doing surveys. They will want to understand, for example, people who are most likely to use a new product and people who are hesitant to use new products. Interviews are another means to acquire user data.

Learning about users takes place through observation as well as interviews. It seems that when people are asked questions, as is typically done in market research, they may not

Key Concepts: Session 8 (continued)

answer honestly. There is a difference between what people say and what they do. Students begin to consider who might use their products. Developing a user persona helps them to keep in mind the end user throughout the design process. Encourage students to observe people using similar products to the one they are improving upon or creating and keep in mind the typical user as they develop their project.

More About Design

The resources provided below are design agencies. Reviewing these Web sites may be helpful in learning how professional companies develop products.

IDEO, www.ideo.com/*

ZIBA Design, www.ziba.com/*

ECCO Design, www.eccoid.com/*

I.D. Magazine, www.idonline.com/*

Session 8, Activity A

User Profile

Goal
Learn how to define the user of the product.

Outcome
Identify a typical user of the product in order to help focus the development of the product.

Description
Students look at a variety of familiar objects from the perspective of a typical user. They learn how to identify users of products and ultimately define their user base for their projects.

Supplies
None

Preparation
Bring in a variety of familiar objects that appeal to different ages and genders. This might include toys (for different ages), kitchen items, tools, and so forth.

Procedures

1. Show the group one of the familiar objects. Ask them:

    - Who typically uses this product?
    - What is their gender? Age? Experience with this type of product?
    - How is the product designed for this type of person (user)?
    - Where does the user use this product?
    - What motivates the user to use it?
    - Now, describe a scenario of someone using this product:

        - Give the person an identity (name, age, gender, occupation, etc.).
        - Describe the setting in which the person is using the product.
        - Explain what the person's goals are. What do they want to get out of this experience?
        - Tell how they use this product.
        - Summarize how their goals are met by this product.

2. Follow the first procedure for a few other familiar objects.

3. Ask students how this exercise can help them with their projects. Creating an identity of the user helps the experience of designing something become more concrete. Without

8A: User Profile (continued)

narrowly defining the user, a product that tries to please too many different types of people will most likely fail.

4. Now ask students to consider their own projects and who they see as the typical user. They should come up with a user scenario on their handouts.

Wrap Up
Students can share their user scenarios in small groups and get feedback from each other.

Have students read *8A Reading: Meet an Industrial Designer*.

Follow With
Activity *8B: Sample Design Brief* provides a model of how to draft a design brief.

User Profile

Handout: Session 8, Activity A

In this activity, you will have an opportunity to consider how designers and engineers design products for specific types of people. You will look at familiar objects and come up with user scenarios, and then develop a user scenario for your idea. Do this in your design notebook.

Think about your product idea. Consider the following questions:

- Who will use this product?
- What is the person's gender? Age? Experience with this type of product?
- Where will they use this product?
- Why will they use this product?
- What will they be doing to operate or use this product?

Now, using the above information, describe one person who will be the user. What are their characteristics, and the scenario in which they will use the product? You may include a drawing of the person using the product, if that helps.

What considerations will you need to keep in mind when you design the product to meet the needs of the user?

Meet an Industrial Designer

Reading: Session 8, Activity A

Dana Reinisch
Industrial Designer
ZIBA Design

Introduction
Hi, my name is Dana Reinisch and I am a 32-year-old woman who grew up all over the United States. We moved around the country a lot, and finally when I was in high school we settled in southern California. I am an Industrial Designer at ZIBA Design.

My Job
I have worked as an Industrial Designer for four years at ZIBA Design, which is a product development firm in Portland, Oregon. I have designed a wide range of products including kitchen appliances, computer printers, medical products, and watches.

Background
While growing up, I always had a strong interest in the arts (drawing, graphics, jewelry making) and the sciences. In high school, I took a lot of classes in both these areas where I excel. I have always looked at products very differently from my friends. I want to see how I can improve them functionally and aesthetically. In college, I majored in fine arts with a minor in art history and received a BA in fine arts from Lewis and Clark College. After college I applied to a product design program at Art Center College of Design in Pasadena, California. I attended school there on the campus and for a semester at their campus in Switzerland. I completed two internships and graduated with a BS in industrial design.

A Typical Day
My typical day really depends on what I am working on and where in the design process I am. Some days I am brainstorming and sketching with other designers on new product concepts. Other times I will be modeling products in 2-D and/or 3-D on the computer. I may also be sanding foam or designing a hard model to physically represent my design ideas. In designing a product, I typically work with the client and other disciplines in my company. Frequently we have design reviews at ZIBA Design with just the design team. In presenting the design to the client, I will create a presentation and story around each of the design concepts with images and word call outs.

Favorite Things About Job
Working at a design consultancy, I get to work on a wide variety of projects. I have exposure to many different companies and get to see how they work. Having worked on so many different

8A Reading: Meet an Industrial Designer (continued)

products, I also understand different manufacturing processes from sheet metal bending, injection molding to paper tube winding.

Advice to Young People
As far as advice goes, there seem to be many different routes a designer can take. You can work for a consultancy that works on many types of products for large corporations, work for a corporation designing one specific type of product, and/or design your own products. Industrial design involves a lot of hard work, good sketching and visualization skills, and having an open and creative mind.

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

Session 8, Activity B

Sample Design Brief

Goal
Learn the contents of a design brief.

Outcome
Students learn how to write their own design brief.

Description
Group review of a sample design brief for a string bass hand holder allows students to study the contents and purpose of a design brief before writing their own. Following a short introduction on what a design brief is and what it does, students read the sample design brief. A group discussion of each part of the brief assures that students understand what they will be preparing in the next activity. They have time at the end to review their notes and share their plans for the design brief with a partner.

Supplies
None

Preparation
Review *8B Handout: Sample Design Brief*.

Procedures

Design Brief

1. Introduce the activity as Step 4 in the design process, Draft a Design Brief. Explain that they will be writing a design brief after studying a sample.

2. Describe what a design brief is and what it does.

   What it is. A design brief is a short description of a design problem and a proposed solution. It describes the typical users and their needs, and states a proposed solution in terms of how it will solve the problem. A design brief includes a sketch or sketches of the solution. The design brief provides a planning tool for the project and is a living document that may be changed throughout the design process.

   What it does. The design brief is a way to clarify the problem that the designer-engineer is trying to solve. It doesn't provide a lot of detail about the solution but puts on paper the thinking and research about the problem to solve. Often the act of writing and communicating the problem and proposed solution helps the designer move along in the design process. The design brief also serves to introduce the idea to others for feedback.

3. Have students read *8B Handout: Sample Design Brief*.

8B: Sample Design Brief (continued)

4. Review and discuss each section:

    1. **Describe the problem.** This is a statement that focuses on what's wrong and not working. Recall the features of a problem statement from *7B, Research and Refine*. A problem statement:

        - Begins with a clear, concise, well-supported statement of the problem to be overcome.
        - Includes data collected during the survey/observation in order to better illustrate the problem.
        - Establishes the importance and significance of this problem.

    2. **Describe how the current product is used.** This provides a context for the problem and explains any related solutions that resemble or relate to the problem but have failed to address the problem.

    3. **Describe a typical user (user profile).** This addresses who uses the product and how their needs are or are not met. How will they benefit from a different product?

    4. **Propose a solution.** This explains how the product will work, and how it solves the problem. It describes the features.

    5. **Draw a sketch of the solution.** This is a rough sketch and can include drawings of different angles of the solution.

    6. **Describe the basic requirements that will best suit the proposed product.** This describes the quality (for example: flexible or sturdy), and the type of materials (for example: metal or plastic).

5. Provide time and direction for students to review their work from Sessions 2 and 7, thinking about their problem, the users' needs they hope to meet, and their idea(s) for a solution.

6. Have them discuss their problem with a partner or a mentor and get feedback about what they will write. They should make notes of words that help communicate their idea with their partner. They should sketch a few views of their solution.

Wrap Up
Organize students for writing rough drafts of the design brief.

Follow With
Students write and present their own design brief in *8C: My Design Brief.*

Sample Design Brief

Handout: Session 8, Activity B

A Design Brief
What it is. A design brief is a short description of a design problem and a proposed solution. It describes the typical users, the users' needs, and states a proposed solution in terms of how it will solve the problem. A design brief includes a sketch or sketches of the solution. The design brief provides a planning tool for the project. The design brief is a living document and may be changed throughout the design process.

What it does. The design brief is a way to clarify the problem that the designer-engineer is trying to solve. It doesn't provide a lot of detail about the solution but puts on paper the thinking and research about the problem to solve. Often the act of writing and communicating the problem and proposed solution helps the designer move along in the design process. The design brief also serves to introduce the idea to others for feedback.

Erika was a *Design and Discovery* student. She has played the string bass for a few years and remembers as a beginner struggling with keeping her fingers together. This is Erika's design brief.

Sample Design Brief: Bass Space (patent pending)

1. **Describe the problem.** Write a statement that focuses on what's wrong and not working. Recall the features of a problem statement:

    - Begins with a clear, concise, well-supported statement of the problem to be overcome.
    - Includes data collected during the survey/observation in order to better illustrate the problem.
    - Establishes the importance and significance of this problem.

    When people start playing the string bass, most beginners cannot hold their hand correctly, preventing them from being able to play properly. As a string bass player, I have had personal experience with this and have seen other beginner string bass players also struggle with this.

2. **Describe how the current product is used.** Provide a context for the problem and explain any related solutions that resemble or relate to the problem but have failed to address the problem.

    Currently, there is not a product for this. Sometimes, a string bass teacher may tell her students to tape their fingers together.

8B Handout: Sample and Design Brief (continued)

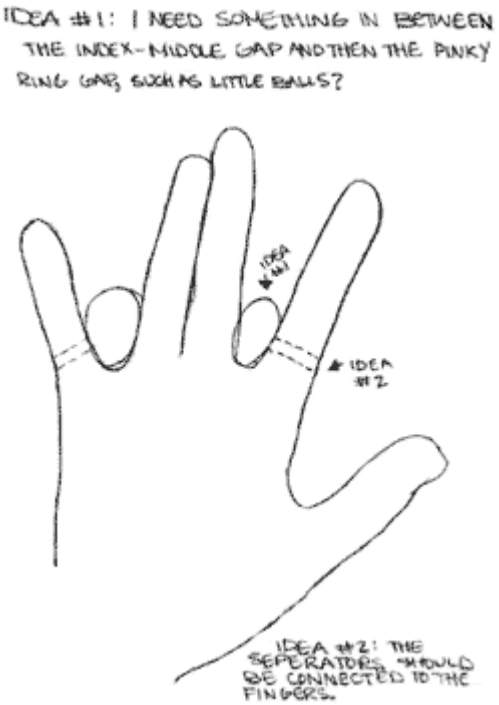
3. **Describe a typical user (user profile).** This addresses who uses the product and how their needs are or are not met. How will they benefit from a different product?

   A typical user is a beginning string bass player. They struggle with holding their hand correctly and keeping their fingers in place. They will benefit from a product that helps them keep their fingers and hands in the correct form to learn to play the string bass. They will be much more comfortable and able to practice for longer periods of time.

4. **Propose a solution.** Describe how it will work, and how it solves the problem. Explain the features.

   I'm not sure what type of material I would use, but the Bass Space would allow the player to keep her two middle fingers together and separate from her pointer finger and pinky. It would be adjustable in size depending on the size of the person's hands.

5. **Draw a quick sketch of your ideas.** This is a rough sketch and can include drawings of different angles of the solution.



6. **Describe the basic requirements that will best suit the proposed product.** For example, this describes the quality (for example: flexible or sturdy), and the type of materials (for example: metal or plastic.)

8B Handout: Sample and Design Brief (continued)

The material needs to be stiff yet flexible to allow hand movement, it cannot break easily, it has to be adjustable for different size hands, will need to slide on and off easily, must be low on the fingers to allow the fingers to bend, must be cost efficient, must hold hand correctly, and it must be comfortable.

Session 8, Activity C

My Design Brief

Goal
Refine and describe a problem to solve and a proposed solution.

Outcome
Each student introduces his or her idea by completing and presenting a design brief.

Description
Students use this time to prepare a draft of the design brief and draw rough sketches in their design journals. They write a final draft and draw sketches on the design brief handout or in their journals. Each student uses the design brief to give a short presentation about the problem and proposed idea.

Supplies
None

Preparation
None

Procedures

1. Students work on their own design briefs.

2. Allow enough time for presentations and wrap up. Announce a deadline for the final draft and sketches.

3. Students should plan a 2-minute presentation of their problem and the proposed solution.

    - State the problem and describe the needs of the user.
    - Describe the solution.

Wrap Up
Have students reflect and write about: In what ways did writing my design brief help me with a solution?

Follow With
Activity *8D: Mentor Matching* allows students to consider the help they may need with their project.

My Design Brief

Handout: Session 8, Activity C

Writing your own design brief should help you clarify your ideas and think about them systematically. This is a working document; it will be your road map as you develop your ideas. Be sure to do this in your design notebook. First give your project a name.

1. **Describe the problem.** Write a statement that focuses on what's wrong and not working. Recall the features of a problem statement:

    - Begins with a clear, concise, well-supported statement of the problem to be overcome.
    - Includes data collected during the survey/observation in order to better illustrate the problem.
    - Establishes the importance and significance of this problem.

2. **Describe how the current product is used.** Provide a context for the problem and explain any related solutions that resemble or relate to the problem but have failed to address the problem.

3. **Describe a typical user (user profile).** This addresses who uses the product and how their needs are or are not met. How will they benefit from a different product?

4. **Propose a solution:** Describe how it will work, and how it solves the problem. Explain the features.

5. **Draw a quick sketch of your ideas.** This is a rough sketch and can include drawings of different angles of the solution.

6. **Describe the basic requirements that will best suit the proposed product.** This describes the quality (for example: flexible or sturdy), and the type of materials (for example: metal or plastic).

Session 8, Activity D

Mentor Matching

Goal
To identify appropriate mentors for students.

Outcome
Students establish what type of mentor would be most helpful to them and are matched with a mentor.

Description
Because students may be doing some of their work on their individual projects outside *Design and Discovery* time, having mentors can be invaluable. This activity allows students to consider and articulate their needs so they can be matched with the most appropriate mentor.

Supplies
None

Preparation
Become familiar with the available mentors.

Procedures

1. Explain to students that you are going to try to match them with a mentor who can help them with their project since some of the work will be done on their own time.

2. Have them answer the questions on the Student Handout.

Wrap Up
Be sure to encourage students to speculate what their needs will be. Of course, their project ideas and needs may change. Be sure to review the Mentor section in *Implementation* for tips on mentor matching.

Follow With
Session 9, *A Solution Taking Shape*, gets students investigating their solution ideas.

Mentor Matching

Handout: Session 8, Activity D

To help you with the remainder of your project, you will be assigned a mentor. Please answer the following questions so you can be matched with a suitable mentor.

1. Please describe your proposed project.

2. What sort of mentor do you feel would be helpful to you?
   Describe qualifications and areas of expertise.

3. What can a mentor do to help you?