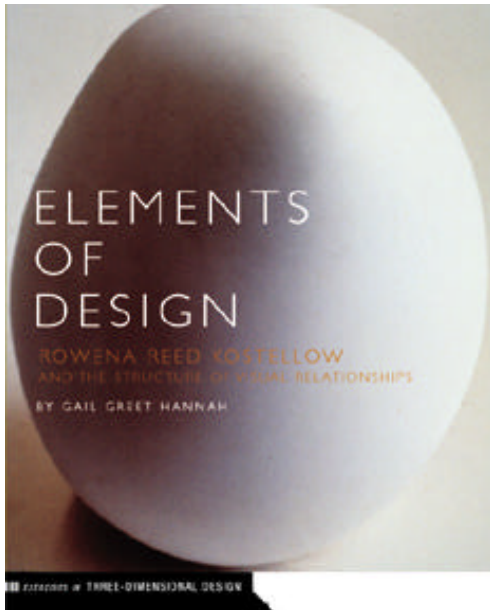


# The Elements of Design: Rowena Reed Kostellow and the Structure of Visual Relationships, a book by Gail Greet Hannah

By Tucker Viemeister, FIDSA, springtime-usa.com



## Abstract:

Gail Greet Hannah's *Elements of Design* is a book that outlines a set of lessons for understanding the structure of visual relationships and the life of its greatest teacher: Rowena Reed Kostellow. The series of exercises lead from the manipulation of simple forms to the creation of complex abstract three-dimensional designs. This curriculum has become the foundation of most industrial design education programs, and also applies across the board to architecture, graphic design, and art. From the beginning and for over 50 years, Miss Reed taught three-dimensional design at Pratt. The main body of the book documents the four part design program (1. Foundation, 2. Advanced Studies in Form, 3. Studies in Space, 4. Development), describing and illustrating all the exercises with beautiful photographs of students' best work from the ID Department archives. The book concludes with examples of the professional work of Miss Reed's students that prove the effectiveness of the program.



**Tucker Viemeister** is President of Springtime-USA. The New York studio of the Dutch company focuses on opportunities in product, new media, mobility, and social strategy. He is working as "Guru" for The LIBRARY Initiative with the New York City Board of Education, along with architect Henry Myerberg, and the Robin Hood Foundation. He is also serving on the Board of the Architectural League of New York and is a Fellow of the Industrial Designers Society of America.

Viemeister helped found Smart Design, frogdesign NY, Razorfish and now Springtime-USA. For 17 years he was busy at Smart Design helping to create things that fulfill economic, ergonomic and psychonomic needs; such as the Oxo "GoodGrips" universal kitchen tools. In 1997, he organized frogdesign's New York multi-disciplinary studio. From 1999 to 2001, he was Executive Vice President of Research & Development for Razorfish. The seamless integration of all media demands a new kind of designer, that's why *Metropolis* magazine called him the "last industrial designer."

Viemeister has won many design awards and his work is in museum collections. He organized national conferences for the ACD and IDSA, and edited *Product Design 6*, lectured from Budapest to Tokyo. He has taught at Yale, Parsons, Cal Arts, University of Cincinnati, Les Ateliers, Helsinki University of Art and Design, and Pratt Institute (where he graduated in 1974).

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*Elements of Design*, like Strunk and White's *Elements of Style*, is meant to be a handbook, but unlike the writers' bible, this book is about the structure of visual relationships. It describes design exercises pioneered by the woman who taught them for 50 years, and is filled with beautiful photographs that could be at home on a coffee table, instead of on the typing stand. The timeless pictures document a set of lessons for creating and understanding abstract three-dimensional design. Rowena Reed Kostellow helped create this curriculum, she refined the program, was Chair of the ID Department at Pratt where she taught for over 50 years. After her death in 1988 the Rowena Reed Kostellow Fund, a group of her former students headed by Louis Nelson, spearheaded the effort to celebrate Miss Reed's significant contribution to design education and asked Gail Greet Hannah, who had worked with Miss Reed, to write the book designed by Seth Kornfeld and me. *The Elements of Design: Rowena Reed Kostellow and the Structure of Visual Relationships* is published by the Princeton Architectural Press of NYC.

## A Brief History

With the development of advanced mass production in the early 20<sup>th</sup> century the need for industrial design education became apparent. Beginning in 1919, Walter Gropius, Josef Albers, Herber Bayer, Marcel Breuer, Vassily Kandinsky and Paul Klee tried to merge art, craft, and architecture at the Bauhaus. In their anti-academic way, they organized the Preliminary Course, preceding other courses, intended to teach art and architecture students the basics of material characteristics, composition, and color. In 1937, Laszlo Moholy-Nagy moved from Germany and opened the "New Bauhaus" in Chicago, and in 1938 Mies van der Rohe took it to IIT. At the same time another design program was taking shape in Pittsburgh. A group of teachers who moved from Carnegie Tech to Pratt Institute developed the course of study integrating figure drawing, color, 2-D design, and 3-D design that became the Foundation curriculum for all design classes at Pratt and around the world. Thousands of students have graduated from the program, many going on to found design departments in colleges and universities all over the globe – all together generating a huge influence over the shape of products everywhere.

At Carnegie Tech (now Carnegie Mellon University), Painter Alexander Kostellow (shown left) along with his young wife, sculptor Rowena Reed (above), drawing teacher Robert Lepper, artist Frederick Whiteman and one industrial designer from General Electric, Donald Dohner (shown left), began to outline a curriculum. In 1934, they offered the first industrial design program in the U.S. and only 2 years later, in 1936 Carnegie Tech produced the first ID graduates in USA.

Those teachers must have all known James Boudreau when he was with the Pittsburgh Board of Education, because after he moved to Brooklyn in 1928 he began bringing them up to Pratt where he had become Dean. First Donald Dohner in 1934, then the Kostellos in 1936 and then Frederick Whiteman (who later became Dean). In 1938 Monti Levin graduated in ID from Pratt (and he doesn't think he was the first graduate!). The 1939 New York World's Fair was a spectacular demonstration of the popularity of the new industrial design profession.

It's amazing to see how compressed the time line is. My Dad and Budd Steinhilber graduated in 1943 (that means they were taking foundation classes only 2 years after the Kostellos arrived) and it already seemed like they had joined an established course. Meanwhile I had Miss Reed 25 years later, she was a fantastic teacher who was able to help us see the importance of both the tiniest subtleties and the grandest gestures. I felt the program was fresh and essential (although somewhat diluted by general entropy and student protests of the era). The curriculum is classic, and vital to industrial design the way Greek and Roman architecture will always be the basis for architecture.

"Pure, unadulterated beauty should be the goal of civilization!" said Miss Reed.

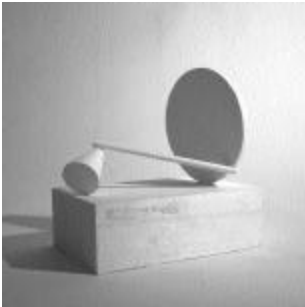
### **The Philosophy**

First of all: Miss Reed and the founders of the ID Department believed that you could teach students how to make good forms. They built a course that augmented students' innate talent through practicing the principles of visual relationships. To do that, they developed a sort of objective science of visual relationships and a series of exercises to connect the students' intellectual understanding to their physical eyes and hands (hands-on). By reducing the basics to objective principals, critiques are about making the elements "work," not about what they "say." Personal value judgements about what the content "feels like," are reserved for other discussions, thus separating *subjective* or political arguments from *objective* polemic about developing the form. The goal is to teach designers to take advantage of the way people "read" objects, like Jean Baudrillard says. Most people have an easier time reading the symbolic signs and literal messages but don't consciously see the abstract relationships of forms, colors, and textures - the media and structure of the communication - that carry the meaning and convey

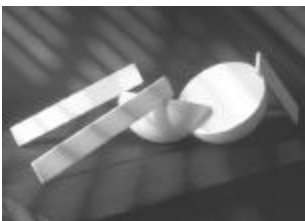
real sensual feelings. Another teacher, Dr. William Fogler, put it another way, “Industrial design is about exactly what is there. The forms of industrial design are direct support for experience: they shape the conduct of our days: they structure the experience of being alive now.”

### **The Theory**

The founders of America’s design education said Industrial design is concerned with 3 things: form, function, and production. They understood that the 3 were interdependent, but I think that since they all came from art backgrounds, their program leans toward the form side of the equation (although they had great connections to industry, where all kinds of new materials and processes were being invented and they embraced the new science of ergonomics). Miss Reed stated, “Our goal is the training of a designer so familiar with the principles of abstraction that he automatically thinks of a visual problem in terms of organized relationships and then feels free to study other aspects of the problem, or to confer with specialists in related fields. He is a designer who can, visually, cross boundaries and suggest new forms for new materials or new techniques.”



They believed that they could be more detached and scientific about design, instead of invoking traditional rules or personal taste. Visual experience could be analyzed through seeing abstract relationships. In one of her classes, Miss Reed spoke about how “the abstract relationships express the relation of the parts to the whole apart from any concrete or material embodiment. They reflect the direct visual experience of the thing, how forms and spaces and movements “speak” to one another.” Learning the exercises is like practicing scales on the piano; it helps you express yourself better. Although they made many connections to music, they acknowledge that most of a human beings sense of their environment is through sight. Miss Reed said it is “the designer’s first responsibility - to find and develop the visual solutions for living in our environment.”



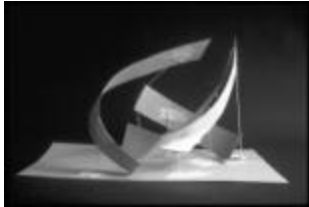
Learning how to see and manipulate abstract forms can be applied to any design situation. She said, "The goal was to supply students not with disjointed bits of information but rather with an organized approach to the mechanics of design and the necessary inner discipline to carry out assigned problems . . . . to develop an understanding of the elements of design, of structure, of the organizational forces which control them, and an ability to apply this knowledge to a variety of situations in designing for self-expression or for industry.” Graphics, product design, furniture, interior design, exhibition, architecture, planning and even fashion designers could benefit from the program.

### **The Program**

For the purposes of the book, we divided the form study part of the program into four parts:



- 1: Foundation
- 2: Advanced Studies in Form
- 3: Studies in Space
- 4: Development



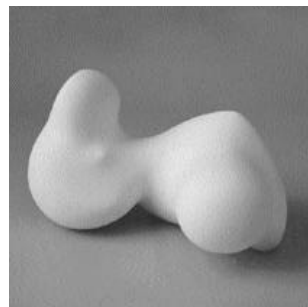
The Foundation program the founders proscribed also included basic figure drawing, color and 2-D design, as well as 3-D design because it was designed for all first year students in the whole art school to literally build a “foundation” for any field. 1) line , 2) plane (or surface), 3) volume (positive and negative space), 4) value (light and dark), 5) texture, 6) and color are component elements of any material embodiment. In the second year, when students join the industrial design department, they move on to 2: Advanced Studies in Form and 3: Studies in Space, developing design skills in manipulating more complex forms and spaces. 4: Development is the culmination of the course, where students apply the skills they learn to more functional product or spaces.



**1: Foundation:**

- Problem One - Rectilinear volumes
- Problem Two - Curvilinear volumes
- Problem Three – Rectilinear and Curvilinear
- Problem Four - Composition of Fragments
- Problem Five - Planar Construction
- Problem Six - Lines in Space

Beginning on the first day of school, students work with the simplest forms arranging three gray plastilene clay rectangular forms in space, then they use curved volumes, move on to mixing up curved and rectilinear, rearrange fragments of plutonic forms, build spaces from curved planes, and finally exercises with curved lines in space. I found those wire problems the most difficult because they seems so simple.

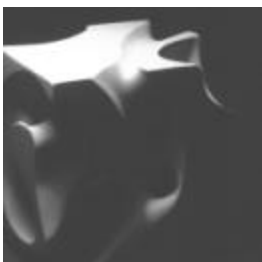


There are only a couple of rules. Symmetry should be avoided in the exercises because the solutions are too easy. Good 3-D design objects “read” equally from every angle. Compositions are based on organizing 3 relationships between the DOMINANT, SUBDOMINANT, and SUBORDINATE parts. Students learn to see the implied axis of forms and to work the relationships.

**2: Advanced Studies in Form:**

- Problem One - Construction
- Problem Two - Convexity
- Problem Three - Concavity

Later in the second year, students construct compositions from planes, carve concave shapes, and build convex forms. Projects begin as 3-D sketches made from cardboard or



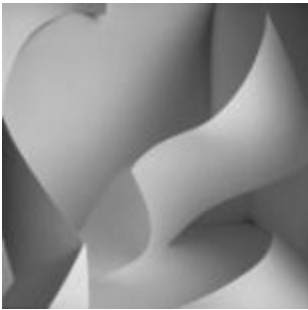
clay, but may be transformed and scaled into small sculptural projects carved from salt blocks (from agriculture suppliers) or cast in plaster or fabricated from lead or plastic. Miss Reed always told us that “Unity is the visual glue that holds everything together. You know that you have achieved it when all the visual relationships within the design are organized in such exquisite dependent relationship that every element supports and strengthens every other and any minor change would upset the perfect balance and tension.”

### 3: Studies in Space:

Problem One - Abstract Analysis

Problem Two - Space Design

The maturing student has gained the skills to address abstract analysis of complex relationships and space design, first arranging plans inside foamcore boxes to activate the space in the box. The in the second problem, they design more evactative spaces and places. Although some students push these exercises toward more functional objects, the goal is to excise their eyes and their hands with abstract vision. By expanding their talent and creativity, when they are confronted by real problems and practical restrictions, they step back, analyze the situation and create beautiful and powerful 3-D visual relationships.



### 4: Development

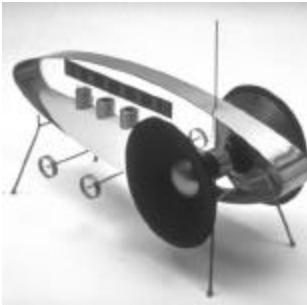
Now problems begin to mix in practical conditions with abstract form studies. Students learn to apply expressive skills to real world needs – like ergonomic or production requirements – without having the restraints dominate decisions and the creative process (they do that in other classes). They make models from appropriate materials and colors. Problems can become student’s senior thesis projects. The resulting libraries, music shops, radios, power tools, vehicles, and sanctuaries are always less than practical but very beautiful!

### Epilogue

For 50 years beginning in the 1940’s, Rowena Reed Kostellow was the embodiment of industrial design at Pratt Institute. These fundamental exercises on the structure of visual relationships were her life-long pursuit (an alternative name for the book was: “Born Abstract”). Within the 160 pages *Elements of Design* has it all: it begins with a brief biographical review. The main body describes assignments in Foundation, Advanced Studies in Form, Studies in Space, Development, with pointers from Miss Reed, quotes from other teachers and students and beautiful photographs of the students’ best work. It concludes with a section proving the viability of the program with of examples of the professional work of her students. The designers she trained – and who in turn have trained others – continue to shape American design. The first generation of educators included Marc Harrison at the Rhode Island School of Design; James Henkle at the University of Oklahoma; Robert Redman at the University of Bridgeport; Jay Doblin at the



Institute of Design in Chicago; James Pirkl and Lawrence Feer at Syracuse University; Ronald Beckman at Cornell; Nelson Van Judah at San Jose State University; Read Viemester and Budd Steinhilber at the Dayton Art Institute; Bernard Stockwell at the Columbus College of Art and Design; Jayne Van Alstyne at Montana State University; Robert W. Veryzer at Purdue University; Charles W. Smith at the University of Washington; Robert McKim at Stanford; Carl Olsen and Homer Legasy at the School for Creative Studies in Detroit; Joseph Parriott, Giles Aureli and Gerald Gulotta at Pratt; and there are more like Craig Vogle at Carnegie Melon. Important designers include the lauded jewelry/accessory designer Ted Muehling; Ralph Appelbaum, who designed exhibitions for the American Museum of Natural History and the United States Holocaust Memorial Museum; Donald Genaro of Henry Dreyfuss Associates creator of ATT's famous Princess Phone; Bill Porter designer of Oldsmobiles, Tupperware designer Morison Cousins, dinnerware designer Gerald Gulotta; Louis Nelson creator of the Korean War Veterans Memorial; and me, Tucker Viemeister, who helped found Smart Design, designers of OXO GoodGrips and I designed this book with Seth Kornfeld (who did most of the work).



We are sure that Miss Reed would have made some changes. "If you can't make it more beautiful, what's the point?" she would say.

Photos (starting with the first one): 1. Cover of the book (student convexity). 2. Rowena Reed Kostellow. 3. Alexander Kostellow. 4. Donald Dohner. 5. Foundation: Problem One - Rectilinear volumes. 6. Problem Two - Curvilinear volumes. 7. Problem Three - Rectilinear and Curvilinear. 8. Problem Four - Composition of Fragments. 9. Problem Five - Planar Construction. 6. Problem Six - Lines in Space. 10. Advanced Studies in Form: Problem One - Convexity. 11. Problem Two - Convexity. 12. Problem Three - Concavity. 13. Studies in Space: Problem One - Abstract Analysis. 14. Problem Two - Space Design (Asye Birsell's *Water Room*). 15. Development (radio). 16. Professional work (Ted Muehling's *Bird* vases).