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Design Lab Book

A student project on collaborative designing with empirical inquiry

¹David Berlo, *The Process of Communication* (New York: Holt, Rinehart and Winston, 1960).

According to Berlo's model¹, the communication process starts with a source who derives a message to communicate in a form that will convey meaning through one or more of our senses to a receiving audience. The source and the receiver are equipped with their own set of communication skills, attitudes, knowledge, social system, and culture that may or may not match. Berlo's theoretical model for communication implies that if the encoder's cultural characteristics do not match those of the decoder, then clear communication cannot occur.

The Problem

Today, teaching graphic design students how to communicate visually requires teaching them how culture influences the audience's interpretation of visual language. One way to do this is to require students to collaborate with the audience. Herein I posit that if designers collaborate with the audience, then they are almost guaranteed to create an aesthetic that will communicate effectively across cultures.

The question then is: How do we teach students to collaborate with the audience and integrate audience input throughout the design process?

The Phenomena

Over the past seven years, I've observed that students typically prefer complete control over the creative development of their ideas because they feel they have knowledge to impart onto the audience. They also rely heavily on their own intuition when designing. They assume everyone will understand the visual language they use to translate the message.

However, sometimes the audience does not understand the visual language of the final design object due to cultural differences between themselves and the designers.

Visual Literacy

Today, being a visually literate designer requires understanding how culture:

- Informs the audience's mentality and behavior.
- Influences the audience's interpretation of visual language.

Objectives of DLB

The aim then of the "Design Lab Book (DLB)" project is to instill this understanding in students by requiring them to work with members

of their target audience throughout the design process—from conception to production. With DLB students use a collaborative approach to designing rather than the traditional intuitive one. Completing the projects entails empirically collecting audience feedback, analyzing it, and forming conclusions that influence the way that the project gets creatively designed.

The Scientific Method

Design Lab Book is based upon the scientific method of inquiry in which scientists discover the answer to a specifically defined problem.

First, they choose a specific topic to investigate. Then, they ask a specific question about the chosen topic. Next, they do research. They read books, magazines, brochures, journal articles, and other materials that have information about that topic. Then, they turn the question into a hypothesis. A hypothesis is basically a prediction or an educated guess. How do you think the experiment will turn out? Next, they conduct the experiment and test their hypothesis. They will either falsify or verify it. Simultaneously they keep records of the methods they use and the results of the experiment. Then, they repeat the experiment to ensure that the results obtained the first time were accurate and precise. Finally, they analyze the results and form conclusions.

DLB's Approach

Design Lab Book guides students through an iterative, scientific design process. The first step is to identify the problem and analyze the audience. Then students derive a hypothesis that predicts what their target audience's point of view will be in regard to the problem. Next, they choose an appropriate research method to verify or falsify their hypothesis with the target audience. Finally, they record and analyze the responses and draw a conclusion.

In step two, they brainstorm words that help them to derive five metaphors for the problem. In experiment two, they predict which four metaphors the target audience will favor. Then they choose a qualitative or quantitative research method to verify or falsify their hypothesis. They conduct the experiment, record and analyze their results. They reach a conclusion and eliminate the weakest metaphor. In step three, they write copy for the four remaining concepts. They carry out experiment three and eliminate the weakest concept. In step four, they create or find graphics for the three remaining concepts. Experiment four helps them to eliminate the weakest concept. In step five, they layout thumbnails of the two remaining concepts. Experiment five helps them to eliminate one. So, by the time they reach the final step, step six, they are left with only one concept to render the final design. Experiment six helps them to gauge the overall effectiveness of their object. The knowledge they gain from this final experiment can also be used for future projects.

Old process sketchbooks

Within the past seven years, design lab book has evolved in form. It used to be a text attached to the syllabi and given to students as a guide that they later design to look however they want to look. I found that students were generally frustrated with the additional task of designing and documenting their process. I also was dissatisfied with some of the designs.

DLB's New Form

To address this issue, In 2003, I designed the project as a series of loose, interactive index cards. Throughout the design process, students record and store the data that they gather during each phase of their design process directly into their design lab book.

It is a series of loose index cards that students can opt to bind or creatively modify as needed. In Figure 1 (at the end of this document), one of my former students made one of the results page longer to show all of the feedback she retrieved during her first experiment. Figure 2 shows how she typeset all of the audiences responses. Then, in figure 3, she widened the graphics page to document all of the images she found that related to her topic. Instead of tacking them into the printed design lab book, she printed them onto the card. Next, in figure 4, she hand drew thumbnail sketches, scanned them in, and printed them onto the card. Finally, in figure 5, in the visual documentation of her final poster, she printed a scaled version onto the card and adhered a slide next to it.

Course Readings

Students inform their design process with audience input as well as professional input on critical and practical issues in graphic design.

For insight into the current issues in graphic design, I have students read: relevant articles from the Looking Closer Series and Citizen Designer

For current issues in society, they read: magazine articles and newspaper clippings--some of which I provide.

For insight on culture-specific aesthetics and creative strategies they can use to visually translate their message to their audience, they are encouraged to read: Designing across cultures by Ronnie Lipton

For research methods, they consult: Design Research from Brenda Laurel. In fall 2005, they'll also be reading Visual Research by Ian Noble and Russell Bestley along with selected articles from the Journal of Design Research, Design Issues, and Visible Language

For tips on typography and making a good layout, they consult: Kate Clair's Typographic Workbook and Tim Samara's Making and Breaking the Grid. In the fall, I'll be adding Ellen Lupton's Thinking with Type and Kimberly Elam's Grid Systems, Principles of Organizing Type.

Programs at RPI

Design Lab Book is from a course that I teach at Rensselaer Polytechnic Institute to interdisciplinary graduate and undergraduate students. Because of this diversity in student background in the course, I've received a variety of responses to DLB.

Student persona A

The first type of student (student A) wants to be an artist. Student A prefers

full control over the creative development of his ideas because he feels he has knowledge to impart onto the audience. He considers the process of empirical inquiry to be tedious. However, at times he finds audience input helpful to the development of his personal style of artistic expression—especially when it is in accordance with his own creative sensibilities. He tends to create cross-cultural communication graphics that visually dazzle some members of the audience but baffle others.

Student persona B

The second type of student (student B) is the non-design student who wants to be a technical writer. Student B has a strong foundation in theory, research, and writing. He sees the final object as a communication tool that needs to convey information clearly to its audience. Thus, he embraces the approach as a reliable way to design more culturally appropriate graphics for the audience. He acquires extensive feedback from the audience. He works closely with the audience on the development of the text and image-based graphics for his project. Student B tends to create effective cross-cultural communication graphics that resonate with the audience but sometimes lack visual appeal.

Student persona C

The third type of student (student C) wants to be a graphic design practitioner. Student C has a fine arts background but understands the communication requirements of a design object. He is at first dubious about empirical inquiry. Yet, he diligently records and carefully considers his audience's feedback. He feels enlightened when the audience doesn't concede to his creative choices. Seldom does he follow his own intuition. From his data he gains insight as to how he should visually translate information for his audience. Student C tends to create effective cross-cultural communication graphics that are usually visually enticing.

Analysis and Conclusion

My observations of student design lab books thus far reveal that collaborative design with empirical inquiry empowers the graphic design student with the option to inform his/her creative hunches with reasoning based upon the analysis of audience feedback. The "Design Lab Book" brings about efficiency in the design process and applicability to future projects—especially when the process is well documented. However, there needs to be a balance between reasoning and intuition. Too much reasoning may lead to uninteresting cross-cultural graphics. Too much intuition may lead to culturally-inappropriate and uncommunicative graphics. When the audience plays a more active role in the student's design process, the final visual communication object tends to be more effective in relaying its message because it resonates better with the audience's culture. Design Lab Book introduces the concept of design science. It gives students the language they need to participate (and be heard) in interdisciplinary discourse at RPI. DLB is a good compromise in that it allows graphic design students to keep the integrity of their creative process but forces them to inform it with audience input facilitated by the use of quantitative and qualitative research methods common to other research disciplines.

To download Design Lab Book, point your browser to: www.rpi.edu/~bennett/dlb.pdf. After use, please forward feedback to bennett@rpi.edu.



Figure 1. Sample Design Lab Book on over-consumption by Katie Woodard

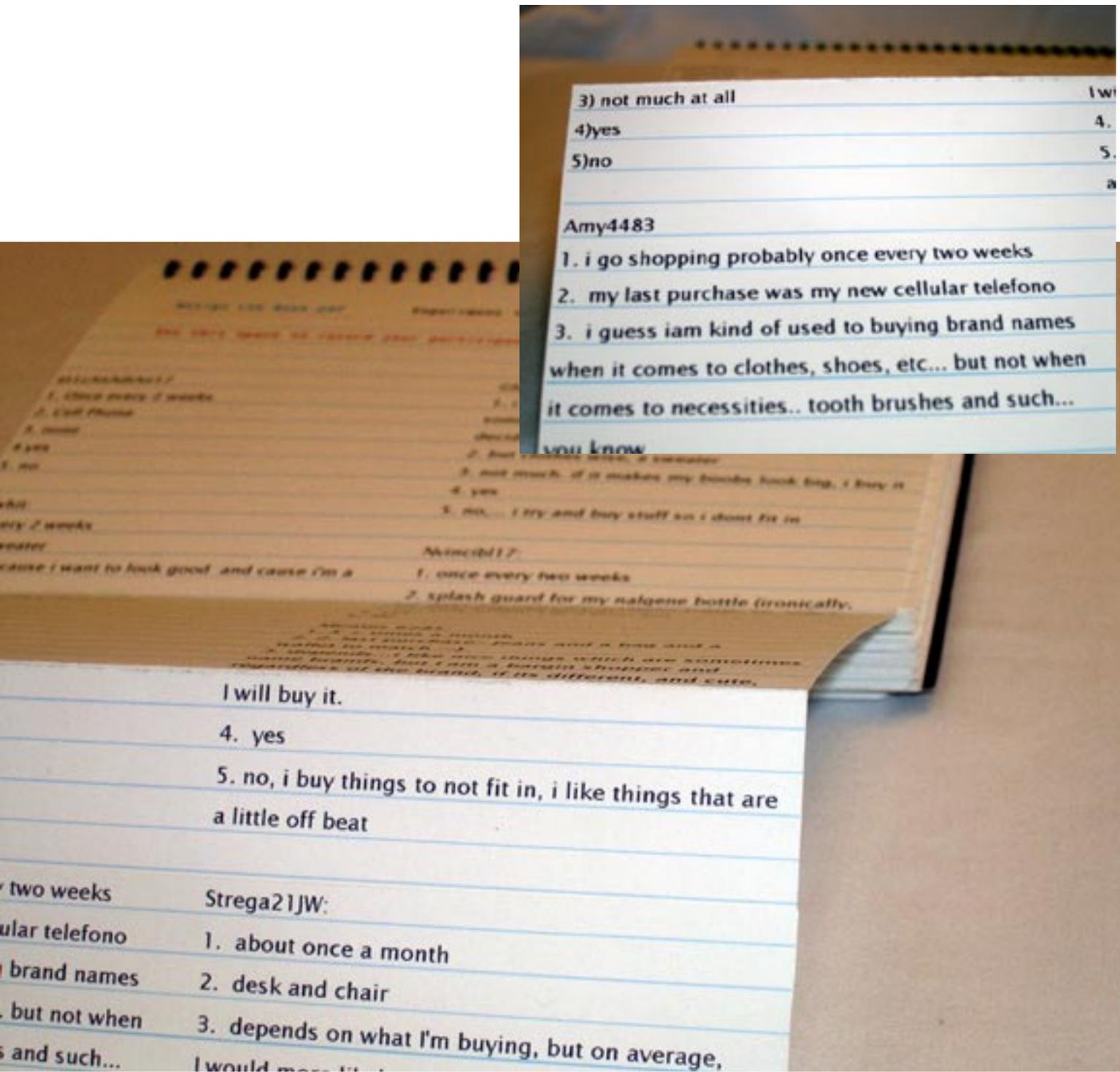


Figure 2. Responses from anonymous members of the audience regarding their consumption habits. Recorded by Katie Woodard.

Determine the images you will use for metaphorical concept 1. Paste them below.

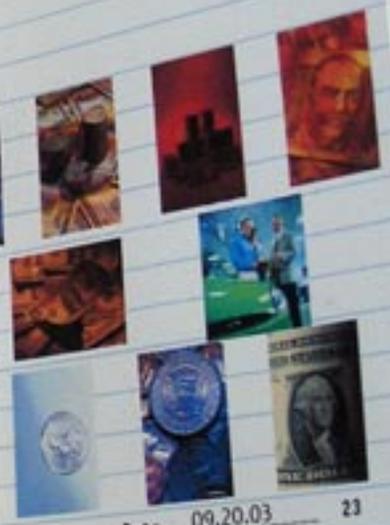
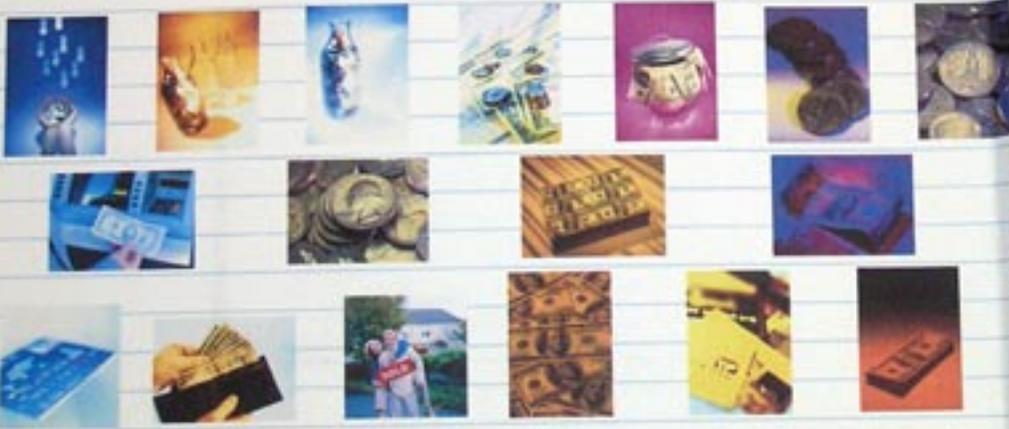


Figure 3. Images selected by Katie Woodard to test on the audience.

Roughly determine below how you will integrate the graphics and the copy for metaphorical concept 1. Draw thumbnail sketches for each object you are designing.

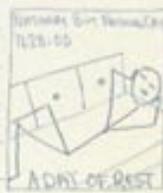
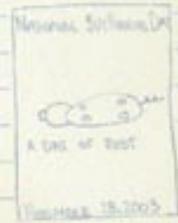
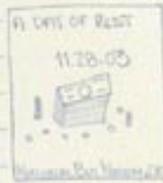
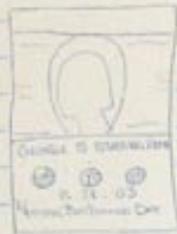


Figure 4. Experimental sketches done by Katie Woodard to test on the audience.

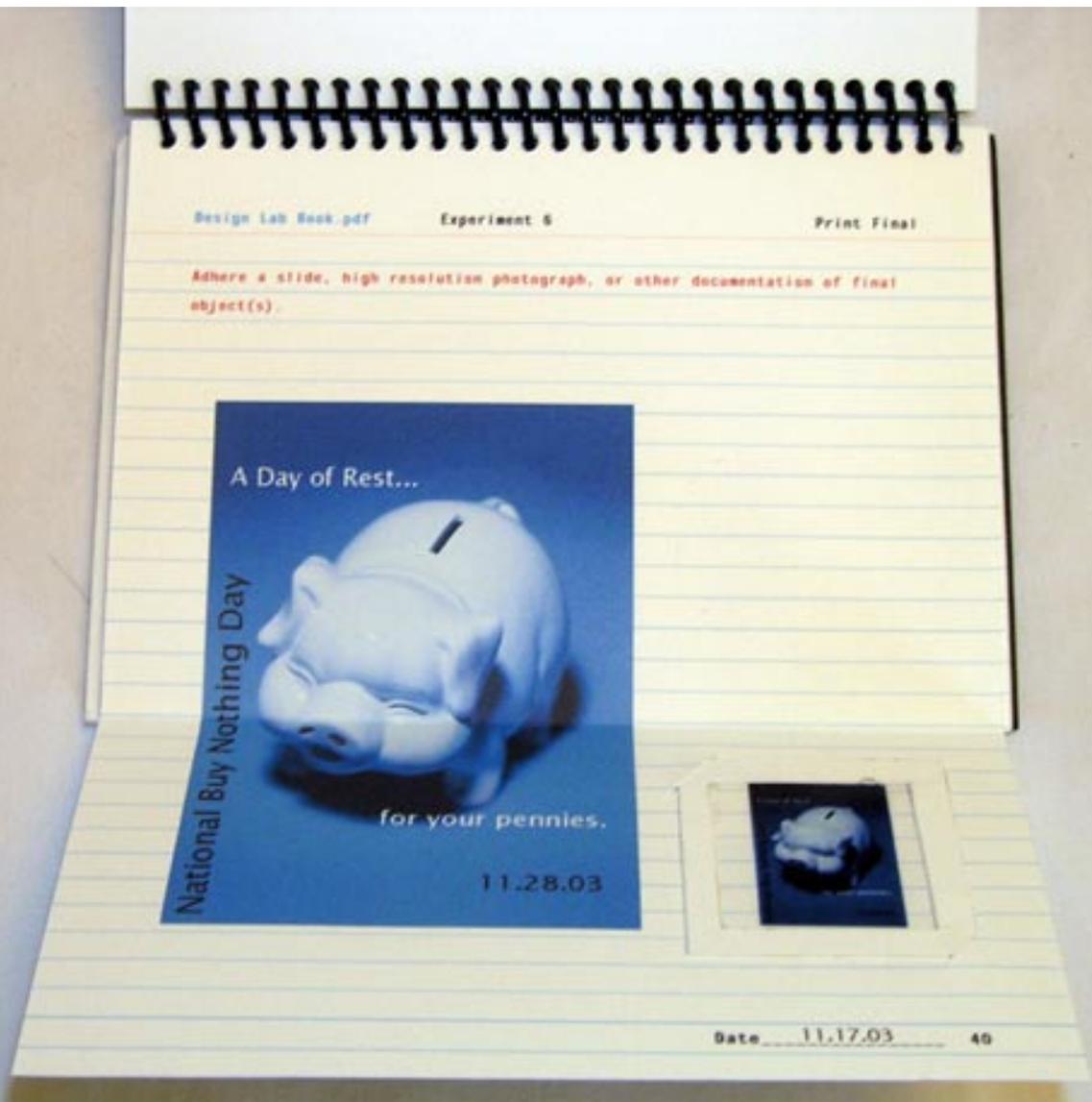


Figure 5. Final layout of campaign poster collaboratively designed by Katie Woodard with members of the target audience.