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A Study of Methods for Improving the teaching of Eighth Grade Mechanical Drawing in the Houston Independent School District, Houston, Texas

Mitchell M. Allen

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A STUDY OF METHODS FOR IMPROVING THE TEACHING OF
EIGHTH GRADE MECHANICAL DRAWING IN THE HOUSTON
INDEPENDENT SCHOOL DISTRICT, HOUSTON, TEXAS

PRAIRIE VIEW AGRICULTURAL AND MECHANICAL COLLEGE
GRADUATE SCHOOL

WORKSHOP SHEET III & IV
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DATE SUBMITTED JULY 27, 1970

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AUGUST 25, 1963
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This study ascertained the methods employed by teachers of eighth grade mechanical drawing, and how the methods compared with those suggested by writers of publications and books in the field. In order of rank, methods employed by teachers were demonstration, lecture, models, individual project, individualized, class discussion, group project, class project, field trips and extensive use of overhead projector. When compared to those suggested by writers, the results showed that methods employed by the largest number of teachers were suggested by the least number of writers with one exception--the demonstration method was rated highly by both groups. The findings supported the need for teachers to appraise methods regularly, adapt to needs of pupils, and understand the role of the teacher as well as the method.

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A STUDY OF METHODS FOR IMPROVING THE TEACHING OF
EIGHTH GRADE MECHANICAL DRAWING IN THE HOUSTON
INDEPENDENT SCHOOL DISTRICT, HOUSTON, TEXAS

A Thesis
Presented to
the Faculty of the Graduate School
Prairie View A and M College

in Partial Fulfillment
of the Requirements for the Degree
Master of Science

by
Mitchell M. Allen
August 1970

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A STUDY OF METHODS FOR IMPROVING THE TEACHING OF
EIGHTH GRADE MECHANICAL DRAWING IN THE HOUSTON
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A Thesis

By

Mitchell M. Allen

Approved as to style and content by:

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(Chairman of Committee)

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(Head of Department)

[Redacted]

(Member)

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August 1970

TABLE OF CONTENTS

CHAPTER	PAGE
I. INTRODUCTION	1
Background	1
The Problem	2
Statement of the problem	2
Significance of The Problem	3
Hypothesis	3
Assumptions	4
Limitations	4
Definition	4
Mechanical drawing	4
Procedures	5
II. REVIEW OF RELATED LITERATURE	6
III. ANALYSIS OF THE FINDINGS	15
IV. SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS	24
Summary	24
Conclusions	26
Recommendations	27
BIBLIOGRAPHY	28
APPENDIX	31

LIST OF TABLES

TABLE	PAGE
I. Methods Employed by Eighty-Two Teachers in Teaching Mechanical Drawing to Eighth Grade Students	18
II. Methods Utilized by Teachers Compared with those Suggested by Writers of Publications and Books	20

CHAPTER I

INTRODUCTION

Mechanical drawing serves as the universal language of communication for architects, engineers, and workmen rather generally throughout the world. Frequently, it is thought of as engineering drawing because it finds its widest use among architects and engineers.

The greatest use of mechanical drawing is to give instruction of a general and specific nature to others usually for the purpose of enabling one person to make what another has designed. That which is initially only a mental picture in the mind of the designer is transmitted to the mind of the worker through the medium of the drawing. Eminently clear is the fact that the transmission of such knowledge demands a high degree of skill. Thus, teachers of mechanical drawing must constantly stay alert of new methods and techniques in order to insure maximum student achievement.

I. BACKGROUND

The successful practice of any occupation, other than the simplest unskilled types of work, involves skill, related

technical knowledge, and appropriate occupational attitudes. Obviously, these aspects of industrial arts practice do not exhibit themselves one at a time but are inseparable parts of the whole occupational activity. Nevertheless, in the teaching of mechanical drawing it becomes convenient to consider each aspect separately in order to ensure effective instruction.

Experience seems to indicate that a somewhat different teaching situation is involved in each instance. The acquisition of skills presents a different psychological difficulty from the learning of technical facts; and the assumption of appropriate occupational attitudes requires still another set of factors. Hence, the writer is of the opinion that a continuous evaluation of the instructional activities is needed.

II. THE PROBLEM

Statement of the problem. The problem shall be to study methods used to teach mechanical drawing to eighth grade students. More specifically, the study sought answers to the following questions:

1. What methods do teachers employ in teaching mechanical drawing to eighth grade students?

2. How do the methods utilized by teachers compare with those suggested by writers of publications and books in the field?

III. SIGNIFICANCE OF THE PROBLEM

As a teacher of eighth grade mechanical drawing, the researcher became interested in this kind of a study as a result of the constant change in teaching methods. Too, the advent of new technical and mechanical devices in our technological society further increased the desire to undertake such an investigation.

It is hoped that this study will provide insights and understandings, so that teachers will constantly evaluate the learning activities with a desire to constantly improve. Further, it is hoped that a larger and more extended study will follow to substantiate the results of this study.

IV. HYPOTHESIS

In this study, it was hypothesized that eighth grade pupils will acquire significantly more skills in mechanical drawing when taught in sequence, using a variety of teaching methods, than when taught page by page in the textbook. It was further hypothesized that the inclusion and adequate

utilization of new methods in the presentation of the subject matter will improve the achievement of the pupils.

V. ASSUMPTIONS

It is assumed in this study that:

1. There is a continuous need for the improvement in mechanical drawing as related to achievement and skill techniques.
2. Achievement in mechanical drawing in the eighth grade may provide a basis for further exploration in high school.
3. If class assignments are given in accordance with the needs and abilities of the pupils and teaching methods are used adequately, the level of achievement will increase.

VI. LIMITATIONS

This study was limited to the teachers of eighth grade mechanical drawing in the Houston Independent School District, Houston, Texas during the 1969-1970 school year.

VII. DEFINITION

Mechanical drawing. Throughout the report of this investigation the term "mechanical drawing" has been defined as the graphical representation of objects made with the aid of mechanical devices.

ACKNOWLEDGMENTS

In an undertaking such as this, many individuals make immeasurable contributions. To make specific mention of all individuals to whom gratitude is due would be impossible. Grateful acknowledgments are made, however, to Mr. Eugene Jackson for his helpful suggestions concerning content and organization of this study, and to the other members of the advisory committee for their assistance.

The writer is deeply indebted to Mr. Waymon Webster and Mr. M. F. Harmon, faculty members in the field of guidance, from whom instruction was received. Gratitude is also due the teachers in the Houston Independent School District who made this type of an investigation possible.

To his wife, Emma Jean, the writer expresses thanks for her constant encouragement and inspiration.

M. M. A.

VIII. PROCEDURES

In carrying out the intent of this study, research, interview, and survey were the procedures utilized.

1. The research procedure was employed in the review of literature and throughout the body of the study.
2. The survey and interview procedures were utilized to secure data for teachers of eighth grade mechanical drawing in the Houston Independent School District concerning methods used in teaching mechanical drawing at the eighth grade level.
3. Methods utilized by eighth grade mechanical drawing teachers were compared with the methods recommended by writers of publications and books in the field.

CHAPTER II

REVIEW OF RELATED LITERATURE

This problem was proposed to study methods used in the teaching of mechanical drawing to eighth grade students.

In order to obtain a convergent as well as a divergent of opinions of methods, literature was surveyed on the local, state, and national levels.

Throughout the years, many methods of teaching various subjects have emerged. Reports, studies, and other publications of a voluminous nature have been written on methods of teaching. In this study, however, attention is focused on methods of teaching mechanical drawing on the eighth grade or junior high school level. Thus, this chapter is devoted to a review of such literature.

Introductory drafting or drafting taught to eighth grade students emphasizes fundamentals of graphic representation frequently used in the junior high school shop. Orthographic multiview projection is studied functionally, as a way of drawing solid objects in full size views, rather than as the theory of projection.

Pictorial drawing is introduced in brief units on isometric and oblique. Simple rectangular prisms are drawn and some advanced problems may include inclined plane surfaces and cylindrical parts. Single stroke Gothic lettering is introduced.

Dimensioning is taught as a way of supplementing representations in multiview, oblique, and isometric with sufficient measurements and notes so that construction is facilitated. Computations are practiced in mechanical drawing layout. Only those American Standard symbols and conventional representations applicable to shop drawings made by students are taught.¹

With an established description of the course, on the local level the demonstration and class discussion methods of teaching were recommended. Great emphasis was placed on the teacher "showing" the students how to do and what to do. Further, it was recommended that each time a

¹Leonard O. Pierce, Teacher's Handbook Introductory Drafting Grades 7-8, Curriculum Bulletin Number 66CBM24, Item Number 34.810 (Houston: Houston Independent School District, 1966), p. 1. (Mimeographed.)

new unit of instruction is undertaken, it should be preceded by class discussion.²

Accordingly, writers of publications on the state level strongly recommended the demonstration and discussion methods of teaching mechanical drawing to eighth grade students. Because of the level of maturity of the students, it was pointed out that these two types of methods proved most effective. Too, the rudiments taught on this level require daily demonstrations either through the use of different visual aids or with the individual student.³

Scrogin and Bettencourt asserted that mechanical drawing is a highly technical subject in most of its phases. In the main, drawing should always be considered as a channel of expression. Each student should be encouraged and challenged to work at a level consistent with his ability and stage of development. Just as individuals differ in their appearance, so do they differ in their powers of perception, imagination, facile coordination, and memory. In this connection, they recommended the demonstration and class

²Ibid, pp. 18-23.

³ _____, Introductory Drafting, Bulletin 615, (Austin: Texas Education Agency, 1966), pp. 22-23.

discussion methods in teaching mechanical drawing on the eighth grade level. In addition, field trips were recommended as an integral part of the two methods.⁴

Feirer believes that while no man is an island, it is equally true that every person is an individual, needing recognition, friendship, and a sense of worth. Students do not learn by having information poured into their heads. The best learning process or method is an individual one. Therefore, the individualized method of teaching mechanical drawing tends to insure maximum learning results for eighth grade students.⁵

Recently, many areas of education have recognized the value of individual instruction. But there is confusion about how to carry it out. Most teachers in academic areas depend heavily on the lecture method and only in recent years have they supplemented this inefficient and outmoded instructional method with some audio-visual aids. Now,

⁴Everett Scrogin and William Bettencourt, Applied Drawing and Design (Bloomington: McKnight & McKnight Publishing Company, 1959), pp. 1-12.

⁵John L. Feirer, "The Individual in Industrial Arts," Industrial Arts and Vocational Education, 56:25, September 1967.

most of the people in education have come to realize the importance of the individualized method of instruction.⁶

While Feirer pointed out that there is no one perfect way of teaching mechanical drawing, he does recommend the demonstration and class discussion methods as ways to individualize instruction. Moreover, he pointed out that the method is no better than the teacher who employs it; and, the teacher must be able to blend together the best of each of the new contemporary approaches that will relate the student to our complex industrial society.⁷

Doan asserted that in every mechanical drawing class there is at least one student that is working well beyond the actual requirements of the class. This particular student is generally highly motivated through a genuine interest in the subject, and is often endowed with a very healthy curiosity. In this situation, the project method is highly recommended. Too, the project method of instruction may meet the needs of each individual student in the class. The demonstration and class discussion methods,

⁶Ibid.

⁷Ibid.

however, must be utilized in the process of preparing to use the project method.⁸

Fardy stated that there were several methods for presenting subject matter to pupils in mechanical drawing. However, the teacher soon realizes that no one way is superior in every teaching situation. For many years, objects of various shapes, made from solid materials or from transparent plastic, have been used in the teaching of mechanical drawing, geometry, and most especially orthographic projection with good results.⁹

He suggested the use of models because of the see-through feature. He devised models for use in three different groups: (1) models which consist of only three or four parts and are used to show parallelism and perpendicularity of lines; (2) models which show some conventional geometric shapes; (3) models of solid objects. Each outline or edge is represented by a wire, and the students easily relate the various wires to lines of their drawing problems.

⁸Cortland C. Doan, "Let's Talk Tooling," Industrial Arts and Vocational Education, 56:36, October 1967.

⁹Worsley Fardy, "Drafting Models Make It Easy," School Shop, 26:65, March 1967.

The models were especially helpful in assisting the students to visualize the hidden lines and those lines which are parallel to the line of sight. This feature also makes it possible to place them in front of a white background in a spotlight for pictorial representation. Further it tended to give these models a feeling of modernity, together with a sensation of spaciousness so typical of today's design. Some of the models may be tilted to achieve another form of perspective presentation so that they may be easily adaptable to the teaching of isometric drawing.¹⁰

Mulski described the teaching of drafting on two levels and the methods employed. In Central School District Number 4, Plainview, New York, a two-level program was initiated; one level called mechanical drawing, the other called shop drawing.

He found the use of films, chalkboard sketches, overhead-transparency projections, class discussions, and desk top demonstrations very effective methods for teaching mechanical drawing. On the other hand, working models were found to be effective with selected students. These were

¹⁰Ibid.

students who were able to comprehend readily and complete assignments before other students in the class.¹¹

Anderson recommended bringing drawings that are used in actual industrial operations into the mechanical drawing classroom as a method of teaching. This permits showing students how such industrial practices as making corrections are handled, while having the motivational benefits derived from students knowing this is "the real thing." Thus, the teacher must visit the industrial plants in order to gather such material.¹²

Student field trips were also recommended. In this way the students may be able to hear a lecture, ask questions, discuss, and see demonstrations of "the real thing."¹³

In summary, the writers of publications and books were in general agreement in using the demonstration and class discussion methods of teaching mechanical drawing to eighth

¹¹John H. Mulski, "Drafting: Taught on Two Levels," School Shop, 26:22-23, January 1967.

¹²Chester R. Anderson, "Changing Practice in Industry-- The Implications for Drawing Instruction," School Shop, 26: 72-74, October 1966.

¹³Ibid.

grade students. Of particular interest was the emphasis placed on "showing" the student. This phase of the teaching-learning process seems justified because of the maturity level of the students.

Other methods suggested by the writers in the field were the project method, field trips, models, films, chalkboard sketches, overhead-transparency projections, and the individualized method of instruction.

CHAPTER III

ANALYSIS OF THE FINDINGS

The purpose of this investigation was to study methods of teaching mechanical drawing to eighth grade students. More specifically, answers were sought to the following two questions:

1. What methods do teachers employ in teaching mechanical drawing to eighth grade students?
2. How do the methods utilized by teachers compare with those suggested by writers of publications and books in the field?

The population for this study consisted of 82 teachers in the Houston Independent School District who taught mechanical drawing to eighth grade students. It must be pointed out here that, although 89 teachers were contacted for this study, responses were received from only 82. Thus, the findings have been based on the responses of 82 teachers rather than 89.

A data sheet constructed by the writer was the principal data-gathering instrument. An explanatory letter was sent to each subject along with the data sheet. In addition, telephone calls were made to secure responses from

subjects who did not return the data sheet. The instrument was designed to elicit data, personal in nature, from each subject along with the method or methods utilized in teaching mechanical drawing to eighth grade students. Personal data sought were years of teaching experience, educational attainment and pursuit, number of classes of eighth grade mechanical drawing taught per day, average number of pupils per class, and area or areas of major teaching assignment.

As a secondary source of data, reports of educational committees, findings of scholars, and other writers of publications and books pertinent to this study were read, analyzed and used to ascertain the general trend of opinions of such writers.

Since there were two specific questions posed in this investigation, the findings have been organized and presented in the order of the questions raised with one exception. Personal data gathered from the 82 respondents represent the exception, and have been presented in the subjoined paragraphs.

Years of teaching experience of the respondents ranged from two to 22 years. All of the respondents held Bachelors

degrees; 79 had an undergraduate major in industrial arts; two in industrial education, and one in mathematics. It was interesting to note that 35 of the 82 respondents held Masters degrees, 34 in industrial arts and one in secondary education. Twelve were working toward a Master's degree in industrial arts and 35 indicated that they were not seeking a degree beyond the Bachelor's at the present time.

The number of eighth grade classes in mechanical drawing taught per day by the subjects ranged from one to four. Average number of pupils per class for the 82 subjects was 26. Major teaching assignment of the respondents was drafting with only one reporting one class in woodwork.

The first question raised in this study was "What methods do teachers employ in teaching mechanical drawing to eighth grade students?" The findings revealed, as shown in Table I, that the demonstration method was utilized by all the respondents. Lecture, models, and individual project were methods employed by a vast majority of the respondents. Other methods employed, the number and per cent of teachers utilizing each also appear in Table I.

In analyzing the data, it may be observed that the most effective method of teaching mechanical drawing to

TABLE I

METHODS EMPLOYED BY EIGHTY-TWO TEACHERS IN TEACHING
MECHANICAL DRAWING TO EIGHTH GRADE STUDENTS

METHOD	NUMBER	PER CENT
Class discussion	54	66
Demonstration	82	100
Lecture	80	98
Models	75	91
Individualized	72	88
Project:		
Individual	75	91
Group	50	61
Class	47	57
Field trips	47	57
Other		
Extensive use of overhead projector	47	57

eighth grade students as indicated by the teachers was demonstration. The import of the utilization of this method by all respondents seems to be justified on the basis of the nature of the subject and maturity level of the students.

How do the methods utilized by teachers compare with those suggested by writers of publications and books in the field? This was the second and final question raised in this investigation. Table II presents a comparison of the methods utilized by teachers and those suggested by writers of publications and books.

An examination of the table shows that of the eight writers of publications and books who suggested methods, complete agreement did not exist on any one method utilized by the teachers. Class discussion and demonstration were the two methods suggested by 75 per cent, an overwhelming majority of the writers of publications and books. Models, individualized, and field trips were methods suggested by only two or 25 per cent of the writers. Other methods suggested may be observed in Table II where a complete comparison is given.

Methods utilized by teachers and those suggested by writers of publications and books showed very little similarity

TABLE II
 METHODS UTILIZED BY TEACHERS COMPARED WITH THOSE
 SUGGESTED BY WRITERS OF PUBLICATIONS AND BOOKS

METHOD	TEACHERS		AUTHORITIES	
	NUMBER	PER CENT	NUMBER	PER CENT
Class discussion	54	66	6	75
Demonstration	82	100	6	75
Lecture	80	98	1	13
Models	75	91	2	25
Individualized	72	88	2	25
Project:				
Individual	75	91	1	13
Group	50	61	0	0
Class	47	57	0	0
Field trips	47	57	2	25
Other				
Extensive use of overhead projector	47	57	1	13
Films	0	0	1	13
Chalkboard sketches	0	0	1	13

with one exception. The demonstration method, as previously indicated, was used by all teachers responding to the data sheet as well as suggested by a vast majority of the writers of publications and books. Class discussion was highly suggested by the writers, but used by a little over half of the teachers. Conversely, lecture, models, and individual project methods were used by a majority of the teachers, but suggested by one or two of the eight writers of publications and books in each instance. Thus, from a comparative point of view, the methods utilized by the majority of the teachers were those suggested by the least number of writers of publications and books except in the use of the demonstration method.

The above findings seem to infer a need for more of the teachers involved in this study to take a serious look at the methods employed in teaching eighth graders. Of particular concern to the writer is the large number of respondents who indicated that they used the lecture method. While the use as to the extent and regularity of this method is unknown, a question lingers as to the effectiveness of such a method with the maturity level of the learners. It is recognized that the formality in composition and procedure

of the lecture method requires a seriousness of purpose, an enduring motive, and a maturity of interest. Therefore, it seems that this method may be of some benefit to eighth graders when used only during short intervals.

It must be clearly understood that the utilization of a method or variety of methods could not be considered a panacea in the learning process. On the other hand, however, merely using a method because it is convenient cannot insure maximum achievement on the part of the learner. Thus, it seems plausible and expedient for teachers of eighth grade mechanical drawing, and especially those involved in the study, to appraise their teaching methods periodically in order to insure maximum achievement on the part of learners.

At the beginning of this study, it was assumed that there is a continuous need for the improvement in mechanical drawing as related to achievement and skill techniques; achievement in mechanical drawing in the eighth grade may provide a basis for further exploration in high school; and if class assignments are given in accordance with the specific needs and the ability of the pupils, the level of achievement will increase. These assumptions, to some extent, have been supported by the findings of this study.

With regard to the trend of opinions of writers of publications and books, a direct relationship to the assumptions was evident. A preponderance of the writers of publications and books suggested the demonstration and class discussion methods to use in teaching mechanical drawing to eighth grade students. These methods, they asserted, proved most effective and tend to insure an acceptable level of achievement. In the teaching-learning process, however, it must be kept in mind that the method is no better than the teacher who employs it.

While no attempt was made in this study to ascertain the degree of achievement of pupils based on the use of a particular method or methods, it seems inherent when consideration is given to the needs, interests, abilities, and level of maturity of pupils taught.

CHAPTER IV

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

I. Summary

It is recognized that indiscriminate use of any method does not make for the most efficient teaching. Any method is most effective under conditions that are most conducive to its use. Moreover, it is the responsibility of the teacher to decide which method should be utilized in each instructional situation. Thus, the method is no better than the teacher who employs it. Adequate utilization of the method is most important. With this in mind, this study was undertaken.

As indicated in the previous chapters, the purpose of this investigation was to study methods used to teach mechanical drawing to eighth grade students. More specifically, the study sought answers to the following questions:

1. What methods do teachers employ in teaching mechanical drawing to eighth grade students?
2. How do the methods utilized by teachers compare with those suggested by writers of publications and books in the field?

The study population consisted of 82 teachers in the Houston Independent School District, Houston, Texas during the 1969-1970 school year. A data sheet, the data-gathering instrument, along with an explanatory letter was sent to the subjects. Telephone calls were also made to secure data from subjects who did not return the data sheet.

Methods employed in teaching mechanical drawing to eighth grade students, in the order of rank, as indicated by the 82 teachers were demonstration, lecture, models, individual project, individualized, class discussion, group project, class project, field trips, and extensive use of overhead projector. The demonstration method was found to be the most effective.

In the order of rank, writers of publications and books suggested the following methods in teaching eighth grade students mechanical drawing: class discussion and demonstration, models, individualized, field trips, lecture, individual project, use of overhead projector, films, and chalkboard sketches.

From a comparative point of view, very little similarity existed between the methods employed by teachers and those suggested by writers of publications and books in the

field with one exception. In the opinions of both groups, striking uniformity was evident in the use of the demonstration method. Otherwise, the methods employed by the largest number of teachers were least suggested by the writers of publications and books.

II. Conclusions

While the population for this study was relatively small, it was apparent from the findings that little similarity existed between the methods employed by teachers and those suggested by writers of publications and books in teaching eighth grade students mechanical drawing. Justification could not be readily assessed since the study did not investigate the extent to which the methods were used nor did it examine the achievement of the learners based on the method or methods employed.

From the findings, however, it may be concluded that the teacher is primarily responsible for the method used; and, the method is no better than the teacher who employs it. Such factors as the maturity level of the students, individual differences, aptitudes, interests, and goals of the learners must be considered in the selection of any method.

Finally, implicit in the findings is the fact that a knowledge of the individual should preclude any attempt to direct the educative process. Consequently, it seems reasonable to conclude, based on the experience of the writer, that training in the area of guidance would prove invaluable for all teachers. Such training would help teachers to understand better the psychology of learning, and realize that underlying every method employed is the hope for maximum learner achievement.

III. Recommendations

Based on the evidence presented in this study, with due consideration of the limitations and assumptions used in the design, it is recommended that:

1. Teachers appraise and evaluate methods of teaching mechanical drawing to eighth grade students at regular intervals.
2. The maturity level of students as well as the interests, goals, and aptitudes be considered in the selection of a method or methods in the teaching process.
3. A more comprehensive study be made using a larger sample in the same or related area.

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APPENDIX

FOUR STAR BOND

BOWLING GREEN COLORED

25% COTTON FIBER

[REDACTED]
Houston, Texas 77048
March 11, 1970

Dear Drafting Teacher:

I am conducting a study of methods that may be utilized to improve the teaching of mechanical drawing to eighth grade students. This study is a part of my program of studies in the graduate school of Prairie View A and M College.

You are aware, I am sure, of the value of periodic studies and evaluations. These are some ways and means by which we may stay abreast of current trends in teaching. It would be appreciated if you would complete the enclosed data sheet. The findings of this study may be made available to you if you desire.

When you have finished filling out the data sheet, please return it in the self-addressed franked envelope. Thank you for a prompt reply.

Sincerely yours,

Mitchell M. Allen
Drafting Teacher
Woodson Junior High School

Enclosures: 2

DATA SHEET

Name _____ School _____

Years of teaching experience _____

Degree/s held

Bachelors

Masters

Doctors

Other

If you checked other, please specify. _____

College undergraduate major _____

If you have a Masters degree or working toward one, indicate major field of study _____

Number of classes of eighth grade mechanical drawing (Drafting) taught per day _____

Average number of pupils per class _____

What is the area or areas of your major teaching assignment in industrial arts? _____ Are you presently teaching in any other area or areas? _____ If yes, indicate what area or areas _____

Please check below the method/s you use in teaching mechanical drawing to eighth grade students. You may use the back of this sheet for any comments you desire to make.

Methods Used

1. Class discussion _____
2. Demonstration _____
3. Lecture _____
4. Models _____
5. Individualized _____
6. Project:
 - a. Individual _____
 - b. Group _____
 - c. Class _____
7. Field trips _____
8. Other: Specify _____

Which method or methods do you consider most effective in teaching mechanical drawing to eighth grade students? _____

[REDACTED]
Houston, Texas 77048
December 17, 1969

Mr. W. A. Mayfield, Consultant
Industrial Arts
Texas Education Agency
201 East 11th Street
Austin, Texas 78711

Dear Mr. Mayfield:

I had the pleasure of hearing that wonderful speech you gave at the Industrial Arts Seminar, Prairie View A & M College. The information I received has been an asset to me.

I am in urgent need of a bulletin concerning the state requirements for Mechanical Drawing on the eight grade level. Please send me a copy as soon as possible.

Thank You.

Very truly yours,

[REDACTED]
Mitchell M. Allen

*100
copy*

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78711

December 22, 1969

Mr. Mitchell M. Allen

[REDACTED]
Houston, Texas 77048

Dear Mr. Allen:

Mr. W. A. Mayfield has recently moved to Texas A & M University to teach and to complete requirements for his doctoral degree. I recently took over his responsibilities as consultant in industrial arts.

I have requested that our Publications Office send you a copy of our monograph Drafting, Grades 7-12. If I can be of further assistance please let me know.

Sincerely yours,

[REDACTED]
Neil E. Ballard
Consultant in Industrial Arts
Division of Program Development

NEB:rn

TEXAS EDUCATION AGENCY

AUSTIN, TEXAS



- STATE BOARD OF EDUCATION
- STATE COMMISSIONER OF EDUCATION
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78711

Mr. Mitchell M. Allen

Houston, Texas 77048

Date: January 2, 1969

Re: Your request of December 17, 1969

Thank you for your publication order, which is returned for the reason(s) checked below.

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ing, Grades 7-12 Bulletin 1274

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Yours very truly,

(Mrs.) Julien D. Weeks

[REDACTED]
Houston, Texas 77048
December 17, 1969

National Education Association
ATTN: American Industrial Arts
Association
1201 Sixteenth Street
Northwest, Washington, D.C.
20036

Dear Sir:

I am conducting a study of methods that may be utilized to improve the teaching of mechanical drawing to eight grade students. This study is a part of my program of studies in the graduate school of Prairie View A and M College.

I am in urgent need of the national standard for the teaching of mechanical drawing at the eight grade or junior high school level. Please send me any information concerning this matter. Thank you.

Sincerely yours,

[REDACTED]
Mitchell M. Allen
Drafting Teacher
Woodson Junior High School

January 7, 1970

Mr. Mitchell M. Allen

[REDACTED]
Houston, Texas 77048

Dear Mr. Allen:

To the best of our knowledge, there is no national standard for mechanical drawing classes at the eighth grade level. The allocation of space, equipment, pupil class time and subject matter content are primarily a state and locally controlled educational matter.

May I suggest you correspond with the following people who may be of direct assistance to you in this matter:

Mr. Earle B. Blanton, Director
Department of Industrial Arts
North Texas State University
Denton, Texas 76203

Mr. Neal Ballard
Industrial Arts
Texas Education Agency
Austin, Texas 78711

Mr. Everett R. Glazener, Head
Industrial Education Department
Texas A&M University
College Station, Texas 77843

Mr. Stephen Randel, Director
Industrial Arts Department
Sam Houston State College
Huntsville, Texas 77340

Mr. A. L. Chovanec, Dean
Industrial Education Department
University of Houston
Houston, Texas 77004

Mr. B. A. Turner, Dean
School of Industries
Texas Southern University
Houston, Texas 77004

Mr. Welcome E. Wright, Head
Department of Industrial Education
East Texas State University
Commerce, Texas 75428

Enclosed find a membership application form for your use in joining the American Industrial Arts Association. We feel certain that you will find that your participation in our organization will be professionally rewarding.

Sincerely yours,

[REDACTED]
Edward Kabakjian
Executive Secretary

EK:dm
Enclosure

Executive Secretary, EDWARD KABAKJIAN
Executive Board, 1969-70

GEORGE H. DITLOW (President)
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Millersville State College
Millersville, Pennsylvania 17551

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Quebec, Quebec, Canada

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Rochester, New York 14614

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Millersville, Pennsylvania 17551

HOWARD S. BECKER (Program Coordinator)
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