

Operating Manual for Graphic Designers: Connecting Past and Present through Project Based Learning

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Overview

This project combined historical enquiry and analysis with graphic design fundamentals of page layout and typography in an undergraduate student project. The goal of the project was design a contemporary cover for, and to typeset the full text of, *Operating Manual for Spaceship Earth*, a short book first published in 1968 by futurist and designer/architect R. Buckminster Fuller.

R. Buckminster Fuller was a designer, architect and all-around polymath who lived from 1895-1983. He became an unlikely hero to the counterculture generation, and several of his books became staples amongst a subset of the counterculture, including *Operating Manual for Spaceship Earth*. The text of *Operating Manual* lays out some of Fuller's core ideas about society, capitalism, and—most importantly—the notion of Earth as a self-contained spaceship and humans as astronauts, responsible for its constant maintenance and upkeep.

In its time, *Operating Manual* was a popular text with the counterculture; but, as with many other texts from its time, it has been largely forgotten today. College students currently have little context for approaching his work or understanding why he was so influential at the time. As faculty, we had to help orient students to historical context and importance of this text. This was achieved by foregrounding the project with additional lectures and discussions by a subject matter expert (Hsiao-Yun Chu) at the start of the project, as described below.

As a design project, this book lends itself to a student project; it is long enough to require chaptering and organization, but short enough for students to read and analyze. Indeed, it was the opportunity to read and reflect upon the content in this instance that made for a richer learning experience. The question became how to introduce college students to the historical importance of an unknown text, while at the same time allowing them to draw their own conclusions as to its meaning and relevance—if any—today. What were the elements of countercultural idealism that students of today would respond to? Would they pick up on some of the nascent environmental and social justice messages implicit in Fuller's text about living on this self-contained "Spaceship Earth" in which it was a shared responsibility steward the limited resources available for the benefit of all?

The University, Program, and Students

San Francisco State University has a diverse population of students, including large numbers of Latino, Asian, and international students. By the time they enter the design major, most students have completed their general education requirements but many have little to no experience with design

studio courses. As a result, the range of design skills among the student population varies widely. The challenge here is to create appropriate projects that can prepare them for careers in design while at the same time engaging with interesting and relevant subject matter.



Figure 1 Photo of the Earth taken from Apollo 8, called Earthrise. December 1968. Public Domain

Pre-Design Engagement

Initially, students were given two weeks to read the text. The subsequent design project was foregrounded with a lecture on R. Buckminster Fuller, discussing his basic biography, his unlikely role as a spokesperson of the counterculture, as well as the metaphor of Spaceship Earth which runs throughout the text. Short videos of Fuller addressing students were also shown, to give students a flavor for his hypnotic style and mesmerizing delivery. Students were asked to find connections between the content of the book they had just read and this larger picture of Fuller as global citizen and thinker.

Students found the text both inspiring and challenging. Fuller's style of writing is somewhat rambling and dense, yet the larger picture with its call to action and sense of urgency was not lost on the

students. They easily saw its relevance to current global environmental issues. They understood the metaphor of the spaceship and its power in describing humanity's common goals and needs.

Students were encouraged to find conceptual frameworks for their eventual design projects—to use metaphor, allusion, current or historical examples, provocation—in order to emphasize and complement Fuller's message(s). By giving them somewhat different perspectives from faculty (one historical/empirical/research, the other (poetic/conceptual/graphic), students were able to develop deeper design solutions than they would if they had been simply given the text and asked to interpret it.

While one would hope that students would, on their own, gain this understanding through self-directed research, experience has shown that this offers a wide range of results. The presence of an expert and the engagement in a discussion made for a more direct and impactful experience. It was also resource efficient, as we could benefit from the expertise of a fellow faculty member and collaborate directly on curriculum without needing additional funding sources or unreasonable allocations of time.

Description of the Project

The basic outlines of this project are consistent with expectations for an undergraduate graphic design class. The Student Learning Outcomes were identified as follows:

Students will be able to:

- Compose body text considering typeface, size, and leading.
- Appropriately use paragraph indications and justification.
- Understand and use effectively typographic structure and hierarchy.
- Create page and spread compositions using and understanding of modular and multiple column grids, hierarchy, and page structure and elements.
- Use design including research, concept dev., iterative revision, QA, production output.
- Create a design brief.

In terms of the design skills and learning outcomes, the implicit communication of typographic systems, compositional structures, and images are critical skills for any designer and are needed in designing a book. In typesetting the book, we wanted students to be able to develop a graphic language and to create a consistent system that would clarify the meaning of the subject material at hand.

The required book matter was as follows:

- Front cover and back cover (don't forget spine)
- Half title page
- Title page
- Copyright page and colophon
- Table of contents (TOC)
- Running header and/or footer
- Body text
- Images

Benefits of the project

The pre-design engagement and use of an unusual text offered several additional learning opportunities beyond a traditional graphic design book project. First of all, it offered an insight into the historical context of the late 1960s and 70s including the counterculture's interest in global issues. This resonated with today's design students and their own interests in environmental issues. Students were able to interpret and translate their understandings of the issues raised by the text into their overall design approach and design language for the project.

The guidance of a subject matter expert, which included a lecture, discussions of metaphor, video clips, and class discussion offered a "way in" to understand an unusual but historically significant text. These shared understandings provided some starting points for design ideation. The combination of faculty expertise with project structure offered the opportunity to synthesize design historical and cultural literacy with design practice. Students also benefited from being introduced to a fellow faculty member's area of academic expertise, which they may not have been aware of before.

This project also benefited from effective faculty collaboration. In an urban public institution such as San Francisco State University, it is difficult to find temporal, financial, or human resources to support ambitious curricular redesigns or enhancement during the regular semester. By taking advantage of existing faculty expertise, we were able to bring historical context, historical literacy, and content analysis into an undergraduate graphic design course by relying on a subject matter expert within the same department/discipline. A good collaborative working relationship between the instructors, as well as a shared understanding of the students and their skill level, made for a fairly seamless curricular collaboration.

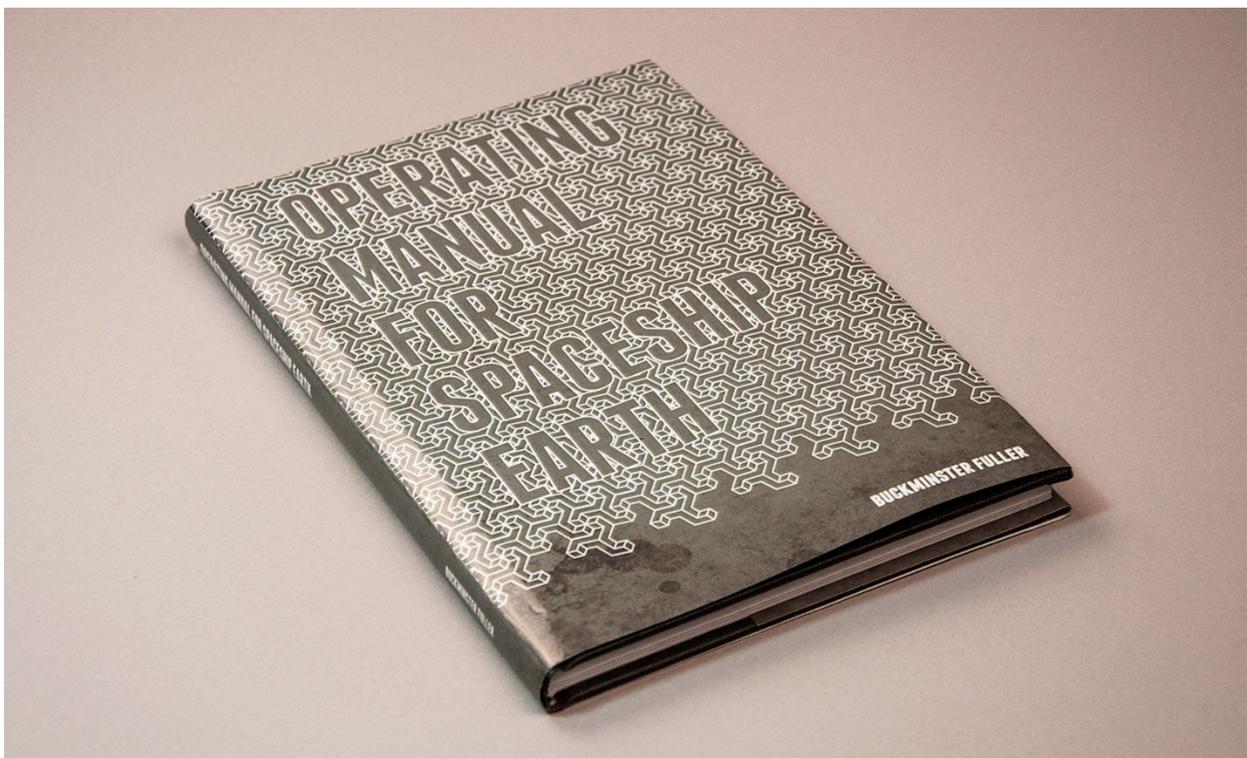


Figure 2: Student Design, Cover for Operating Manual for Spaceship Earth, Courtesy Joshua Singer



Figure 3: Student design spread, Operating Manual for Spaceship Earth, Courtesy Joshua Singer

Student Challenges & Successes

Students found the historical text both inspiring and challenging. While Fuller's style of writing is rambling and dense, the larger picture and its call to action and sense of urgency was not lost on the students. They easily saw its relevance to current global environmental issues. They understood the metaphor of the spaceship and its power in describing humanity's common goals and needs. It resonated with their own global and environmental concerns.

While it was necessary to explicitly state that NO images of spaceships were permitted in their designs, students, by making associations with current issues and the historical context they now understood, they developed nuanced and abstract metaphorical themes. Students found images that conveyed universal themes or current issues that were that created implicit messages or juxtapositions that challenged the reader and emphasized the complexity of the subject matter.

All universities have been progressively organized for ever finer specialization. Society assumes that specialization is natural, inevitable, and desirable. Yet in observing a little child, we find it is interested in everything and spontaneously apprehends, comprehends, and co-ordinates an ever expanding inventory of experiences. Children are enthusiastic planetarium audiences. Nothing seems to be more prominent about human life than its wanting to understand all and put everything together.

One of humanity's prime drives is to understand and be understood. All other living creatures are designed for highly specialized tasks. Man seems unique as the comprehensive comprehender and co-ordinator of local universe affairs. If the total scheme of nature required man to be a specialist she would have made him so by having him born with one eye and a microscope attached to it.

What nature needed man to be was adaptive in many if not any direction; wherefore she gave man a mind as well as a coordinating switchboard brain. Mind apprehends and comprehends the general principles governing flight and deep sea diving, and man puts on his wings or his lungs, then takes them off when not using them. The specialist bird is greatly impeded by its wings when trying to walk. The fish cannot come out of the sea and walk upon land, for birds and fish are specialists.

Of course, we are beginning to learn a little in the behavioral sciences regarding how little we know about children and the educational processes. We had assumed the child to be an empty brain receptacle into which we could inject our methodically-gained wisdom until that child, too, became educated. In the light of modern behavioral science experiments that was not a good working assumption.

Inasmuch as the new life always manifests comprehensive propensities I would like to know why it is that we have disregarded all children's significantly spontaneous and comprehensive curiosity and in our formal education have deliberately instituted processes leading only

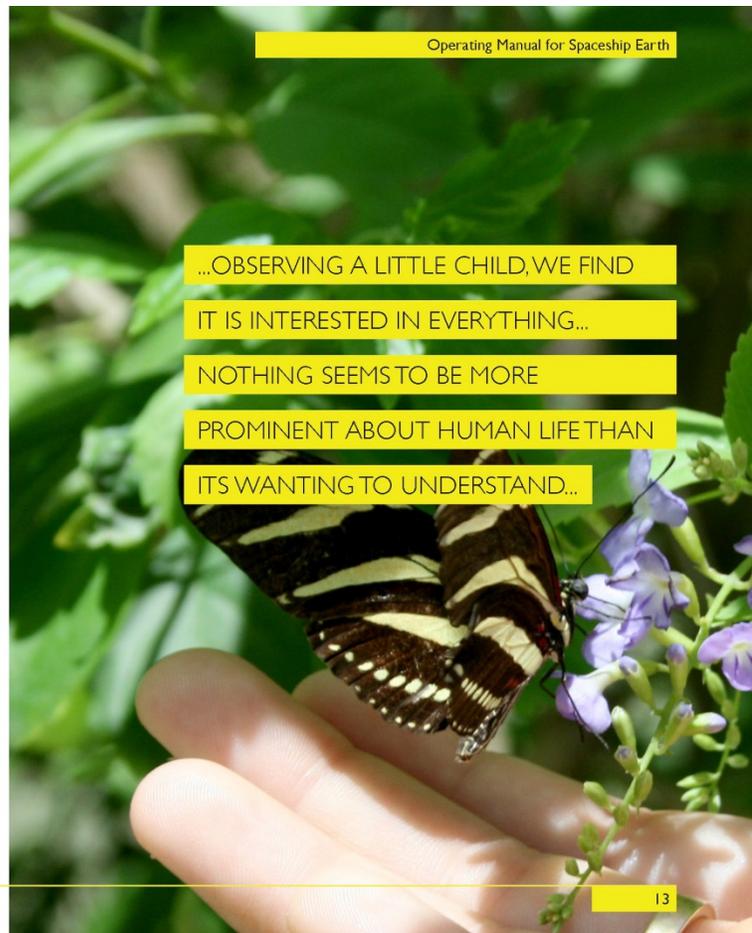


Figure 4: Student design spread, *Operating Manual for Spaceship Earth*, Courtesy Joshua Singer

Concluding Thoughts

Design projects for beginning level students can incorporate several levels of learning, including engaging with challenging subject matter. This can provide more synthetic learning opportunities to strengthen and build upon students' knowledge in other disciplines. In the above case, the project promoted not only the development of design skill; it also promoted design historical enquiry and literacy, analysis of primary texts, exposure to early notions of sustainability, and abstract thinking within a project-based and collaborative learning approach. Few if any students in the class were aware of R. Buckminster Fuller prior to the project; following it, they had read one of his seminal texts and understood some of its core ideas and how they related to the larger context of the 1960s/70s youth counterculture. This particular project combined design history with design practice, but many other combinations could be explored such as engaging with contemporary issues or debates as part of an applied design project.

A topic expert, among existing faculty or peers, can provide assistance with the subject matter and a fresh perspective on the material at hand. This can not only give students a better understanding of the design project and its different layers and possibilities, but can also introduce students to a faculty member's specific areas of expertise.

Collaborating within an institution can reduce the time and the resources needed to engage in meaningful curriculum development. This may be especially valuable at universities where there are limited resources allocated for curricular development and innovation. By seeking out local opportunities to enrich the curriculum in the form of subject matter experts and other university resources, really unique projects and curricular designs can emerge that incorporate multiple layers of learning. There may also be bilateral opportunities to share expertise across different classes in the form of guest lectures or guest critiques which can help to create a more connected and collaborative learning community.