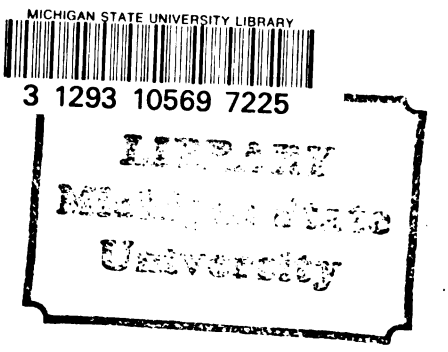


This is to certify that the

thesis entitled

AN APPROACH TO PACKAGE DESIGN TRAINING

presented by

MARGARET J. MICHEL

has been accepted towards fulfillment
of the requirements for

M.S. degree in PACKAGING

James W. Goff
Major professor

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# AN APPROACH
# TO PACKAGE DESIGN TRAINING

By

Margaret J. Michel

A THESIS

Submitted to
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ABSTRACT

AN APPROACH
TO PACKAGE DESIGN TRAINING

By

Margaret J. Michel

Package design is one of the most often required and important functions of the packaging professional. A well-rounded packaging education ought to include courses in package design in addition to the packaging materials, production, and laboratory testing courses. Michigan State University's School of Packaging needs to offer a course that prepares its students for the creative work they will be expected to do in industry. This thesis provides a direction for the teaching of package design.

The proposed program includes two courses: "Concepts in Innovative Packaging" and "Case Studies of Innovative Packaging." The first course presents design processes and problem solving techniques. Emphasis is placed on thinking clearly and freely, visualization, drawing, and communication skills. The second course gives the students more exposure to package design. This is accomplished by having industry presentations and field trips.

ACKNOWLEDGEMENTS

I would like to thank Jim Goff for his patient guidance and for the inspiration he provided. I would also like to express appreciation to Susan Metros for her enthusiasm and helpful suggestions. Thanks are also extended to Bruce Harte for his encouragement for development for this course work.

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TABLE OF CONTENTS

LIST OF FIGURES

# INTRODUCTION: THE IMPORTANCE OF PACKAGE DESIGN TRAINING

Package design is one of the most often required and important functions of the packaging professional. Every five or ten years since the 1950's, surveys have been taken of people working in the packaging industry. The studies indicate structural design is expected of nearly every packaging department, and package graphic design is the responsibility of nearly one-third of the departments.[1,2,3] The packaging group is in regular and frequent contact with both the engineering (or research and development) department and marketing department.[4] Packaging people must learn to communicate with and bring valuable ideas to both these groups.

In other words, packaging professionals are designers as well as engineers, scientists, and marketers. Michigan State University's School of Packaging needs to prepare its students for the creative work in package design that will be expected of them in industry. It is imperative that packaging students learn to use their creative and design capabilities. This thesis presents a course of study that should help round out the undergraduate's

packaging education with an introduction to design processes, problem solving techniques, and good communication skills.

## Package Designers

We can not expect the art schools to produce package designers. When design is separated from the framework of packaging, it is not in balance with the other package functions -- it is either under- or over-emphasized. Artists do not understand the full import of the package. They may design a pretty package, but if there is not an understanding of packaging behind the design, it will not meet all packaging goals.[5]

On the other hand, we can not expect untrained packaging professionals to design or evaluate packages well. Without the awareness of the impact of graphic and structural design, a good design decision can not be made.

The person who is trained in both packaging and design will obviously be the most valuable person in a creative packaging department.

## Design

Design means different things to different people. According to Webster's, to design is: "To prepare the preliminary sketch or the plans for ..., esp. to plan the form and structure of." However, a more meaningful and helpful

definition can be found in Design Yourself!

> optimum
>
> Design is the interface in the relationship between man and his environment. It is the optimum combination of man with his environment. It is man living in, cooperating with, using correctly and beautifully those things of nature which surround everyone and make this world the place that it is. Design is respect for aesthetics, technology, life, and efficiency all wrapped in one.6

It is this last sentence, "the respect for aesthetics, technology, life, and efficiency" that is most important. Our students learn about new technology and efficiency, and maybe something about life, but little is emphasized of aesthetics or respect, and they are not required to think of these as a whole. If the quality, not just the quantity, of the physical things (packages) that indicate the quality of our world is to improve, designers must be more sensitive to aesthetics.[7] "Design is for people. Design is the responsibility of everyone."[6]

## Creativity

Good design comes from good creators. Creativity is the linking together of previously unrelated ideas. There are few new ideas, but the ordinary ideas that we have can be combined in a infinite number of ways. When they are combined so that something new and useful is developed, creativity has taken place.[8]

Packaging students who wish to design must learn how to produce good design by using their creative abilities.

Managers who are most concerned with profit should remember John Gloag's introduction to Planned Packaging, written over thirty years ago: "To repeat one of the sayings popularized by the Council of Industrial Design: 'Good Design is Good Business.' And good design depends upon common sense, lit and guided by trained imagination."[9] This is still true and will continue to be true. Educators should rise to this challange and contribute to the enlightenment.

## THE CURRENT CURRICULUM

Packaging professionals, and MSU packaging students in particular, often are perceived as, are given the title of, and act like engineers. It is not the purpose of this paper to dispute or support this label. Regardless of title, packaging professionals share one problem with the engineers: They are always expected to have the right answer. The current curriculum encourages packaging students to think this way. They are expected to collect lots of numbers, twist and turn them around, multipy, divide and come up with the correct answer (with standard deviation, of course!). As important as these numbers may be in some applications, there is rarely only one correct answer in design. For every design problem there are many "answers," and they can be arrived at verbally, mathematically, visually, or by using a combination of methods.

### Solving Design Problems

Many parents and educators believe that if students learn more facts and do more and harder homework, the students will be prepared to solve problems better. But what they really need is a new method for problem solving. Students need to have a serious attitude about problem solving, yet be more playful in the process. They need to learn to use their creativity. If people can not function creatively, they will not be able to contribute to society in a

dynamic way.[10]

Drawing

Another problem that MSU and other students face is the belief that drawing is something that only artists do. Some may recognize that visual presentations are very important, that "a picture is worth a thousand words," but believe that they could never put a pencil to paper to communicate their ideas. This block must be overcome.

Design Integration

The current program at MSU's School of Packaging teaches students to separate form from function, aesthetics from utility. They are taught that once they "design" (figure dimensions, capacity,...), an "artist" will slap on some graphics and the package will be a success. What they need to learn is to integrate the beautiful and the useful.[11] This will produce the desired result. A course of study is needed at MSU that allows prospective package designers to think creatively, to reunite form with function, and to be able to clearly communicate their ideas.

# THE PROPOSED CURRICULUM

The students who graduate from MSU's School of Packaging are familiar with many of the characteristics of many different kinds of packages. They can calculate the water vapor transmission rate of a material or package, they can find the natural frequency of a product, they can figure the stacking height of corrugated shippers.

However, in the current curriculum there is little opportunity for the students to explore their own ideas about packaging. They do not get the chance to put together all of their knowledge and observations about materials, distribution, and characteristics, nor sufficient time for learning and practicing presentation techniques.

Students need some guidance in how to perceive clearly, to use their creative abilities, and to present their new ideas to others. They also need to see how some of the most recent package designs were developed. Courses presenting these ideas could be named "Concepts in Innovative Packaging" and "Case Studies of Innovative Packaging," respectively.

## RULES FOR PACKAGE DESIGN

Learning rules about package design is very limiting, and most often these "rules" are only opinions. Reading what several package design experts have to say about design will confirm this. Not only do the experts disagree, but they often contradict themselves throughout the years. Jones quotes a package designer on his theories of type and color. In 1928 this designer's theories were that type and color "expressed the atmosphere of the package." In 1935 he claimed that too much emphasis was placed on the role of type and color on packaging.[12] These statements show that no hard and fast rules can be laid down about package design, that designers must find solutions to problems in their own way.[13]

As students, potential designers need to find their own ways to design. But they need help. They will not be helped by being weighed down with lists of specific rules that do not apply or that will change as that designer grows and styles change. They can be helped by being provided with a general problem solving process that can be used freely in any type of situation.

There are no rules of thumb to be taught about package design. "Bands of colour, stark lettering and beautiful but wastefully used blank spaces cannot be described as

package design."[14] There are no mathematical formulas that instantly produce good design.

## CLEAR PERCEPTION

In order to perceive clearly, the student must be freed from conventional thought patterns, and be able to use all sensory organs, perceive aesthetics, transcend cultural blocks, think in different "languages," and properly define problems. This sounds like a tall order. It is. Nobody said that being a designer is easy. However, everybody possesses these abilities to a greater or lesser degree. If MSU students are to become package designers, they should have as much or more ability than the average person. In many cases these abilities are just below the surface, in others, locked away. The students need to be made aware of their capabilities and freed so that they can develop and use them. A short discussion or definition of each of these terms will clarify the importance of each.

### Free Thinking

The first, and most important, step is to get the students to feel free, to think in many directions, to be free from thinking in conventional patterns. When designers think in a conventional fashion, they develop conventional designs. What is needed is new, innovative design, not the same designs over and over.

Victor Papanek believes that people have become increasingly conformist. If somebody acts of thinks differently,

it is questioned. In an ever-increasingly complex world, conformity in action is helpful in "holding together the social fabric," but this must not be mistaken for conformity of thought, which is limiting in problem solving.[15] Designers need to be encouraged to be non-conformist in their thinking. "The imagination is extremely powerful because it can go beyond reality. But in order to do this, the imagination must be set free of the constraints placed upon real acts and events."[16] Once the imagination is set free, it can generate ideas.

Senses

All of the senses are involved in design. No matter how wonderful the product is or how well it is designed to work, the consumer will not purchase nor use it if it does not appear to do what it is supposed to.

Impractical, outlandish, and wild ideas can come when thoughts run freely and the senses are used. This is desirable in creative problem solving. Other more traditional instructors and managers may claim that developing countless farfetched ideas is a waste of time. But amid the crazy ideas are good ones, and usually the farfetched ones are the springboard for the more feasible ideas.

If designers are freer and more sensitive it does not mean that they must forget the knowledge that they have

accumulated over the years. Their logical abilities are not lessened at all. A balance must be struck between the rational input and the sensory input. One is not very good without the other. Total sensory stimulated thought is often unworkable, and rational thought is often too conventional and limiting, but when combined in the proper proportion, they are complementary.

## Aesthetic Perception

After creating a balance between freedom and rationality, students need to develop their aesthetic perceptions. Since there is a desparate need for good, utilitarian design, making pretty packages seems to be a shameful waste of time and resources. Yet people do need their surroundings to be more than just utilitarian. "Delight, balance, and that pleasing harmony of proportions that we project outward into the world ... are psychological necessities for us."[17] It is not just human beings, but also less sophisticated animals that need this enrichment. Even rats deprived environmentally are found to have stunted growth of the brain,[18] and some birds will arrange their living areas so that they are aesthetically pleasing.[19] The designer must be aware of this basic need. The student must learn to perceive whether a design is aesthetically pleasing or not.

Blocks

Students often have difficulties, or blocks, in correctly perceiving and solving problems. "Conceptual blocks are mental walls which block the problem solver from correctly perceiving a problem or conceiving its solution."[20] Cultural blocks are those conceptual blocks that are learned through our cultural system. Most students have conceptual and cultural blocks to overcome.

One block students must overcome relates to work. They must be convinced that there are modes of behavior other than constant toil that are acceptable for the work place. The students have learned in other classes how to use reason and logic. They need to learn to use intuition and feeling, playfulness and fantasy, and then to combine the new abilities with the old. This will help them enjoy their work.

Visual Language

There are three ways, or languages, in which thought takes place: verbal, mathematical, and visual. Some people believe that all problems can be solved verbally and mathematically -- that, in fact, nothing can be solved without numbers. Most of our students are verbally oriented. After all, the exams they took to qualify for college tested purely in verbal and mathematical modes.[21] The visual language is almost totally overlooked, and because it is not required, students do not practice it. But

visualization has many applications. Many problems can be best solved, and solutions communicated, visually. "Visualization is an important thinking mode which is especially useful in solving problems where shapes, forms, and patterns are concerned."[22] Shape, form, and pattern; this is what packaging is. Numbers will not reveal the answers to problems of shape, form, or pattern, but visualization will.

Trying to solve problems using the incorrect language slows down the process of problem solving, and may even make it impossible. The mathematical and verbal skills of MSU packaging students are well exercised. What they need is practice in visual thinking.

Problem Definition

The final step that the student needs to learn to do in order to see clearly is to define problems properly. Realizing the magnitude of a problem is one aspect of this. The other is to be sure that the correct problem is being solved.[23]

CREATING

In the 1950's the Society of Industrial Artists suggested a Basic Course for designers. It recommended that different approaches to design, including creative, logical (organizing, planning), social, and economic, be taught.[24] Although our specific needs may have changed since then, the need for invention and good design have not diminished. Each of these approaches is still valid and necessary today. When a designer approaches a problem from creative, logical, social, and economic angles, good design is more likely to occur than if only one approach is used.

Once designers have opened their minds and are free from cultural blocks, creativity will come more easily. Becoming more aware of the creative process will help people to use their abilities more fully. They need to learn the steps in the design process, design elements, and new approaches to design. Specific packaging elements to be kept in mind are the balance of package functions, convenience, and reuse.

## The Design Process

To design, a problem must be recognized, isolated, defined, and then solved. Hanks, Belliston, and Edwards have broken down the design process into six steps. The steps are problem identification, preliminary ideas, design refinement, analysis, decision, and implementation.[25] (Figure 1) Others

have broken the process down into similar numbers and kinds of steps.[26,27,28]

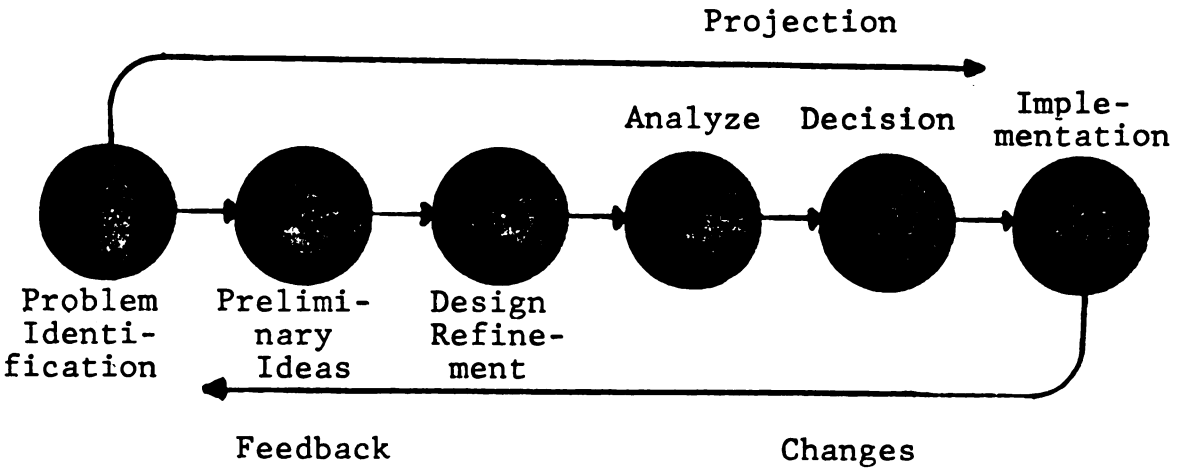


Figure 1. The Design Process

Using such a method accomplishes two things. First, a method gives structure to the process. Design problems can be overwhelming if there is not a systematic problem solving technique to follow. Second, by breaking down the problem into shorter groups of steps, it is easier for one to remember and figure out the steps, and less likely that a section will be overlooked. For example, if there are sixty steps, it is hard to remember them all and consider them all important. If there are six groups of ten steps each, it is easier to remember each step and to give it the effort and thought it deserves. Such a structure could be carried from the school setting to the work place.

Each of these six steps will be defined and examined.

Identification. The identification step defines the needs and criteria of the design. The problem requirements and limits are set. All related data is collected. If the problem is not properly defined, the wrong problem will be solved.

Preliminary Ideas. Idea generation is the beginning of the creative process. It is best to have many ideas about how to solve a problem before going to the drawing board. This is because it is easier to limit and throw away ideas when there are many than it is to broaden when there is just one.

Preliminary ideas can be generated in many ways. As students, potential designers should learn as many techniques as are available. If many are known, the best one or ones can be chosen for a particular problem. If just one technique is known, no choice is available. One technique may be good for a certain situation and not for another. It may be a favorite method for one designer, and another may never be able to use it.

Design Refinement. In the design refinement stage, the ideas that have been generated are scrutinized. The choices are narrowed down -- ideas are discarded, combined, or accepted as is.

Analysis. In the analytic stage, ideas are carefully evaluated. Models are made to determine if what looks good on paper will actually work. Production problems are analyzed. Test market research will also be done at this time.

Decision. A decision must be made about each idea developed in the analytic stage. In the decision stage an idea is accepted, partially accepted, or rejected. If it is rejected, the process can begin all over.

Implementation. Once an idea is selected, the product is manufactured and marketed.[25]

Allowing the students such a structure or method should satisfy their need for order, and yet they should still feel free enough to change it to suit their needs.

## The SAFE Design

The question of what good design is arises in the analytic stage. How can design be evaluated if there are no standards, no criteria? One approach to this problem is the SAFE design. SAFE is an acronym for Simple, Appropriate, Functional, and Economical.[29]

## Package Functions

At all times during the design process, it is important to keep in mind the basic functions of a package. It must

contain, protect, communicate, and be easily utilized. Each of these functions must be emphasized in the correct proportions. If one is under- or over-emphasized, the package will not perform at its best.[30]

Responsible Design

Another balance that must be maintained is that between the designer's needs and wants and the resources that are available to him or her. Students should be encouraged to put their talents to good use.

> Anyone who has seen the huts hammered together out of flattened oil tins that provide shelter for millions of people throughout South America and South Africa must have asked himself why oil (and other raw materials) is not shipped in containers more suitable as building components. Re-use and different-use packaging is another major design challenge (for those package designers who feel like participating in rational work).30

The students should be made aware that they may face political problems related to package design. They should not be afraid to voice their opinions about a particular product or type of package. Products and packages use our natural resources and students should be cognizant of the effect package designers have on the environment. Designers with consciences can control, to an extent, what they consider resources wasted on foolish products by refusing to package them. If the products are not packaged it will be difficult

for them to be distributed and sold.

There are so many packaging problems to be solved today that designers should be encouraged to take on those that are most important. For example, to find a better way to package our foodstuffs or building materials so that there is less damage ought to be a higher priority than packages for electric nail polish dryers, diapers for parakeets, and mink-covered toilet seat covers (yes, these products do exist).[32] It may not be easy to refuse to design a package, but as students, designers should be encouraged to do what they consider correct.

Packagers should feel the pressure of responsibility for what they package and how it is packaged. There is power related to their function, but it must be used correctly and courageously. Packagers must also realize that it is what they design that produces much of the litter we see each day. Excess packaging adds to that litter. Package designers must face up to the responsibility they have to society and the environment.

Once the students have learned to generate ideas, bring them to completion as a SAFE design, check the balance of the package functions, and make sure it is a responsible design, they should learn how to present new ideas and designs to others.

PRESENTATION

To properly present ideas, designers must be familiar with the basic design principles and be able to apply them. Designers also must be able to draw, no matter how rudimentarily, and be able to use visual, written, and verbal means to communicate ideas.

Basic Design Principles

The basic design principles, or language of vision, are balance, shape, mass, form, volume, line, texture, rhythm, proportion, and color. Each of these concepts should be studied and the student should feel comfortable with each.

All good design consists of some, although not necessarily all, or the concepts listed. What is most important is not trying to include each, but being aware when one is missing. The observation that something is wrong is a good start, but the most valuable critic is the one who can also point out what is amiss.

This series of courses should do three things: help the student understand all that the designer does by doing some design, help the perceptive packager to constructively critique a design, and allow the interested student a chance to see if more design instruction is desired. The students should be as familiar with the words and concepts listed as

the language of vision as they are with the words and concepts of mathematics such as multiplication, reciprocal and integration.

Color, Composition, and Typography

Color, composition, and typography are aspects of design that need to be emphasized to packaging designers. Color attracts the consumer initially. Composition helps to identify the product and leads the eye to read the correct information. Typography makes the information legible, and implies the quality of the product.[33] Extensive studies should be conducted in these areas.

Drawing

"In order to take full advantage of visual thinking ability, drawing is necessary."[34] Much of the emphasis of the work suggested to be done by the students is learning to use their visual abilities. Drawing is the natural extention of those abilities. It is difficult to express verbally what many objects look like, yet a simple drawing will communicate the idea precisely and quickly. A good drawing has power to sell ideas (unfortunately, also ideas that are not so good). Even a very crude drawing has value. It can give precise information as well as a general idea.[35]

Drawing is a little like typing -- a good skill to have. Even if it is not used every day it is useful to know how

to touch type when the need arises. In the same way, when an idea for a design pops up, it can be drawn without having to wait for another person to draw it, and the time saved can be used for generating new ideas. Some people are naturally better at drawing than others, but everyone who can write his or her name can draw.[36] And like typing, and everything else, the more practice, the better the skill.

## Combining Verbal, Written, and Visual Skills

The students should have practice in presenting their work to others. They should be able to use their drawings in conjunction with verbal and written presentations of their work to clearly communicate their new ideas. There should be opportunity for them to present work to both groups and individuals.

CASE STUDIES

For students to get the most varied exposure to package design in a short period of time, a case study course should be offered. There is no doubt that packaging design takes considerable time. By visiting packaging companies, advertisement agencies, and design firms, or having representatives of these groups present the students with many design problems and solutions, the students should be able to gain more insight than if they spent a term working through only one or two specific problems. This type of course would avoid consuming all of a student's free electives, and yet provide him or her with adequate information.

"Case Studies of Innovative Packaging" would be most meaningful after the bulk of the packaging classes have been taken (after 427 Packaging Materials and Systems Testing Laboratory), but before the student spends considerable time in developing a package (before 428 Package Development).

## COMMUNICATING THE INFORMATION

The ideas presented in the preceding section may be worthwhile and helpful, but as important as the subject is the method by which it is taught. A personal example should clarify this point.

Much of the information contained in this paper was gleaned from books listed on the last page of a handout I received in an undergraduate class. It was a poorly mimeographed sheet that nobody read -- including me. Four years later I came across it in my files and finally read it. The instructor's class was boring and always a chore to attend. Yet he had wonderful material at his fingertips that he had never used. Had he implemented some of the techniques mentioned in the books, his class probably would have been one of the more exciting and useful ones. It is important to have all the information, but it is equally important that it be presented to the students in an appropriate, applicable manner.

This section is about classroom and course considerations. The next section is a relatively detailed Instructor's Manual for "Concepts in Innovative Packaging."

## CLASSROOM ATMOSPHERE

### Classroom Conditions

A supportive environment must be developed in the class. The students must trust the instructor and other students. It must be healthily-competitive, friendly, interactive. This will help the students feel comfortable about exposing their "impractical" ideas to other.[37] If the surroundings are right, new approaches and ideas will flourish.[38]

### Lecture Time

Lecture time should be kept to a minimum. This will allow the students to interact, to participate, and to practice.[39] It gives the students time to start working through the problems, and to ask questions as they arise.

This type of instruction will be difficult for the students at first. As they become accustomed to it, however, they will realize the aid they can receive from the other students and the instructor.

### Instructor-Student Relationship

It is advised that the instructor take special care to relate to the students on an adult level. Parent-Child relations allow the students to rely too much on the instructor. If students are treated as adults, they will be responsible as adults, and will develop their own motivation

and direction.[40]

Questions

Questions should be encouraged. If the students do not ask any questions, they should be solicited. As James Adams notes, "One of the most important capabilities in a creative person is a questioning attitude."[41] This attitude must be fostered, however, if the students are not to feel foolish about asking many questions. Time should be allowed in each period for both questions about the in-class assignments, and for getting the out-of-class problems started so that questions can be answered early in the problem.

Assignments

Both the instructor and students should be aware that creativity occurs only with hard work.[42] "To awaken creativity, we must challange students with provocative ideas."[43] Old, dry design problems will not normally stimulate students to think about designing in new ways. The instructor must be creative, too. As the students, packaging program, and packaging industry change, the problems the students are assigned must also change. The problem that illustrates a concept well for one group of people will not work for another. Also, some problems lose their impact after the problem and a solution are circulated amoung the student body. Once one "answer" is known, an alternate solution is not likely to be contemplated, and the concept is not

learned. One solution to this problem is to find a problem that most students are familiar with and have them find a better solution. Regardless of what the problems are, they must be changed from term to term to keep the students interested.

Students must be broken from the habit of thinking only conventionally. They must form new habits of working without blocks. The students should be faced with problems that are outside the realm of the everyday experience. In this way the blocks will no longer apply and will not keep them from being creative. If the students are given enough problems of this type, new habits of designing without blocks should carry over into all their designing.[44]

The goal of the assignments is to teach the students general principles from which they can draw at least one implication. This bundle of knowledge learned in class should then serve as a point of departure for further inquiry.[45]

Victor Papanek complains that design schools "teach too much design and not enough about the social, economic, and political environment in which design takes place."[46] As the students progress through the program, the instructor should make more and more frequent reference to the environment for which they are designing. Actual problems should be presented and solutions worked out. It is important

for the students to know what kind of design they will be doing.

Failure

Because the students will be working with new ideas in ways that they have never tried before, it is inevitable that they will at times perform poorly.[47] Students should be made aware that it is permissible to fail. This is to be expected and they will not fail the course because of an occasional poor project. Realizing why a solution does not achieve the wanted results is often the best learning experience. If the student does not perform well because of poor attitude, attendance, or lack of effort, this would be reason for failure.

ADMINISTRATIVE RECOMMENDATIONS

The more technical aspects of the course remain to be recommended: Prerequisites, where the course fits in the sequence of courses, number of credits, number of hours, class size, instructor qualifications, grading, text, and homework.

Prerequisites

The students should have some familiarity with packaging concepts. This course would naturally follow 210 Introduction to Packaging or 320 Packaging Materials. It is recommended that the intructor screen all applicants for interest and background. Students looking for credits to fill up their schedule should look elsewhere. Those who are interested in doing graphic and structural design, have some art or design background, or are interested in working closely with the marketing department in their job, would be prime candidates.

It is suggested that the creative problem solving methods be learned before the bulk of the courses in packaging so that the students can apply the techniques throughout their education.

The case study course should be taken after the bulk of the packaging courses so that specific information learned can be applied to package design.

Class Hours and Credits

It is difficult to estimate the exact amount of time necessary for this type of class. It should vary according to the students' backgrounds and the instructor's techniques. It is recommended that two two-hour blocks of lecture/lab time be allotted per week initially. As techniques and problems are modified and new ones added, the amount of time necessary to both present material and allow students class time to start their projects may change. This time allotment was arrived at as a compromise between the three-hour lab class that most design classes have and the one-hour lecture that most packaging students are accustomed to.

A class of this type should carry a weight of three credits.

Class Size

The class should be comprised of twenty to twenty-five students. This permits student-student interaction, and individual attention from the instructor, as well as a variety of students backgrounds.

Instructor Qualifications

It takes a certain type of person to teach this course. The instructor must have more than just background in structural and graphic design of packages. This individual must be interested in teaching this type of a course. This is not the kind of course that can be taught by getting notes

together, standing in front of the class and lecturing for two hours. The instructor needs to be comfortable with a give-and-take appraoch and yet lead it in a direction that will be instructive for the students.

She or he needs to be energetic and creative, and be able to apply these qualities to producing new design problems. An interest and ability to keep up with current technology and trends are also important qualifications.

Grading

Grades do not help to foster a congenial, comfortable atmosphere for students to work in. Nonetheless, in this school, as in most, they must be assigned. Grades should be based on each individual's growth during the class, interest and perseverance, attendance in class (this insures that the student is at least introduced to each new concept), completion of projects, and ability. Students should not be penalized for taking a risk and perhaps failing to produce adequate results on one or some of the assignments. Such "failures" should be allowed for in grading, and students should be made aware of this. Knowing that they will be given some leeway will allow the students to be more free in their work.

Text

Much of the information needed for this course can be found in books. At least one text should be mandatory. It is suggested that the book Design Yourself! be used. It presents the creative problem solving methods this course should be based on. Its emphasis on drawing should be useful for students who have had little drawing practice.

Other helpful drawing texts would be Rapid Viz and DRAW! The Universal Traveler, The Art and Science of Creativity, and Conceptual Blockbusting should also be considered for texts. Design for the Real World is a general industrial design book that might also be useful.

Homework

Homework assignments are an extremely important way to discover whether or not the student has understood the concepts presented in class. It should be made clear in the beginning of the term that most homework is to be the culmination of the ideas presented up to that point in the class. Everything is to build on the step before, and it is expected that each concept is to be considered for each assignment. Time should be allotted in each class period for the homework assignments to be started.

# INSTRUCTOR'S MANUAL

## INTRODUCTION

The following are suggested lesson plans for a course titled "Concepts in Innovative Packaging." The basic concepts discussed in the text of the proposed curriculum of this paper are desrcibed in greater detail and divided into units for teaching purposes.

The first several weeks are concentrated on "seeing clearly." Conceptual blocks, languages, and aesthetics are discussed. The remaining time is devoted to creative problem solving for packaging. It is suggested that presentation techniques are worked on throughout the term. A sketching or rendering technique is introduced each week.

Each unit is intended to be presented in a two-hour class period. Sufficient time ought to be available in each period for questions and for homework problems to be commenced. Examples for class and homework problems are suggested, but each instructor will have to tailor the lessons to work for that individual's teaching style.

No course outline is offered for "Case Studies in Innovative Packaging" because such a course would need to be developed each term to reflect new trends in packaging and also depend

on the availability of speakers. It is recommended that presentations be alternated with short design problems to a allow students to apply the information they have received.

UNIT 1: COURSE OVERVIEW

Purpose

One purpose of this unit is to provide an overview to the students of the goals and format of the course. A second purpose is to get the students thinking creatively about packaging. The third purpose is to introduce the students to each other and to the instructor. Interaction is an important part of this course, and it is essential that the students know each other and feel comfortable.

Goals

1. To have the students understand the purpose and format of the course.
2. To have students begin to think creatively about packaging.
3. To have students develop a rapport among themselves and with the instructor.

Information and Activities

A description of the course should be made. The course outline should be distributed and reviewed. The students understand that the course will require considerable thought and energy. A handout with concise definitions of the principles of design should also be distributed. A note should be made that there will be a sketching or rendering exercise every week at the beginning of the class. The

importance of both class attendance and homework should be stressed.

The film Why Man Creates is a good introduction to the course.

The students should be instructed to keep a journal/sketchbook. It should contain their perceptions and ideas about anything in both written and drawn form. It should be examined periodically and shared with the other students.

The students should get to know each other by doing a simple project together. Such a project might be to work in a group of three or four and:

1. Make a package from three unrelated items found in the classroom or building.
2. Go outside (weather permitting) and make a package from nature.

When students return, they should describe to the class what their packages are and how they are used.

Drawing will be an important aspect of this course. It is difficult to verbally express what many objects look like, yet a simple drawing will communicate the idea precisely and quickly.[34] Consider a light bulb filament or a telephone. To describe in words what either one looks like might take several minutes, yet a relatively quick sketch

will convey the configuration of each without confusion. At this time the first sketching problem could be assigned.

Homework

Examples of good and bad packages should be collected. These packages will be used in discussion of a SAFE design (Unit 6).

SKETCH 1: COPY

Have the students make a sketch of the package they found and made at the beginning of class. They may use pencil, pen marker, or any other writing device they have and feel comfortable with.

Emphasize that they are simply copying what is there. They are transferring a normally three-dimensional form into lines on a flat surface. They should look for geometric shapes, draw them in, and then modify them so that they appear correct.

UNIT 2: CONCEPTUAL BLOCKBUSTING

Purpose

The purpose of this unit is to help students become aware of their own conceptual blocks, and to overcome them. It should be stressed that this is one problem that they will always need to work on.

Goals

1. To have students learn the definition of conceptual and cultural blocks.
2. To have students be able to identify which blocks they suffer from and how that keeps them from being creative.
3. To have students overcome the specific block of believing that work is only conducted on a serious level.

Information and Activities

A cultural block is a mental wall erected by our social environment that keeps people from correctly perceiving a problem or conceiving its solution.[39] Students and designers are influenced by their culture to react in certain ways. Cultural blocks often limit their thought patterns. These blocks need to be explored and pointed out frequently if they are to be overcome.

The students should be given a problem that can not be solved if a conceptual block is working. Once the block is

overcome, the solution will be clear. Problems could include:

1. A game that can not be won unless the rules are not followed.
2. Removing a ping pong ball from a metal tube attached to the floor, using only 100 feet of clothesline, a hammer, a chisel, a box of Wheaties, a file, a wire coat hanger, a monkey wrench, and a light bulb. Damaging the ball, tube, or floor is not permitted. (A complete description of the problem can be found in Conceptual Blockbusting on pages 32-33.)
3. Placing a precariously balanced item on a dollar bill and have them remove the bill.

After ten minutes the students should be asked to report their solutions. If they were unable to overcome their block, they will not have any answers. Possible solutions to each problem should be presented. At the same time, the reason thay they did not see those solutions should be discussed.

Blocks that affect MSU packaging students most severely are cultural blocks. Many are conditioned to consider work a necessary evil because it is always serious, never fun. This is one of the most detrimental blocks that the students must overcome. The "work" that they will be doing is class and later as designers need not be dull; it should be

exhilarating. The students should learn this new attitude in class.

The students must come to realize that seriousness is important, but so are playfulness, fantasy, humor, feeling, intuition, and pleasure.[48] The playfulness and lack of inhibition of children is what makes it so easy for them to create, to come up with totally unexpected solutions to problems. Somehow, as we get older we do not permit ourselves to be playful. Fantasy is a waste of time. Dirty jokes told in the men's room are the only humor in the work place. Intuition is something for women and palm readers, and pleasure is reserved for after hours.

It is only when the mind is allowed to slip away from reality to fantasize that it can make connections that do not yet exist in the physical world. This is not a waste of time. The students must be convinced that playfulness, fantasy, humor, feeling, intuition and pleasure <u>are</u> acceptable modes of behavior for the work place, and be shown that these activities can lead to innovation.

Once the students understand what conceptual blocks are, they should be given an opportunity to design a package for something or someplace that will not allow the blocks to operate. Within a group they could design a package for:

1. Another planet.

2. The space shuttle.

3. An imaginary product.

Have them discuss the problem, then prepare and give a quick presentation.

Nothing, no matter how impractical, should be downgraded. The especially important aspects of a design should be noted and repeated. Refer to any of the blocks that many of the students conquered or were conquered by.

Presentation methods should be mentioned at this time. The importance of drawing should be made clear. Without drawings, presentations of objects are not clear, and there is no record of what was presented.

A reminder should be made to them to be sketching in their journals whenever possible.

Homework

Cultural Blocks. Using their new knowledge of cultural blocks and how they operate, the students should outline a new problem that could be used in next term's class.

Texture. With gum erasers, an exacto knife, stamp pad or gouache, and paper, develop ten different textures. Sections of the erasers can be cut away, allowing only the flat area to remain to be used as a block print. The flat area

is then covered with pigment from the stamp pad or gouache and pressed on the paper. When repeated, the prints will create a pattern or texture. The textures can be created be repeated direction, alternated direction, radiation, rotation, overlapping, intervals, gradation, and half-drops. Variations in color can be made. Patterns can be overlapped. This assignment will be discussed in the Language of Vision unit (Unit 4).

SKETCH 2: TRACE

Have several line drawings of totally unrelated types of objects available. Some possibilities are a horse, chair, lamp, tree, car, television, light bulb, or pen. Have each student choose two.

Using tracing paper, the students should transform one object into another -- a chair into a lamp, a tree into a car, and so on. They should start by tracing one picture and making modifications to it so that it begins to take on characteristics of the second. There should be five to fifteen drawings.

UNIT 3: LANGUAGES

Purpose

The purpose of this unit is to familiarize the students with the thinking languages that are used. The visual language will be stressed, as it is the least frequently practiced by students, yet the most important for working with shape, form, and pattern.

Goals

1. To have the students be able to identify which "languages" they use for solving problems.
2. To have the students use visual language for communicating.

Information and Activity

Thought and problem solving take place in one of three main "languages": verbal, mathematical, or visual. The problem the class should be assigned should illustrate that verbal and mathematical languages can cause confusion if they are not the language that should be used to solve a problem.

One of the following examples could be used:

1. Reproduce Rule #2065 from the Freight Classification. Each student should make a drawing from the description.
2. Have a common, but complex, item in a bag (a machine part, tool, etc.). Choose a student to be the

Describer. She or he should describe the item only by feeling in the bag. The others in the class draw what has been described.

The variation in understanding of verbal description can be seen by pinning the class's drawings on the wall.

The relation between the interpretation of the spoken word and the physical reality often is not similar. In order to clearly define what an object looks like, it should be decribed visually. The visual language can also be used to solve problems.

In fact, all of the senses are involved in design. No matter how wonderful the product is and how well it is designed to work, the consumer will not use it if it looks like it will crumble when touched, smells like chlorine (unless it is bleach), or feels like sandpaper (unless it is sandpaper). It is the designer's job to make the product as appealing and believable as possible.

To exercise the use of the senses helps the designer. Maybe the thought of the smell of the ocean will bring an association of how a boat works that will help the designer solve the task of how to make a piece of machinery work. Or maybe the roughness of the concrete under bare feet will bring the connection of what texture is needed to keep things from

from slipping off a conveyor. Designers must be aware of their senses at all times and be able to recall the input for future use.

Verbal language is used most often in our day-to-day activities. We describe verbally in lectures, to friends, at home -- how to do something, how to get somewhere, how something works. We get information verbally from the radio in weather reports and news.

The mathematical language is frequently used in problem solving. If Joe has eight apples and Sally has two, how many do they have if they put them together? This could be easily reasoned out verbally because it is so simple, but usually it would be done mathematically be adding eight and two.

These two languages are familiar ones. The visual language, however, is not so well known. The class should consider this problem:

> One morning, exactly at sunrise, a Buddhist monk began to climb a tall mountain. A narrow path, no more than a foot or two wide, spiraled around the mountain to a glittering temple at the summit. The monk ascended at varying rates of speed, stopping many times along the way to rest and eat dried fruit he carried with him. He reached the temple shortly before sunset. After several days of fasting and meditation he began his journey back along the same path, starting at sunrise and again walking at variable speeds with many pauses along the way. His average speed descending was, of course, greater than his average climbing speed. Prove that there

> is a spot along the path that the monk will occupy on both trips at precisely the same time of day.[49]

It is difficult to solve the problem any way but visually. It is evident from this problem, and that of the object in the bag, that visualization is an important language for three-dimentional objects. (The answer can be found in Conceptual Blockbusting.)

"Visualization is an important thinking mode which is especially useful in solving problems where shapes, forms, and patterns are concerned."[22] This is what packaging is all about. Shape, form, and pattern. Numbers will not reveal the answers to problems of shape, form, or pattern. Trying to solve problems using the incorrect language slows down the process of problem solving, and may even make it impossible.

An example of a famous person may help to illustrate the importance of visual thinking. The genius of Einstein is acknowledged by most people. It is not as well known, however, that he had difficulty using verbal language. He worked best visually, playing with combinations of images in his mind to get new ideas. It was only later, with much labor, that he could attach words or signs to these images.[50] If Einstein used these thought patterns, then certainly they are a valid method for other problem solvers.

This exercise is to convince the students that visualization is important. It should be mentioned that drawing is the natural extension of the process, and that that is why so much time and effort will be devoted to drawing in this class.

Homework

Color. Find a favorite package. Cut it up into geometric shapes and arrange it on a grid on a piece of paper so that the words on it are no longer readable. Glue the package to the paper in this formation. Make a photocopy for the presentation. Do not show it to the others in the class.

This assignment will be used in conjuction with the Language of Vision unit (Unit 4).

UNIT 4: THE LANGUAGE OF VISION

Purpose

The purpose of this unit is to familiarize the students with the vocabulary of the visual language.

Goals

1. To have students be able to define each of the design principles.
2. To have students be able to use the visual language dynamically.

Information and Activity

"Visual communication is universal and international. It knows no limits of tongue, vocabulary, or grammar, and it can be perceived by the illiterate as well as the literate."[51] This kind of communication must be practiced by package designers. They must be aware that there will be a varied audience for their product, and that they must communicate on a level that the whole audience can understand.

Before the visual language can be used, familiarity with design elements, and experience with how these elements interact spatially in the picture-surface is needed. "The storing of such varied experience is the most important part of the training for visual expression.... A playful

manipulation of each element: points, shapes, lines -- varying them in position, in color, in value, and in texture -- is the shortest way to an understanding of their relationships."[52]

To have the students work with the elements of design (balance, shape, mass, form, volume, line, texture, rhythm, proportion, color), they could do the following assignment:

Have available photocopies of carton blanks (to scale) of different size and style. Students can rubber cement the paper copy to a piece of carton stock and cut and score it. Once the carton is made, the student should choose to work with six of the design principles. A graphic representation of each should then be arranged pleasingly on the carton -- one element per panel.

When the students are finished, the cartons can be used by the instructor to illustrate and discuss each of the design principles.

The texture and color exercises should be hung to be critiqued and discussed. The following information should be included in the discussion:

Texture. The varieties in texture will reveal spacial relationships. The photographic image has removed our frame of reference -- it is now very difficult to determine the

proximity of objects simply by their brightness or shading. Texture is the clue that discloses whether the picture is an aerial or microscopic view. If a texture is well defined it appears closer than if the texture is vague.[53]

Color. The color exercise should make very clear the importance of color in package design. The photocopies of each student's assignment should be shown to the other students in the class. If the package cannot be identified, the color presentation should be shown.

Color is used in packaging just as logos are -- to quickly identify a product. Companies such as Kodak have their colors registered -- they must use their registered colors in specific proportions. This is one of their trademarks. Once the color is taken away and the words cannot be read, the package is not identifiable.

SKETCH 3: GRID

Have an interesting picture that is easily divided up into the number of students in the class -- if there are twenty students, a 16 x 20 inch picture would work well. Each student would receive a 4 x 4 inch section. (Figure 2)

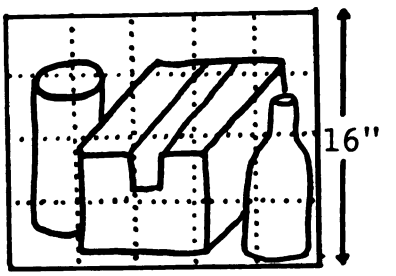


Figure 2. Gridded Picture

The students should draw a one-inch grid on the original and a three-inch grid on their paper. Each square inch of the original should be enlarged into the three-square inch square.

When the drawings are completed, each section can be hung on the wall in its correct position. The different style of each student will be evident and make the picture interesting.

UNIT 5: AESTHETICS

Purpose

The purpose of this unit is to introduce the students to the importance of aesthetics in packaging.

Goals

1. To have the students realize that an aesthetically pleasing design is as important to packaging as good structure is.
2. To familiarize students with what aesthetically pleasing design is.

Information and Activity

When packages are being designed, function and economics are usually considered first. Appearance is often left until last. One function of packages, however, is to attract the consumer so that the product will be bought. It must be aesthetically pleasing so that it will appeal to the consumer in the store and at home. If nobody will buy the the product, there is no reason to package it.

Appearance -- form and surface design -- should not be an afterthought. It should be an integral part of the design from the beginning of the process.

Examples, slides, and/or drawings of aesthetically pleasing

packaging should be shown. Packages where aesthetics were evidently an afterthought or were poorly carried out should also be shown.

Homework

Type. This assignment introduces different typefaces and how they can be used as graphic and expressive elements. Each student will produce two compositions based on an assigned word. With this word they should:

1. Develop a nonverbal, abstract visual expression of the meaning of the word.
2. Choose a typeface that relates to the meaning of the word. Present it so that it conveys the ideas or concept.

A more detailed explanation of the assignment can be found in Visual Awareness and Design on pages 144-155.

Composition. The following materials will be needed: four sheets of black construction paper, four sheets of white paper, rubber cement, scissors.

Cut two circles of equal size and two squares of equal size from the black paper. Draw rectangular fields on two white sheets and cicular ones on the other two. One black circle should be cut up into non-representational shapes. All the parts of the circle should be glued in an interesting manner to a white sheet with a rectangular field. Harmony, balance, and unity should be considered. The other circle

should be cut and glued to a white sheet with a circular field. The same procedure should be used for the black rectangles.

These assignments will be due in the next class period.

Reading. Read pages 38-57 in Design Yourself!

UNIT 6: THE SAFE DESIGN

Purpose

The purpose of this unit is to present the SAFE design concept. The aspects of simplicity, appropriateness, function, and economics will be discussed in detail.

Goal

1. To have the students use the SAFE criteria in designing.

Before the lecture portion of this unit begins, homework assignments should be discussed. Both the type and composition assignments should be considered in terms of visual impact and content. By hanging all the work, comparisons can be made, and the best work will stand out. Comment on why those are obviously the best.

Information

Simplicity. Simplicity must be compared with clutter. Two everyday good designs are the paper clip and the bandaid. Pictures and/or slides should be used to show examples of simple and overly-complex package design. In addition to the packages found in our surroundings (home, stores), examples can be found in Communication Arts magazine, and the Best in Packaging series produced by Print magazine.

Simplicity of design is relative to technology. What we can

design today was not always possible with the technology of the turn of the century. The simple, good design of the cracker barrel was fine for their time because they did not have the machinery to be able to individually wrap packs of crackers. Now the simplicity of the folding carton is important.

Appropriate. The design must be appropriate for the setting where it will be found. How does it fit in? It must be compatible with other items it is to be used with. If the handle on a milk container is too small, it is not appropriate.

The design must also fit into the home, retail, and distribution settings. It must fit on the shelves at home and in the store. It must be a proper size to be palletized. It must fit in a truck, railcar, or airplane. All of these places must be considered.

If it is good design, it will coordinate beauty, style, time and function, and thus be appropriate.

Function. It is essential that a package works the way it is supposed to. It must look like it will do the job it is supposed to. "It must not be considered only from an engineering point of view but from a social, financial, mental, physical, human engineering, and other points of

view."[54]

For a package to function properly, the audience must be considered. They must be able to read it -- if the audience is children, it must have words and colors that they can recognize. If the audience is elderly people, the type must be large enough for them to read it.

It is important to consider whether the product should be very visible or be subdued. If it is a package for an emergency kit with bandaids and antiseptic, and is designed to fade into the background, it will be difficult to find when the user is upset and in a hurry. On the other hand, if the product is one that will be displayed, such as a perfume on a vanity, it ought to be designed to complement the other kinds of items it will be seen with.

It is important that the package function on more than jsut the "working" level.

Economical. "Economics deals with more than just the cost. It deals with cost to produce,..., ease of production, availability of supplies, need to the buyer, cultural acceptability, aesthetic appeal, etc."[55]

The cost of the package must be balanced out with the cost of the product, and what advantages it will give the

product. The package may cost more than the product. The package may make an otherwise unobtainable item available, which would justify its cost. However, if the cost of the package is too high, it may make the consumer price so high that it would not be bought. If the cost is too low, and the materials are not of sufficient quality, it may increase the cost because the material is more difficult to run through the production line or it is likely that the package would not be durable enough, making the consumer hesitant to buy.

The material should be maximized -- get more from less. Conservation is becoming the responsibility of the designer. However, there is a point of diminishing returns. When the material becomes so poor that it does not run properly on machinery and/or causes manual labor to increase, or causes the package to fail, then the cost will rise. Often this extra cost will cancel out the material savings, and possibly make the package cost more.

The SAFE Design. None of the elements of the SAFE design work alone. They are all interrelated. If a package is not simple, it is likely that it also will not be economical.

SKETCH 4: SIZE, DETAIL, SHAPE, SHADING

Have several packages set up as a still life. Have the students read pages 12-25 in Design Yourself!

When drawing the still life, the students should be aware of the importance of size, detail, and overlapping in communicating proximity. Basic geometric shapes, shading, and contour should be used to convey the forms of the packages.

UNIT 7: PACKAGE FUNCTIONS

Purpose

The purpose of this unit is to review the functions of packages.

Goals

1. To have the students make lists of functions and attributes of packages.
2. To have the students combine the attributes of packages in new ways.

Information and Activity

The basic functions of a package -- containment, protection, communication, and utility -- should be discussed. A package must contain a product. It must protect the product from the point of maunfacture to the ultimate user. It must communicate to the consumer, and anyone else who sees it in distribution, what it is. The package must be easy to use. The importance of each function varies according to the type of package it is.

Once these functions are reviewed, students should be asked to help make lists of attributes of packages. For example:

| MATERIALS | CLOSURE | TYPE |
|---|---|---|
| plastic | cap | box |
| metal | heatseal | pouch |
| paper | string | can |
| wood | glue | bottle |

Homework

The attribute lists should be expanded. These lists will be used with the computer, which will list all combinations of attributes.

UNIT 8: INDUSTRY DESIGN

Purpose

The purpose of this unit is for the students to see the design process as used by a packaging group in industry. It will also serve as a reference in later discussion of the design process.

Activity

A speaker from a packaging group should be contacted and asked to give a presentation of one of their recent designs. She or he should be able to present the process from definition of the problem, preliminary ideas and sketches, to the marketing of the product. This example can then be used as a reference in describing the design process (Unit 6). If it is a recent design, it will give the students a product to observe and relate to in the store.

RENDERING 1: PERSPECTIVE

A demonstration of how to draw in perspective should be given. Using a large cube or rectangular shape, show how corners and inside shapes can be lopped off or carved out using perspective. A shape that has both simple and complex shapes is desirable. Some example are:

1. A bottle with a handle.
2. A carton with a window.
3. A carton with special folds, such as a pour spout.

A verbal explanation of the technique before or during the demonstration will be helpful.

Homework

A drawing of a package of the student's choice or design should be rendered in perspective.

UNIT 9: TERM PROJECT

Purpose

The purpose of this unit is to have the students use all of the concepts and skills they have learned in the course to design a package.

Goal

To have each student design a package that is both structurally sound and graphically appealing.

Information

The students should be presented with or required to find a current package design problem. The problem could come from an industry representative, students, or the instructor. It should require both structural and graphic solutions. Any limitations should be explained. Time should be permitted for student questions.

UNIT 10: THE DESIGN PROCESS

Purpose

The purpose of this unit is to present the students with an organized process for designing. This process will be used in this class, and hopefully throughout the students' college and work careers.

Goals

1. To have students be able to name and define the steps in the problem solving process.
2. To have the students be able to apply the process to imaginary and real problems.

Information and Activity

The class should be introduced with the film The Olympics of the Mind from the series Creativity by Bill Moyers. This half-hour film shows how children are being taught to think creatively using brainstorming and other techniques.

The students should be prepared by having looked at the illustration and accompanying text on pages 60-61 in Design Yourself!, and read pages 90-104.

Each of the steps should be clearly defined. Methods that may help the students visualize the process are:

1. Use the overhead projector. Having the titles and

notes visible will help them remember.

2. Make up large signs with the title and description of each step listed. These could be hung up one at a time before the step is discussed or hung before the class with covers and unveiled as the topic is discussed.
3. Write each step as it is discussed on a large sheet of paper. At the end of the period the whole process will be visible.

Problem Identification. Before any problem solving takes place, the problem must be defined and accepted. When problems are received, they are not always well defined. Often the real problem is tangled up with other problems and situations, and must be untangled before it can be solved.[56]

Care must be taken that the correct problem is being solved. Victor Papanek cites the rat/rattrap problem. If a better trap were designed and used where there is a rat problem, it would create a different problem: How to dispose of all the dead rats. The real problem is not to find a better way to catch rats, but to find a better way to get rid of them.[23] The designer must be sure that she or he is trying to solve the right problem.

Another aspect of definition is deciding the scale of a project or section of a project. For example, a package needs

an opening. A designer could spend hours, weeks, or months designing a new opening feature. Perhaps the most practical solution would be to use a standard screw cap. On the other hand, it is easy to under-emphasize a problem, too. When developing a package for a new product, a conventional package designer may simply assume that it should be packaged in a bottle because that is how all the other products related to it are packaged. If some time and thought were allowed for it, it might be realized that a pouch would be easier to use and produce, more economical, and more ecologically sound. The amount of energy that goes into a problem should be directly proportional to its importance and defined before any designing takes place.

Once the problem is correctly defined, it must be accepted. "To ACCEPT something is to take it into your life...to open up to it...to assume responsibility for that thing. It involves a voluntary agreement to adapt yourself and your needs, at least in part or for a trial period, to the new addition."[57] Methods for accepting a situation are listed and described in The Universal Traveler on pages 38-45.

Preliminary Ideas. In this step as many ideas as possible should be generated. The tendency is for designers to "satisfice" -- to find one answer to a problem and latch onto it. Usually the first idea is not the best one. Using techniques such as brainstorming, Synectics, and list

making help the designer avoid grabbing the first idea that comes down the pike. It is only after some hard work that the conventional thoughts will recede and previously unrelated ideas will get linked in the designer's mind.

It is important to remember cultural blocks that may keep a linking from occuring. Students must be constantly reminded of these pitfalls.

In order to generate good ideas, the problem must be very familiar. The problem needs to be analyzed, broken down, researched. Analytic methods can be found on pages 48-57 of The Universal Traveler.

Generating ideas is the real "creative" part of the design process. Brainstorming, Synectics, attribute combinations, bionics and use of libraries are but a few of the techniques available for generating ideas.

While generating ideas, it is essential that judgement of the quality of the ideas is deferred. Deciding which ideas are worthy of continued thought will be taken care of in a later step. Most important is that there is great quantity and that all ideas are recorded.

Design Refinement. Once the preliminary ideas are in, design refinement must take place. Each idea is examined

for its benefits and inadequacies. Ideas are accepted or rejected. An idea may be altered, or perhaps some will be joined. The best are selected and peripheral ones are discarded. The good ideas are pushed and pulled until they look and feel right, until they are refined.

Analysis. In the analysis stage ideas are carefully evaluated. Models are made to determine whether or not what looks good on paper will actually work. Models should be set side by side so that adjacent alternatives can be compared.[58]

Production problems are analyzed, and test market research is conducted at this time.

Decision. From the list of ideas developed in the analysis stage, one solution must be selected. By comparing the requirements of the problem as identified to the choices offered, the best selection should be easy to make.

None of the choices may adequately fulfill the requirements of the problem. If that is the case, the solutions are rejected and the process begins over, with more attention being paid to the requirements of the problem. Portions of solutions may be salvaged and used as a starting point for idea generation. Or the problem should be redefined.

Implementation. Once a final solution is selected, final drawings are made, the packages manufactured, distributed, and marketed.[59]

The design presented by the industry representative in the previous class period may be useful as an example in explaining each step.

Homework

Once the students have a firm understanding of how to go about each step, they ought to try it. They should be given a fun problem that will allow them to work through each step without set limitations. They could design a package for:

1. Ten feet of something silly.
2. A baralog.
3. A dozen lerts.
4. Their own choice.

RENDERING 2: PENCIL

Using color paper and black and white pencils, give a demonstration of rendering in pencil. This technique lends itself well to drawing packages that utilize plastics and glass because the transparency and light reflectance of the material can be shown.

Examples could be:

1. Blister pack.
2. Pouch.
3. Carton with a cellophane window.
4. Plastic or glass bottle.

Homework

A drawing for a package of the student's choice or own design should be rendered on color paper using pencils.

UNIT 11: IN-CLASS DESIGN

Purpose

The purpose of this unit it to reinforce the design process by giving the students an opportunity to work through an example in class.

Goals

1. To have students feel comfortable using the design process.
2. To solve a problem using the design process.

Activity

A packaging problem should be assigned at the beginning of the class. The class should solve the problem as a whole. The instructor should do no more than to assign the problem, ask leading questions, and possibly assist in recording ideas.

Possible problems are:

1. Design a better ketchup bottle.
2. Redesign one of the packages identified by the class as a "bad" package.
3. Design a package to reduce litter.

UNIT 12: BRAINSTORMING

Purpose

The purpose of this unit is to have the students learn and use the brainstorming method of generating ideas.

Goals

1. To have the students be able to lest the requirements for brainstorming.
2. To have the students brainstorm to solve a packaging problem.

Information and Activity

Brainstorming, developed by Alex Osborn, is one of the most commonly used idea-generating techniques.[60] It is an important technique -- important enough to spend a whole class period on helping students develop it.

Brainstorming helps to quickly develop large quantities of alternatives for problem solving. There are four requirements for using the brainstorming technique. They are:

1. To defer judgement (do not allow eveluation to take place).
2. Free wheel (allow thoughts to flow, be creative).
3. Tag on (make additions to ideas already suggested).
4. Produce quantity (work hard and fast).

A more detailed explanation can be found in Design Yourself!

on pages 108-109.

One of the following problems could be used as a class example:

1. Choose one of the packages from the students' collection of "bad" packages. Brainstorm a solution to the problem(s).
2. Brainstorm on the "silly" package assignment.
3. Allow the students to choose a problem.

RENDERING 3: MARKERS

Give a demonstration of the use of markers in rendering. Markers are the most frequently used medium for illustrating designs, and the students should feel comfortable using them.

Having different shades of the same color marker is advantageous because packages are three dimensional and will always have a light and dark side.

Nearly any type of package can be well-illustrated using markers. Examples could be:

1. Cartons.
2. Bottles.
3. Cans.
4. Bags.

Homework

A drawing of a package of the student's choice or design should be rendered in marker.

UNIT 13: IDEA GENERATING TECHNIQUES

Purpose

The purpose of this unit is to familiarize students with as many idea generating techniques as possible.

Information

Many techniques besides brainstorming can be used to generate ideas. This session should be used to present some of the other techniques.

Several methods could be used in presentation:

1. Because there are so many techniques available, the instructor could choose the ones that she or he feels are the most relevant for the problems the students will be trying to solve in the class or in industry, and present those.
2. The instructor can choose the techniques she or he feels most comfortable using or teaching.
3. Written descriptions of many of the techniques could be developed and distributed to the students. This would provide them with a permanent record for future reference. Before class, students would be required to read and understand the handouts. Upon arrival to class, they would be presented with a problem to be solved that period. Those who would like to use the same techniques may work as a group. Results of

different techniques should be compared.

Descriptions of techniques can be found in Design Yourself! pages 106-135 and The Universal Traveler pages 68-73 and 114-115.

UNIT 14: CAMERA

Purpose

The purpose of this unit is to have the students feel comfortable using a copy camera.

Goal

1. To have students have hands-on experience with a copy camera.

Activity

Instruction and demonstration should be given on the basic use of the copy camera. The variety of possibilities for experimentation should also be mentioned.

Homework

Produce five experiments using the copy camera.

UNIT 15: COMPUTER

Purpose

The purpose of this unit is to have the students feel comfortable using a microcomputer.

Goal

1. To give the students hands-on experience with a microcomputer.

Activity

A demonstration of the microcomputer should be given. A program for use with attribute lists can be found in the Appendix. Demonstration of color and graphic and structural design should be given if the microcomputer has those capabilities.

Homework

Produce lists of combinations from the computer program. Choose a combination that could be developed. Show preliminary sketches.

COURSE OUTLINE

| WEEK | DAY 1 | DAY 2 |
|---|---|---|
| 1 | | Unit 1: Course Overview<br>Sketch 1: Copy<br>Homework: *1 |
| 2 | Unit 2: Conceptual Block-busting<br>Homework: *2,*3 | Sketch 2: Trace<br>Unit 3: Languages<br>Homework: *4, +2 |
| 3 | Unit 4: Language of Vision<br>Homework: +3, +4 | Sketch 3: Grid<br>Unit 5: Aesthetics<br>Homework: +1, *5, *6 |
| 4 | Unit 6: The SAFE Design<br>Homework: +5, +6 | Sketch 4: Size, Detail,etc<br>Unit 7: Package Functions<br>Homework: *7 |
| 5 | Unit 8: Industry Design | Rendering 1: Perspective<br>Unit 9: Term Project<br>Homework: *8, *9 |
| 6 | Unit 10: The Design Process<br>Homework: +8, *10 | Rendering 2: Pencil<br>Unit 11: In-Class Design<br>Homework: +10, *11 |
| 7 | Unit 12: Brainstorming<br>Homework: +11 | Rendering 3: Markers<br>Unit 13: Idea-Generating<br>Homework: *12 |
| 8 | Unit 14: Camera<br>Unit 15: Computer<br>Homework: +7, +12 | Unit 15: Computer<br>Unit 14: Camera |
| 9 | Open work | Presentations |
| 10 | Presentations | Presentations |
| Final | FINAL CRITIQUE | |

*Homework assigned +Homework due

# APPENDIX

## COMPUTFR PROGRAM

The following programs were written on an Apple II plus microcomputer. Their purpose is to aid the designer in making lists and combing them to generate ideas. The programs may need some modification in order to run on another type of computer.

This is a program to retrieve and add to lists of package attributes (in this case "closures").

```
5  REM  RETRIEVES CLOSURE FILE
10 D$ =  CHR$ (4):
20  PRINT D$;"OPEN CLOSUREF, L20"

30  PRINT D$;"READ CLOSUREF,R0"
40  INPUT Q$
50 Q =  VAL (Q$)
60  FOR I = 1 TO Q
70  PRINT D$;"READ CLOSUREF, R";I

80  INPUT A$
85  PRINT D$
90  PRINT A$
100  NEXT I
110  PRINT D$;"CLOSE CLOSUREF"
```

```
5  REM  ADDS TO CLOSURE PROGRAM
10 D$ =  CHR$ (4):
20  PRINT D$;"OPEN CLOSUREF, L20"

30  PRINT D$;"READ CLOSUREF, R0"
40  INPUT Q$
50 Q =  VAL (Q$)
60  FOR I = Q + 1 TO Q + 100
65  PRINT D$
67  HOME
70  PRINT "ENTER THE CLOSURE ATTR
     IBUTE YOU WOULD   LIKE TO AD
     D TO YOUR LIST."
80  PRINT " "
90  PRINT "IF YOU DON'T HAVE ANY
     MORE ENTRIES, TYPE 'N'"
100  INPUT A$
110  IF A$ = "N" GOTO 150
120  PRINT D$;"WRITE CLOSUREF,R";
     I
130  PRINT A$
140 J = I
145  NEXT I
150  PRINT D$;"WRITE CLOSUREF,R0"

160  PRINT J
170  PRINT D$;"CLOSE CLOSUREF"
```

This is a program to combine lists from files collected in the previous program and another of the same type (in this case "closures" and "materials").

```
5  REM  COMBINING LISTS OF MATERI
     ALS AND CLOSURES
7 D$ =  CHR$ (4):
20  PRINT D$;"OPEN CLOSUREF,L20"
23  PRINT D$;"READ CLOSUREF, R0"
24  INPUT Q$
25  PRINT D$;"OPEN MATERIALF, L20
     "
27  PRINT D$;"READ MATERIALF, R0"

28  INPUT T$
29 Q =  VAL (Q$):T =  VAL (T$)
30  DIM A$(Q),B$(T)
35  FOR I = 1 TO Q
40  PRINT D$;"READ CLOSUREF, R";I

41  INPUT A$(I)
44  NEXT I
45  FOR I = 1 TO T
46  PRINT D$;"READ MATERIALF, R";
     I
50  INPUT B$(I)
60  NEXT I
70  PRINT D$;"CLOSE CLOSUREF"
80  PRINT D$;"CLOSE MATERIALF"
85  DIM C$(Q),G$(T)
86 Z = 1
90  FOR I = 1 TO Q
100  FOR J = 1 TO T
110  PRINT Z;" ";A$(I);",";B$(J)
112 Z = Z + 1
114  PRINT
115  NEXT J
120  NEXT I
```

BACKNOTES

## BACKNOTES


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18. Ibid., pp. 327-328.

19. Ibid., pp. 324-325.

20. Adams, p. 11.

21. Ibid., p. 28.

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29. Hanks, p. 37.

30. Jones, pp. 81-82.

31. Papanek, p. 188.

32. Ibid., p. 185.

33. Jones, p. 112.

34. Adams, p. 102.

35. Ibid., p. 105.

36. Hanks, p. 8.

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41. Adams, p. 76.

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45. Kneller, pp. 85-86.

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54. Hanks, pp. 38-57.

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56. Koberg, p. 33.

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