THE DEVELOPMENT AND UTILIZATION OF TRANSPARENCIES FOR SECONDARY SCHOOL ART INSTRUCTION

by

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Purpose

The purpose of this report is to develop and present a list of transparencies suitable for use in art classes in the secondary schools. At present, there is only a limited supply of transparencies which in turn limits the art teacher's use of the overhead projector.

The materials developed as a part of this report should expand the capabilities of using transparencies in secondary art teaching. The areas which appear to need most consideration are ceramics, design, color, figure drawing, and perspective drawing.

Questions

Some of the questions which must be answered before development may begin are:

1. What types of transparencies have been developed for these areas of concentration?
2. What new ideas may be transformed into transparencies for classroom use?
3. What types of transparencies should be produced; overlays, colored, or single black and white film?
4. What materials and what methods should be used to keep the production as inexpensive as possible?
3. Should the materials be produced locally or should they be bought commercially?

6. How would the visual media be used in the classroom?

Procedure

The writer first found what had been developed in this particular area by reviewing catalog publications and by consulting with companies which produce transparencies. Secondary art curricula were reviewed in order to compile a listing of visual media needed in secondary school art instruction. Preliminary sketches of each listed item were drawn. These sketches were discussed with media specialists, university art professors, and secondary art teachers and corrections were made on the basis of these discussions. Selected sketches were made into transparencies and used in a secondary art class. Minor revisions were made on the basis of experience gained in the application of the materials in actual classroom art instruction.

Definition of Terms

Visual Media. Although the term may be used to identify many types of visual materials such as slides, films, pictures, and television, it is used to represent transparencies in this paper.
Secondary School Art. This term includes art instruction in both junior high and senior high schools.

Handmade Transparencies. Those which are made entirely by hand and do not require the use of printing equipment.
REVIEW OF LITERATURE

The overhead projector has become widely accepted as a basic classroom teaching tool, not only in public schools, but in many other types of training programs. Many instructors have asked that their institutions provide overhead projectors for use in the classroom.

The increasing interest in the use of transparencies has caused many commercial organizations, including book publishers, to begin producing transparencies.

Numerous studies have been conducted to determine how much time is saved by using transparencies and the quality of learning that results from their use. One such extensive experiment was conducted at the University of Texas in 1960. There the objective was to compare results in engineering drawing classes, some of which were taught with careful use of the chalkboard and others with projected transparencies. The experiment, conducted by C. W. Chance, was supported by funds from the National Defense Education Act. It required a full semester and involved the use of 200 transparencies and 800 overlays. The results showed a saving of 15 minutes of every 60-minute lecture period when transparencies were used. The experimenter found a measurably higher attentiveness in the transparency group, which, in final examinations and final grades, was also significantly superior to the group taught by chalkboard. It was not surprising that both students and instructors favored the use of transparencies.

Teachers planning to use transparencies should capitalize on the flexibility of their use as well as the flexibility of the materials themselves. The pace of use can be adjusted to requirements in the learning situation. For example, the instructor teaches "directly" with these materials rather than "through" them. With some materials (such as films) and some resources (such as visits to community agencies) the teacher tends to be replaced for a time.
With transparencies and the overhead projector this is not the case. By standing in front of the room and by pointing with a pencil, the instructor may direct the students' attention to a particular part of a transparency. If a need arises, the order of use can be changed, or one used earlier can be reexamined. And all these adjustments can be made by the teacher at the time they are most appropriate.

As has been proven by testing, transparencies are "one of the most significant developments in still projection devices."  

Edgar Dole mentions that "transparencies permit a large group of students to see the work clearly where only a small group can see if the blackboard is used."

Also, in Florence Freedman's discussion of the overhead projector she says, "the principal advantage of the overhead projector is that the teacher can stand in front of the room, facing the class while working with the transparencies."

What Has Been Developed

Through the review of literature some of the questions

which were mentioned on page one have been answered. Very few transparencies which include some of the basic materials for study, have been made specifically for art classes. The 3M Company has produced a packet of transparencies concerned with line and three dimension. There is also a group of "Drawing Aids Transparencies" which is produced for a mechanical drawing class by the Instruct-A-Kits Company in St. Cloud, Minnesota.

Some companies which sell audio visual equipment were solicited for art transparencies and there were no transparencies available. The Education Resource Information Center did not have available materials on the subject.

The literature indicates that available transparencies on the market today cannot fulfill an art teacher's need to teach a variety of art projects.

New Ideas To Be Used For Transparencies

Although some of the ideas presented in this report are not completely new to art, they are new in the use of transparencies. Each author has a different view of a particular area in art so many different sources were reviewed.

5. See appendix.
In his book of figure drawing, Perard states that "the action should follow the lines of action." Professor Edwin Helch,of Kansas State University, states that the body should be drawn by using simple shapes such as blocks.

The use of color in the transparencies to emphasize the various color schemes such as complementary colors, adjacent colors, and monochromatic color schemes, which are mentioned in various textbooks, would be a new idea for classroom use. Through the use of a felt tip pen, water colors, clear plastic shapes, finger paint, inks or a special grease pencil, the art teacher can make drawings with color on a clear sheet of acetate.

The use of overlays to show the gradual process of drawing an object may improve the technique of step by step drawing.

Another idea for making color schemes for the overhead projector is the use of curved glass and colored liquids. By setting the glass disks inside of each other and then pouring colored liquid into these dishes, the color can be projected on the screen. Even though acetate is not used in the project,

It could still parallel with the transparency idea. Acetate could also be used for this project but it would be in much smaller detail.

What Types of Transparencies Should Be Made

The type of transparency depends mainly on the purpose of the film and the goal the instructor wishes to achieve. If the purpose is that of a supplement rather than a step by step learning process, the transparency should be very simple. For instance, if the teacher wants to show examples of complementary colors or cool colors, he could use just one sheet and apply the color in any pattern or form; but if the teacher was planning to show that by mixing certain colors other colors could be made, he would probably use color overlays so the students could watch the process take place.

By using overlays, the instructor can control the amount of information being viewed at any one time. This can help to emphasize certain phases of the learning process.

The colored transparencies can possibly have significant effects on the students' learning factors because most people respond to color better than to black and white materials. As Carl J. Heyne states in his book Art For Young America, "colors have significant effects on a person's appearance."

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9. Ibid., p. 67.
Due to the fact that there are many different factors involved in deciding which type of film to use, colored or black and white, single sheet or overlays, the decision should be made by each individual teacher.

One of the main types of films are as follows:

One type of film is Diazo film which may be used in making solid colors. It is sold by Keuffel and Esser Company in Hoboken, New Jersey for $24.00 per hundred sheets. This film is less expensive than 3M colored film.

The 3M Company in St. Paul, Minnesota sells many types of film. Some of the films are listed from the 3M catalogue.

125 - Heavyweight film with a positive clear background which is burned ash which can be colored with a special coloring pencil. It sells for $23.65 per hundred sheets.

127 - Heavyweight film with positive clear background which shows a black image. It sells for $28.30 per hundred sheets.

128 - Heavyweight negative film available in silver, red, blue, green, and yellow. It produces clear or colored image on a dark background. It costs $34.25 per hundred sheets.

129 - Medium weight film with a positive tinted background which is available in red, blue, green, and yellow. It is similar to 127. It sells for $34.25 per hundred sheets.
10 - Medium weight film with positive clear background with black image. This film is cheaper than 127 but looks good any time. The cost is $15.55 per hundred sheets.

Key - A positive dry plate transparency which shows fine detail. The price is $33.35 per hundred sheets.

100 - Heavyweight color positive film which is available in red, blue, and green. It produces images similar to type 127. This film is very expensive. It costs $43.00 per hundred sheets.

Inexpensive Production

Usually the handmade transparencies are the least expensive. The use of contact paper for color lifts can be bought for approximately 30 cents a yard. Six transparencies could be made from the contact paper, which would make the cost of each transparency 5 cents. One sheet of 3M 133 film, which is the least expensive film on the commercial market, would cost 15 cents. X-ray film, which can be used for many different types of handmade transparencies, costs only 2 cents per sheet.

Where Should The Transparencies Be Produced

If the material covers the subjects in a way which is basically what most art teachers want, then the transparencies should be sold on the market. It has already been stated previously that very few art transparencies are now on the market.
Since each teacher usually uses a different method of teaching, many of the transparencies should be produced locally to fit the individual needs of the teacher and students.
DEVELOPMENTS OF THE TRANSPARENCIES

There are many types of transparencies which may be produced locally. Films which may be printed on a thermal copy machine are more quickly produced. A master drawing is transferred from the image to the film.

The Diazo method, which uses ammonia to draw out the coloring chemicals after the image has been burned off by ultraviolet light, is more expensive than using black and white film, but less expensive than other color film.

The Parlab method of using special chemicals to change the film into a color is expensive and difficult to control.

Ceramics

Ceramic Tools. The transparencies are for advanced and beginning students. The first transparency in Plate 1 is concerned with introducing the art students to the tools needed for throwing pottery on a potter's wheel.

This particular transparency was made by using the 133 3M transparency. It is just a black outline of the drawings with block printing. This was made on the thermal printer. The master is the plate in this paper.

Correct and Incorrect Shapes. The second group (Plate 2) is an example of good and bad shapes for pottery. The main objective of the picture is to show that if the pots have the wrong shapes, such as those in the top row, they
SHAPES LIKE THESE CAN BE MADE IN ONE PIECE MOLDS

WIDEST PART NOT AT TOP

UNDERCUT

TOO FLAT

THESE SHAPES CANNOT BE MADE IN ONE-PIECE MOLDS
may break before they are finished. If the students learn the correct shapes to begin with, they will not lose as many pots. This transparency can be printed by using the thermal copier and number 133 3M film.

**Special Details of Pottery.** In Plate 3 there is a concern for special details which must be added to various pots. This will show the student that, once the main form is made, the small details are also important. Again, the thermal copier and 133 3M film are used, with the drawing being used as the master.

**Methods of Glazing.** Once the pottery has been formed, the clay must be bisque fired and then glazed and fired again. The problem of glazing can become quite messy unless the student is well informed of the various procedures. Sometimes one method is good but at other times it may not work. In Plate 4, the various methods of glazing are shown so the students may see what is best.

The method for making Plate 4 is the same as for the previous transparencies.

**Methods of Stacking Greenware.** Before pottery is finished, it must be fired two times. The first time the clay is in the greenware stage, which is just dry clay. The second time the pottery is fired, it is in the final glazed stage.

The methods of stacking the kiln in the greenware stage
A spout that will pour well

Types of lids

The spout must be higher than the top of the flapot

Cross section of a finished pot
must be correct so the pottery will not break. The pottery in the glazedware stage must not touch other pottery. To prevent them from touching, special stacking materials are used (Plate 5).

The 3M number 133 film and thermal copier were used for making this transparency.

Once the pottery has been stacked, it is ready to fire.

Firing the Kiln. Most of the transparencies were geared toward the beginning student in pottery. The films in Plate 7-11 are for the more advanced students.

There are colored overlays to show the color of the fire and cones at each different firing temperature. The Diazo method or Parlab method may be used to develop the colored material. If these two methods are not available, colored pencils can be used to provide the coloring.

The first film can be on number 133 or 127 3M film which would be a dark outline of the shapes. Plates 8, 9, and 10 are Diazo overlays. They can be used to teach the students how to check kiln temperatures. Each overlay shows the appearance of the cones at a higher temperature. This can be done more quickly and easily than by having each individual look into the peep hole on a kiln while it is firing. Once the students have learned what to look for, they could quickly judge the correct approximate temperature of a firing kiln.
BAD

THE BOWL WILL CRACK
THE PLATE

THESE PIECES WILL WARP

GOOD

PLATES MAY BE STACKED
THIS WAY IF FOOT IS
OVER FOOT

BUT NEVER MORE
THAN THREE HIGH

THIS IS GOOD IF
FOOTINGS ARE STRONG
FIRING TEMPERATURE SHOULD BE APPROXIMATELY 1900° F. THE COLOR OF THE FLAME SHOULD BE YELLOW.

1. STILL TOO COOL
2. STILL COOL BUT WATCH CAREFULLY. (approx. 1850°F.)
3. TIME TO SHUT FIRE OFF. (approx. temp. 1900°F.)
A. TOO HOT.
1706°F.  
930°C.  
CHERRY RED OR ORANGE

1904°F.  
1040°C.  
YELLOW

2057°F.  
1125°C.  
YELLOW

2552°F.  
1400°C.  
WHITE
Basic Method of Drawing the Male Adult. In Plate 12 the main objective is to introduce the students to a simple method of drawing and measuring the human figure. The student will not be using this method all of the time; but it is a crutch for those who have problems with proportion.

Basic Method of Drawing the Female Adult. The woman is usually smaller than the man and some of the angles are different. The picture in Plate 13 is of a woman.

The method for making the transparency was by using number 125 3M film to make a colored transparency.

Basic Measurements and Planes of the Face. The proportions of the face are one of the hardest parts of the figure for students to draw (Plate 14). By using mimeographed copies to follow along in class, the students may quickly learn the proportions of the face.

The film shows the various planes of the face. The right side of the film was left blank because the drawing may be done in class. The film is number 133 3M, which is used on the thermal copier.

Foreshortening the Figure. Plate 15 shows how a body looks when it is viewed from different angles. The other limbs of the body may appear foreshortened also (Plate 16).

Trying to describe the theory of foreshortening can become quite complicated unless there are some visual mater-
PLATE 15
FOULS BY TRAPPING THE HOOK
The transparency is number 133 film.

The Hand. Details of the human body can be quite hard to draw unless the students have some idea where to start. The hand (Plate 17) has many detailed lines, which are sometimes hard to pick out unless they are seen in a drawing. This transparency shows some of these necessary lines. By looking at the picture, the students can learn what types of detail to use.

The film can be number 133 3M. The thermal copier can be used.

The Foot. The foot is a complicated part of the body which needs careful study (Plate 18). By observing the outline drawings, the student can acquire a better understanding of the limb.

Showing the details of the toes and the ankle will help the students understand the main lines of the foot.

**Perspective Drawing**

One Point. The one point perspective in Plate 19 is used to show how parallel lines appear to converge as they go toward the horizon. Learning perspective like this helps students show depth in their pictures.

The transparency was made on the thermal copier with number 133 film.

Square Grid Perspective. By using a square grid, such
As a window, the perspective may be more obvious to the viewer. The students may have an opportunity to practice this method (Plate 20).

The thermal copier was used for this picture.

Two Point Perspective. To teach how to draw objects which have parallel sides, two point perspective is sometimes used (Plate 21). Through this method, the students may learn to draw anything from books to houses.

The thermal copier and number 133 film were used to make this transparency.

The next picture (Plate 22) shows an example of using two point perspective to draw a building. The film used in this picture is 3M 133.

Three Point Perspective. Perspective may have many vanishing points, but three point is usually as many as the ordinary art class will use. The use of three points is commonly found when long objects are being drawn (Plate 23). The 133 film is used on the thermal copier for this picture.

Drawing: Three Dimension

"The difference between the person who knows how to draw and the person who does not is that the person who knows how is able to draw into the flat surface of the paper, giving a feeling of depth or three dimension. The person who cannot draw tends to draw "flat" with little feeling for three dimen-
The main objective of the three dimensional transparencies is to show the students each of the seven main principles of drawing three dimension.

**The Seven Laws.** Plate number 24 was typed on the master sheet and then run through the thermal copier. All of the other pictures (Plates 25-31) were made on the thermal copier with number 133 film.

1. Surface - This law shows that if an object is placed closer to the bottom of the page, it will appear closer to the viewer (Plate 25).

2. Size - This shows that larger objects appear to be closer to the viewer than the smaller objects (Plate 26).

3. Surface Lines - The surface lines can show the direction of turning and position of a certain object by their direction (Plate 27).

4. Overlapping - By showing one object crossing over another, the objects may appear to go back in space (Plate 28).

5. Shading - The object has a volumetric feeling if shading is added to the shadowed areas (Plate 29).

6. Density - If one object is darker than another or if it is more solid than another, it should appear closer to the viewer (Plate 30).

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THERE ARE SEVEN MAIN POINTS.

1. SURFACE
2. SIZE
3. SURFACE LINES
4. OVERLAPPING
5. SHADING
6. DENSITY
7. FOreshortening
7. Foreshortening - The figure is distorted to make one part of it appear closer than another part (Plate 31).

The Six Main Elements of Design

The six main elements of design are line, color, shape, composition, texture, and light and shade. These elements are typed out so the students may first read the six main elements. Line, shape, light and shade, and composition will be made on the thermal copier. The two elements color and texture will be handmade by using textured and colored adhesive transparency material.

1. Line - Line is one of the six major elements of design. Line can form many patterns. This transparency (Plate 34) will show some of the different patterns formed by line. The 3M 133 film is good enough for lines.

2. Color - Color can add great variety and beauty to design. It can be very effective when compared to black and white. Plate 35 is an example of color in design. This type of transparency should be made by hand with adhesive color strips.

3. Shape - When a line is drawn in many different directions, line sometimes forms shapes (Plate 36). Shapes can have curved or straight edges or both. The 3M 133 film is fine for this film.

4. Composition - Composition is the arrangement of
DESIGN CONSISTS OF SIX MAIN ELEMENTS.

1. LINE
2. COLOR
3. SHAPE
4. COMPOSITION
5. TEXTURE
6. LIGHT AND SHADE
the materials on the paper. This transparency (Plate 37) shows the difference between good and bad composition. Composition is concerned with balance, format, and center of interest. The 153 thermofax film could work fine for this project.

5. Texture - Texture is concerned with things such as roughness and smoothness or various types of patterns such as checkered. The adhesive patterns on a master sheet with Diazo film would produce a good effect for Plate 38.

6. Light and Shade - Without light and shade, there would not be very much contrast in many designs. Light and shade are usually white and black which can be mixed with color or toned into grays.

This transparency is hard to make with just grays. One of the best ways to make it is on the photo copier.

Color

Color Wheel. The color wheel consists of the three primary and the three secondary colors plus at least six intermediate colors. Various color combinations such as complementary colors and adjacent colors can be found on the color wheel. The film can be made by using adhesive colored plastic with some use of the March marking pens on clear acetate (Plate 40).

Cool Colors. Cool colors are those such as blue and
The transparency consists of various cool colors which make a design. The adhesive colored plastic on clear acetate is fine (Plate 41).

**Warm Colors.** Red, yellow, and orange are warm colors. These colors are used to make a design. The adhesive plastic can be used on clear acetate (Plate 42).

**Color Terms.** There are many terms which are referred to when speaking about color. This film contains several of these various terms. Some of these terms are complementary colors, primary colors, secondary colors, adjacent colors, monochromatic colors, harmonious colors, split-complementary colors, and triad (Plate 43).

The 3M 133 film will work fine for this transparency.
COLOR TERMS

PRIMARY COLORS
SECONDARY COLORS
INTERMEDIATE COLORS
COMPLEMENTARY COLORS
SPLIT COMPLEMENTARY COLORS
ADJACENT COLORS
ANALOGOUS COLORS
TRIAD
HUE
VALUE
INTENSITY
MONOCHROMATIC
MUDDINESS
SUMMARY

The purpose of the report was to determine what types of transparencies had been developed for art and to develop a set of transparencies which could improve art instruction at the secondary level.

Walter Wittich said, "transparencies are one of the most significant developments in still projection devices." Since very few transparencies have been developed in the art field except the geometric drawing area, there appeared to be a great need for new materials.

Some methods of making transparencies which are not used commercially for art, such as the use of handmade materials and color, were explained in detail.

Examples of transparencies such as overlays and colored films were introduced as types of transparencies which may be made by the teacher.

The films vary in type and price range to fit almost any need. The quickest and easiest method of making a transparency is by using the thermal copier with 3M film. The cheapest film is exposed x-ray film which costs 2 cents per sheet. Contact paper, which is used for color lifts, sells for about 5 cents per sheet. The commercial films range in price from 15 cents to 50 cents a sheet.
The teaching of drawing of forms, line, perspective drawing, three-dimensional design, elements of design and color could aid some art teachers.

By using several of these transparencies during the past year, the writer was able to hold the attention of the students more easily. When the instructor has the attention of the students, they usually learn more.

It is suggested that each art teacher appraise his method of teaching to find if the transparencies would be capable of helping him to better perform his duty. Each art instructor may have a different way of presenting material, but most teachers must teach the same basic rules.


January 17, 1963

Mr. Roger N. Tyshing
512 W. 3rd
Junction City, Kansas 66441

Dear Mr. Tyshing:

I am very sorry that we do not have the transparencies for the Junior High art class you requested.

We specialize in visual aids for use on felt and flannel boards.

Very truly yours,

Danald F. Hetchler, President

[Signature]

Enc.
January 24, 1968

Mr. Roger Tipling
612 West Third
Junction City, Kansas

Dear Sir:

The materials at our institution are prepared by or for our staff. It is so easy to produce one's own transparencies, less expensive and these materials are "tailor-made" to fit each instructor's teaching techniques.

As far as I know, there are very few commercially made overhead transparencies in the subject area of art.

One quite popular transparency which is made over and over (and which I suggest you explore the possibilities of making one yourself) shows the combinations of red, blue and yellow very effectively proving what happens when you mix these colors.

Sincerely,

Patricia A. Macklin

Patricia A. Macklin, Supervisor
Educational Media Laboratory
Dear [Name],

Thank you for your inquiry.

The Clearinghouse was established here late in 1967, and our initial decisions were to invest time and effort in establishing computerized bibliographic files. Such files, with each reference indexed with multiple subject descriptors, will enable us to respond promptly to user inquiries.

At the present time, nearly all our energies are being devoted to establishing these files, and our user services must be kept limited. Some months from now, when the files are completed, we expect the investment to pay off significantly. We hope you will resubmit your request then, making it as specific as possible.

To help keep you informed of our progress, we are putting your name on our mailing list.

Thank you for your interest in the Clearinghouse.

Sincerely,

[Signature]

[Director of User Services]
Your request is actually outside the charter of this clearinghouse. We are primarily responsible for collecting materials relevant to the comparative performance of the various media themselves and not the materials disseminated by them.

However, an information center outside the clearinghouse concentrates specifically on indexing non-book media materials. This is the National Information Center for Educational Media (NICEM) at the University of Southern California. You might write to Glenn Hately, Director of that center, at the USC School of Performing Arts, Cinema, and Film Distribution, University Park, Los Angeles, Cal., 90007.

Another source would be "Guides to the Selection and Evaluation of newer Educational Media" on pages 11-15 of the January 1957 Audiovisual Instruction. This four page listing of bibliographies includes the most useful references in the area, including McGraw-Hill's comprehensive, 14-volume Educational Media Index.
THE DEVELOPMENT AND IMPLEMENTATION OF PROGRAMS FOR SECONDARY SCHOOL ART INSTRUCTION

by

ROGER NOEL TIPLING

B. S., Kansas State University, 1966

AN ABSTRACT OF A MASTER'S REPORT

submitted in partial fulfillment of the requirements for the degree

MASTER OF SCIENCE

College of Education

KANSAS STATE UNIVERSITY

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1966
Some questions were asked which considered transparency development. What has been developed? What new ideas can be used for transparencies? What types of transparencies should be made? What methods of inexpensive production can be used? Where should the transparencies be produced?

After soliciting some companies that produce audiovisual materials, it was found that very few transparencies were made for secondary art classes.

Some of the new ideas for art transparencies concerned color overlays and color lifts.

The least expensive transparency is the handmade transparency which is made with exposed x-ray film. Another inexpensive film is plain contact shelf paper. The most rapid method of printing transparencies involves the use of a thermal copy machine and a master copy.

Diazotype film is less expensive than thermal colored film, but requires more time for production.

If an art teacher is teaching basic art methods, the set of transparencies developed as a part of this study could be used. If the teacher has a special method for teaching a certain subject, however, he may need to develop his own transparencies.
The development stage of the transparencies covered the areas of perspective drawing, perspective drawing, drawing three-dimensional, six main elements of design, and color. Each of these subjects was broken down into smaller areas. Each transparency was represented by a plate. The description of what the transparency did and how it was made were included.

It was recommended that the art teacher use the thermal copy process whenever possible, because of the ease with which transparencies could be produced.

The teacher should appraise his methods of teaching to see if the use of these transparencies can be helpful. Most of this material covers basic points in art education, and most teachers should be able to use them.