

LESSON FOUR: Exploring the Design Process: The Work of Charles and Ray Eames



IMAGE NINETEEN: Charles Eames. American, 1907–1978. Evans Products Co., Molded Plywood Div., Venice, Calif. Leg Splint. 1942. Molded plywood, 4 1/4 x 7 3/4 x 42" (10.8 x 19.7 x 106.7 cm). Gift of the manufacturer



IMAGE TWENTY: Charles Eames. American, 1907–1978. Evans Products Co., Molded Plywood Div., Venice, Calif. Leg Splint. 1942. Molded plywood, 4 1/4 x 7 3/4 x 42" (10.8 x 19.7 x 106.7 cm). Gift of the manufacturer



IMAGE TWENTY-ONE: Charles Eames. American, 1907–1978. Evans Products Co., Molded Plywood Div., Venice, Calif. Side Chair (model DCW). 1946. Molded and bent birch plywood and rubber shockmounts, 29 1/2 x 19 x 21 1/2" (74.9 x 48.3 x 54.6 cm). Gift of the manufacturer



IMAGE TWENTY-TWO: Charles Eames. American, 1907–1978. Evans Products Co., Molded Plywood Div., Venice, Calif. Side Chair (model DCW). 1946. Molded and bent birch plywood and rubber shockmounts, 29 1/2 x 19 x 21 1/2" (74.9 x 48.3 x 54.6 cm). Gift of the manufacturer



IMAGE TWENTY-THREE: Charles Eames. American, 1907–1978. Evans Products Co., Molded Plywood Div., Venice, Calif. Herman Miller Furniture Co., Zeeland, Mich. Folding Screen. 1946. Molded calico ash plywood and canvas, h. 68" (172.7 cm); six 9 1/2"-wide (24.1 cm) U-shaped sections, joined by a full-length canvas hinge, sandwiched into plywood laminations. Gift of Herman Miller Furniture Co.



IMAGE TWENTY-FOUR: Charles Eames. American, 1907–1978. Evans Products Co., Molded Plywood Div., Venice, Calif. Herman Miller Furniture Co., Zeeland, Mich. Folding Screen. 1946. Molded calico ash plywood and canvas, h. 68" (172.7 cm); six 9 1/2"-wide (24.1 cm) U-shaped sections, joined by a full-length canvas hinge, sandwiched into plywood laminations. Gift of Herman Miller Furniture Co.

INTRODUCTION

Charles Eames, trained as an architect, and Ray Kaiser, trained as a painter, met in 1940 at the Cranbrook Academy of Art, in Bloomfield, Michigan. They married, and over the course of their life together, these creative visionaries designed furniture, films, exhibitions, toys, graphics, and interiors. In addition to their design work, they served as ambassadors and consultants to businesses and governments (nationally and internationally) about the role and impact of design in modern life. Charles and Ray’s interests and curiosities went far beyond their Southern California design office. They traveled the world documenting people, places, and things, amassing more than 800,000 photographs. Inspired by the beauty of everyday objects, they photographed such diverse items as an overflowing pile of colorful buttons in an Indian market and a shiny plastic typewriter keyboard. Central to their work was the idea that design was primarily about process, not a final product or outcome. They applied this philosophy to all their projects, often revisiting ideas and refining them over time. The Eameses believed strongly that good design should be affordable. Working in post–World War II America, they used new manufacturing technologies combined with low-cost materials to ensure that good design could be accessible to all. Their iconic chairs are some of the most widely copied design objects of our time. This lesson explores the Eameses’ design philosophy as it was applied to three types of objects.

LESSON OBJECTIVES

- Students will explore the process of design as it is applied to three different types of objects.
- Students will learn about the design and production of chairs designed by Charles and Ray Eames.
- Students will consider the ways designers visit and revisit ideas to achieve a desired outcome.

INTRODUCTORY DISCUSSION

Need and the Guest/Host Relationship

In his book *An Eames Primer*, Eames Demetrios (grandson of Charles Eames) identifies a core component of the Eames design process:

One of the most powerful forces in the Eameses’ work, a force that can be identified in virtually every major project the Eameses undertook, is the guest/host relationship. Charles felt that that this was one of the most basic, even primal, human relationships. Every society in the world valued this relationship—it existed in a nomad’s tent and a raja’s court. He also believed that this relationship was important in design. He often suggested that one a major question about the modern city is, If we are all guests “then who are the hosts?”¹²

- Ask your students to consider what the Eameses meant by “the guest/host relationship”? How does your students’ understanding of this idea relate to their everyday lives? In what areas of their lives are they guests?

The Eameses felt that designers create an experience, not just an object. Design, they felt, hosts the user, or guest. The recognition of need was central to their process. Different than want, need is a more urgent guiding principle in the design process.

- Lead a discussion with your students about need versus want. Once you come to a common definition of terms, have your students identify five needs and five wants they have in their lives. Ask your students to then consider how design could address the needs and wants they have identified.

12. Eames Demetrios, *An Eames Primer* (New York: Universe Publishing, 2001), 155.

IMAGE-BASED DISCUSSION

- **Show your students Leg Splint (Images Nineteen and Twenty), by Charles Eames, for a few moments, but do not tell them what it is called. Explain to them that they are looking at views of the same object from different perspectives: from above (bird's-eye view) and from the side.**
- **Ask your students to describe the object they see. How does the object seem to change as they observe it from different points of view? Ask them to consider what this object might have been used for. It may be useful at this point to tell your students that it is approximately seven inches long and four inches wide.**

In the early 1940s, the Eameses experimented with molding plywood into different forms. Some of the forms were sculptures and others were experiments for chair design. The designers hoped to achieve complex curves for chairs that would closely echo the human form, thus serving the needs of the human body. No other designers were working with plywood in exactly this way.

- **Ask your students if they see any ideological correlation between the guest/host relationship and the Eameses' experiments with molding plywood.**

In 1944, when United States entered World War II, most design projects were directed towards the war effort. Dr. Wendell Scott, a friend of Charles Eames, sought his help in designing a leg splint for injured soldiers. The metal splints in use were made of a material that created vibration, causing pain and further injuring the wounded soldier. The Eameses had been working with bending and molding plywood, and so they were asked to take on the problem and come up with an alternate design. They developed a splint that conformed to the shape of the leg, naturally preventing strain and pain. The splint was placed behind the injured leg, with the foot resting in the deepest part of the splint. The negative spaces were used to secure the leg to the splint. The splint worked well and also could be manufactured with minimal materials, thus decreasing costs at a time when resources were scarce.

- **Ask your students to look at the object again with this new information in mind. Ask them to consider both the functional and aesthetic aspects of this design.**
- **Next show your students the Side Chair (model DCW) (Images Twenty-one and Twenty-two), by Charles Eames. Have them describe the object as represented in both views. See if your students, by looking closely at it, can deduce how this object was made.**

The pieces of this chair were made by layering and gluing thin sheets of wood together, then pressing them together in a machine using heat. Plies (the thin planes of wood) were added and pressed together until the desired thickness was achieved.

- **Ask your students to look closely at the images of the chair to see if they can identify its different parts. How are these separate components attached to one another?**

When the Eameses first began applying this material and process to the design of chairs, they hoped to create one unified form. However, production techniques at the time would not allow for a single form with complex curves that was also strong enough to withstand the wear and tear of everyday use. Instead, they created a series of curved forms that could be joined to each other. This early molded-plywood chair employs flexible rubber disks at connection points. The flexibility of the disks makes the chairs comfortable, but they

deteriorate and loosen quickly. This design element was revisited and refined over time. Images of later-model Eames plywood chairs can be seen on the Museum's Web site, at www.moma.org/collection.

- **Tell your students the dimensions of this chair. Ask them to imagine what it would be like to sit in it. In what kind of environment do they imagine this chair? In what environment might one want to have a chair that is situated low to the ground?**
- **Next, show your students the Folding Screen (Images Twenty-three and Twenty-four), by Charles Eames. Give each student two pieces of paper and ask them to re-create the shapes they see with the paper. Once they have made their paper sculptures, ask them to stand their works upright. If they need to re-form them or use an additional piece of paper they should do so. Give your students ample time to complete this task. Afterward, ask your students to reflect on the process in written or verbal form. What was hard about it? What was easy? How did they need to manipulate the paper in order to make it stand up?**

In early explorations of molding plywood, many unintended shapes were created. In some cases, these shapes were later used in the design of an object. For example, after spending some time analyzing U-shaped cross sections of plywood, the Eameses determined that with the addition of flexible connectors they could be combined or folded together to create a screen. The stability of the plywood allowed the screen to be positioned in different ways, either fully or partially open, to create multiple shapes. Through trial and error, the designers settled on canvas and glue for the hinges between the U-shaped sections.¹³

- **Ask your students to look at the images of the screen and identify its parts. Then have them experiment with their paper sculptures, altering and changing the folds to create different forms.**
- **Have your students look at the three objects discussed in this lesson. Have them revisit the ideas and concepts discussed, with their new information about the design process. Ask them to consider the process of design for each individual object. Ask your students to consider why the Eameses would revisit an idea several times. How are the objects similar? Do they remind your students of things they have seen in the built or natural environment? Ask your students to be specific about the relationship between the form and the function of these objects.**

ACTIVITIES

Modeling Forms

Have your students create sketches of different forms they find interesting. Once they have created multiple drawings, have them select one to render in three dimensions using clay or another type of modeling material. When they have created their models, have them consider how these forms could be applied to a design object. What factors would have to be considered in applying these forms to functional objects? What manufacturing materials would best serve their design concepts? Would their objects be created by hand or by machine?

House of Cards

In 1952 Charles and Ray Eames created a game for kids. Pulling images from their library and that of textile designer Alexander Girard, they created two different decks of cards that can be interlocked to create three-dimensional structures. Depending on which face of the card is exposed, the structures juxtapose images from buttons to South American dolls to textiles. This game, designed to highlight the beauty in the everyday, is still in production today.

13. John Neuhart, *Eames Design* (New York: Harry N. Abrams, 1989), 79.

Work with your students to create your own images for a house of cards game. Tag board, oak tag, or card stock can be used to create a template for the cards. Have your students determine the size and scale of the cards and then determine what imagery they will include.

India Report

In 1958 Charles and Ray Eames were invited by Prime Minister Jawaharlal Nehru to visit India to observe and immerse themselves in the culture, then advise him how to address the low quality of consumer goods in India. After completing six months of travel and research in India, the Eameses coauthored a report on their findings. This document was the foundation for the establishment of the National Institute of Design (NID) in Ahmedabad, India. The mission of this organization, which still exists, is to offer design consultancy services, advocate for the design community, and provide a resource for education and mentoring. Have your students review the Eameses' report on the NID Web site, at www.nid.edu/aboutus_main.htm, and discuss the ideas proposed. Are these ideas from 1958 relevant to present-day India? How has the NID incorporated these suggestions? Have your students conduct similar research for the United States and suggest ways that the USA could boost consumer product production.