AN ABSTRACT OF THE THESIS OF

Harold C. Tresler for the M.S. in Ind. Education
(Name) (Degree) (Major)

Date Thesis presented July 10, 1942

Title METHODS OF SHOP FINANCE USED BY INDUSTRIAL ARTS INSTRUCTORS OF OREGON

Abstract Approved: [redacted]
(Major Professor)

It is the purpose of this survey to study the problems concerned with the educational supplies in the shops of industrial arts in the secondary schools of Oregon. The survey will attempt to show how the consumable supplies are purchased, paid for, and sold to the students; how the records of these transactions are kept; and, after obtaining these facts to make recommendations for an adequate accounting system.

In order to carry out this survey, a questionnaire was drafted and sent to one hundred ten industrial arts instructors in Oregon. Eighty-two instructors completed and returned the inquiry, which represented a response of seventy-five per cent.

The following are the conclusions based on the findings of the questionnaire.

This investigation indicated that there were two major methods used for securing supplies for class work. One is for the student to buy part of the supplies from the school shop and to bring part of them from home. The other is for the students to bring all of their supplies from home or from local merchants.

In the majority of schools surveyed, the total responsibility of knowing how and where to buy suitable supplies in reasonable quantities rested with the industrial arts instructor. The supplies purchased by the instructor are not only used for shop instruction but for instruction in other classes as well as for general school maintenance, which obviously increases the work of purchasing and recording.

There is a wide variation in the methods used in the collection and handling of money paid in by the students, for instructional supplies, but the following methods were predominant.

In two-thirds of the schools investigated, the money paid by the students for shop materials was collected by the instructor; and in one-third of the schools, the money was collected by the school office. This money was usually collected either in advance of or at the completion of each project and by means of a shop ticket or by cash payment. Regardless of the method used in collecting money from the students, the percentage of the bills collected ranged from ninety per cent to one hundred per cent.

The issuing of supplies, the recording of student accounts, and the figuring of students' bills are the joint responsibility of the students and the instructor.

The instructors sold shop materials to the students at a price higher than that paid for them, to provide for shrinkage. The amounts that the prices were increased varied greatly but were supposedly adequate in each situation.

Printed forms are included in the thesis, suggested for use in the control of educational supplies. These forms were devised after a study of the general needs were ascertained from the survey and after perusal of those forms submitted by participants in the study.

METHODS OF SHOP FINANCE USED BY INDUSTRIAL ARTS INSTRUCTORS OF OREGON

by

HAROLD CARL TRESLER

A THESIS

submitted to the

OREGON STATE COLLEGE

in partial fulfillment of
the requirements for the
degree of

MASTER OF SCIENCE

August 1942

APPROVED:

[redacted]

Professor of Industrial Arts Education

in Charge of Major

[redacted]

Head of Department of Industrial Arts Education

[redacted]

Chairman of School Graduate Committee

[redacted]

Chairman of State College Graduate Council

ACKNOWLEDGEMENTS

The author wishes to express his appreciation to Clifford Lush, Professor in charge of Major, for his valuable assistance and for the interest he has shown in this study; to George B. Cox, Professor of Industrial Education at Oregon State College, for his inspiring suggestions; and to the industrial arts instructors of Oregon who have assisted by filling out the questionnaire.

TABLE OF CONTENTS

LIST OF TABLES

METHODS OF SHOP FINANCE
USED BY
INDUSTRIAL ARTS INSTRUCTORS OF OREGON

CHAPTER I

INTRODUCTION

Industrial arts instruction in the secondary levels of the public schools is of such a manipulative nature that instructional supplies in the form of wood, metal, finishes, hardware, paper, etc. are essential. The problems of purchasing, disseminating, accounting, and of collecting from pupils are numerous and time consuming for the teacher.

Methods of shop finance have always been a problem to industrial arts instructors since shop work was first introduced into the schools. To a great extent, teachers have worked out methods of their own by means of trial and error experiments. Some of these methods failed to such an extent that the schools discontinued furnishing materials to the students. Others were found to be satisfactory when applied to one type of shop work but failed when applied to another.

With the advent of the general shop and the increase in fields of experience encompassed by industrial arts, the problem has become greater. More supplies and equipment are necessary, and it has become essential that some supplies be kept on hand. It is the purchase of supplies and equipment and the selling of the supplies to the students that gives rise to the need for an adequate system of accounting.

Industrial arts instructors are constantly dealing with school money. If they are to be able to purchase supplies and equipment economically and sell to the students with little loss, they must know how to buy, how to account for waste in selling to students, and how to keep adequate records of all transactions.

Kinison (1) says:

> An accounting system for the industrial arts classes is necessary for the following reasons:
>
> 1. There is a certain amount of money involved.
>
> 2. The administration needs exact information about the financing of the industrial arts department.

1
Kinison, Charles R. A System of Accounting for the Industrial Arts Shop. p. 342.

3. The instructor needs a systematic method of taking care of the money that comes into his department.

4. The parent desires to know how the money is taken care of.

5. Pupils get valuable experience by using the system.

It is the desire of every industrial arts instructor to run his department on a businesslike basis. Therefore he must be alert to problems of shop finance and to means of improving his own methods.

Statement of the Problem

In most industrial arts classes, the responsibility for ordering consumable supplies, the selling of the supplies to the student, and the collecting for them falls directly on the instructor. At present there is a great diversity of practice in ordering and selling supplies and in the recording of these expenditures and collections.

Osburn (2) believes:

> There are several factors which contribute to this condition, such as:
>
> 1. The lack of standardization;

2
Osburn, Burl N. Business Management of an Industrial Arts Department. p. 386.

2. Insecure and short tenure of position on the part of the teacher;

3. Inability of those in charge to devise and maintain a system.

Since there is but little material available on this subject, the author felt that the findings on the methods now in practice would be of value to himself in improving his own shop finance methods, and would also be of benefit to industrial arts instructors in the field as well as to those in training.

Purpose of the Study

Since it is recognized that shop finance must be handled efficiently in order to promote a successful industrial arts program, this problem has been selected for study.

It is the purpose of this study to survey the shop finance methods used by industrial arts instructors of Oregon. The results of the study are to be analyzed and evaluated so as to determine the adequacy of the various methods now in practice.

The writer wishes to determine how the consumable supplies are purchased, paid for, and sold to the students; how the records of these transactions are

kept; and, after obtaining these facts, to make recommendations for an adequate accounting system.

It is hoped that the data compiled in this study and the conclusions reached will aid in the development of an efficient method of handling accounts and will be of benefit to industrial arts instructors in their purchase and sale of supplies.

The Method

The writer's problem was to investigate the methods of shop finance used by industrial arts instructors of Oregon. It was believed that the best way to secure this information was through the use of a questionnaire.

A questionnaire was drafted to obtain the desired information. Certain limitations were placed on the questionnaire.

First, the questionnaire was to be mailed only to instructors of high school students in the ninth, tenth, eleventh, and twelfth grades. Most of the schools of Oregon are organized on the eight-four plan rather than on the six-three-three plan. It was believed that a better response would be secured if the questionnaire included the four high school grades.

Second, the questionnaire was to be mailed only

to instructors of industrial arts and not to vocational instructors.

Third, questionnaires were to be mailed to all high schools teaching industrial arts in Oregon, with the exception of those in the city of Portland.

The questionnaires were sent out in April, 1941, to 110 industrial arts instructors of Oregon. The names of the instructors were taken from the Oregon Teachers' Directory for the year 1940-41. There were eighty-two returns received, which represented seventy-five per cent of the total mailed out. Most replies were returned promptly and the number replying indicated that instructors had an active interest in the study.

Terminology

Certain terms, as they are used in this study, are defined as follows:

The terms "materials" and "supplies" are used interchangeably in referring to articles consumed by the students and instructors in making projects and exercises.

The terms "finishing materials" or "finishes" are used to indicate those materials consumed in applying

the protective surfaces to projects.

The term "equipment" refers to tools and machines, or to projects which are built to become part of the school property.

The term "projects" refers to those articles which are constructed by one or more individuals to serve as a medium for instruction and utility.

The word "fee" is used to include all money collected for consumable supplies.

The term "indigent pupils" refers to the pupils who are financially unable to pay for the shop materials they use.

Procedure in Making the Study

The information gathered by means of the questionnaires is shown in the following pages. Part of the material is arranged in tables and the rest is in the body of the thesis.

The findings of the questionnaire are grouped into five main headings to facilitate the interpretation of the data. The groupings are: (a) Subject Offerings; (b) Sources of Income; (c) Purchasing of Supplies; (d) Collecting for Instructional Supplies;

and (e) Accounting Methods. The interpretation of the data within this study follows the sequence used in the questionnaire.

A copy of the questionnaire used in making this study is in Appendix A. Bookkeeping forms typical of various systems are to be found in Appendix B.

The findings were tabulated on a master sheet to aid in the tracing of relationships between the various items. The tables included in the study were taken directly from the master sheet.

From the data obtained by the questionnaire and supplementary information obtained from references concerning the problem, an effort has been made to indicate certain trends and implications and also to draw conclusions and to make recommendations.

CHAPTER II

Historical Background

Industrial arts instructors recognize the need for more knowledge of shop finance.

Mead (3) made a survey of beginning industrial arts teachers' problems. He writes:

> With reference to the question, "If you had an opportunity to do your college work again, which part would you stress most, judging from the experience you have had on the job", many teachers stated they would include instruction in the making and keeping shop records. This would include accepted methods of ordering, invoicing, cost accounting, making inventory and keeping a system of personnel records.

Frederick W. Bohning (4) made a study of finance methods used by industrial arts teachers of Iowa. He found that, "In forty-five per cent of the cases investigated no accurate accounts were kept."

In the past, much criticism was directed at the industrial arts department because of its lack of

---

3 Mead, Cary Robert A Study of Teaching Problems Common to New Teachers. p. 68.

4. Bohning, Frederick W. Finance Methods used by Industrial Arts Teachers in Iowa. p. 35.

adequate finance methods. Osburn (5) says:

> Probably no business could be successfully run with so little regard for business methods as the average industrial arts department. Strict accountability is the exception rather than the rule. Systems in use run the gamut from the "memory plan" to very expensive and complex systems. If a curve were to be plotted showing the distribution of departments in regard to their business methods the skew would, no doubt, be near the memory method.

Struck (6) gives the advantages of having the students and the instructor keep records of the supplies used.

> In addition to requisitions originating with the teacher, there may be those that pupils are required to prepare which will show the quantity, kind, and cost of the materials that will be required in the projects that they undertake. By requiring these to conform to generally accepted standards the pupil readily learns how such matters are handled in adult life. Neatness, correct mathematical computations, good grammar, correct spelling, and the essential technical vocabulary can be developed as by-products of the practice of making out such job requisitions and specifications.

5
Osburn, Burl N. Business Management of an Industrial Arts Shop. p. 386-388.

6
Struck, F. T. Creative Teaching. p. 112-114.

> In many industrial arts and vocational industry classes the instructor receives money from pupils for supplies used for personal projects, or from persons for whom service is rendered. Where this is the case it is advisable that carefully written records be kept of each item, for laxity in such matters is likely to result in suspicion and criticism. Where possible, it is desirable to have pupils make their payments to the office of the purchasing agent, or to a business secretary or clerk. In any case, business-like procedure should be used. Individuals may well be given receipts for money paid just as is the practice in some retail stores and business establishments.

Undue waste is a detriment to the maintenance of a worthy industrial arts program. Ericson (7) expresses the undesirable effects of unnecessary waste.

> There is unnecessary waste in many school shops in the use of materials. Instructors who allow such conditions to exist are subject to criticism from two standpoints: (1) the per capita cost, which is already high in shop work and which must be high, is unduly increased to the point that serious questions may be raised about the justification of the subject; (2) undesirable habits are developed by the students, leading to lack of appreciation of value of materials and lack of respect for articles produced.

---

7 Ericson, Emanuel E. Teaching Problems in Industrial Arts. p. 130.

There are several ways to take care of the loss by waste. Bollinger (8) states:

> One way out is to add to the price of the wood a certain percentage to take care of waste and incidentals. Thus, if a square foot of the wood cost twenty cents, add to it twenty-five per cent and charge twenty-five cents for the wood. Proceed in a similar manner in the other shops, for tin plate, insulated wire, for iron or whatever the staple materials are. Another way out is to add a certain percentage to the entire cost of the lumber used in the article, after the article has been completed. If the right percentage is arrived at, either of these methods would seem quite fair and would be rather easy to administer. If, then at the end of the semester, the instructor finds that he has not yet paid for all the waste and incidentals, he may still add to each pupils account a flat charge of five, ten, or fifteen cents each and come out whole.

According to Kinison (9) there are several systems of handling industrial arts supplies.

> In some schools the board of education pays for all of the materials and supplies and the pupils who are enrolled in the industrial arts

---

8
Bollinger, J. W. Keeping Account of the Materials used in the School Shop. p. 335-336.

9.
Kinison, C. H. A System of Accounting for the Industrial Arts Shop. p. 342-344.

classes are allowed to take their finished products without paying for them. This practice does not require any financial accounting on the part of the industrial arts instructor. This practice will cause the course to lose part of its value to the student, for it will not give him the proper knowledge of the intrinsic value of the materials which he uses.

Another method that is used in many schools is to require each student to bring in all of the materials for his projects. Schools which use this plan do not keep any stock of supplies except a limited supply of brads, nails, and screws, glue and possibly some finishing materials. This plan has the advantage of saving the instructor the trouble of keeping any stores and of keeping accounts. The boys get the knowledge of the value of their materials, but they do not get the practice in keeping accounts. It is often difficult to obtain the material which the boy needs. Only the larger towns will be able to supply these materials without making a special order for them.

The stores division of the industrial arts department should be self-supporting. This means that all money advanced by the board of education for the purchase of materials should be repaid by the department as the material is used. The value of the stock on hand plus the amount of sales should equal or exceed the amount advanced by the board.

Ericson disagrees with Kinison concerning the return of money advanced by the board of education

for the industrial arts shop supplies. Ericson (10) says:

> It appears unjust and unreasonable to expect, as some principals and school boards do, that full reimbursement shall be made by students for the value of all materials. When such demands are made it places the instructor in the position of a factory manager, and forces him to forget the instruction for the necessity of construction. Waste in the school shop, or elsewhere, is inexcusable; but to expect to spend nothing on materials, particularly in classes of beginners and young students is a short-sighted attitude.

Bawden (11) gives an adequate picture of the work involved for the instructor in the managing of an industrial arts department.

> He must, first of all, analyze the projects that are to be made and determine the kinds and estimate the amounts of materials required far enough in advance to allow ample time to have the supplies on hand when needed; next, unless, an all-seeing and all-knowing Purchasing Agent is on the job, he must locate the sources of unusual items, scout around and find the dealers who are

---

10
Ericson, Emanuel E. Teaching Problems in Industrial Arts. p. 136-137.

11
Bawden, W. T. Problems connected with Shop Supplies. p. 170.

> able and willing to offer the best prices and quality of service and in many cases solicit competitive bids; prepare requisitions in suitable form for consideration by the superintendent or business manager; receive the supplies on delivery, and check against the invoices; care for the supplies in storage, and maintain an inventory; issue the supplies from day to day, as needed, and keep accurate records; keep accurate accounts with individual students, and make collections on account at stated intervals, issue receipts, and deposit the collections; and finally balance his accounts.

Bonser, (12) in his suggestions for the ordering of supplies, says:

> The teachers or the supervisor working with the teachers should determine, as nearly as possible, a list of supplies for which they are sure there will be need: those which can be secured only by purchase should be bought in advance. However, needs for many materials will arise which cannot accurately be foreseen, and each teacher should have an available cash fund upon which to draw at such times. A teacher may be greatly handicapped if unable to secure certain things when they are needed. For work that is most educative, not all needs can be seen in advance. A contingent or petty cash fund for

---

12 Bonser, F. G. Industrial Arts for Public School Administrators. p. 29.

each school is a legitimate and proper provision and can be so administered as to avoid abuse or waste. The superintendent should recognize this need and make provisions for it.

According to Osburn (13) an accounting system, to be successful must include the following essentials:

1. The plan must be clearly comprehensible.
2. A minimum of clerical effort must be required.
3. Useless data must be eliminated.
4. The plan must be easy to access.
5. No highly involved or interrelated parts must be permitted.
6. Forms of practical size and arrangement must be provided.
7. Adequate filing facilities must be installed.
8. Satisfaction must be assured to all, both pupils and teachers.
9. The operation of the system must not be dependent upon the memory of pupils or teacher.
10. Responsibility for all transactions must be fixed.

---

13 Osburn, Burl N. Business Management of an Industrial Arts Department. p. 388.

CHAPTER III

THE STUDY

In making this study, many factors were considered, namely: the enrollment in the high school; the enrollment in the shop; the types of work offered in shop courses; the sources of income; the methods of purchasing supplies; the persons appointed to order the supplies; the method of collecting the money from the students; the person selected to collect this money; the method of caring for the bills of indigent students; the accounting system; the computation of bills; and the method of caring for waste.

All of these factors seemed to have a direct bearing on the finance of a school shop and were included in the questionnaire.

The returns from the questionnaire were tabulated on one master sheet, so that the implications of the study could be more easily traced. The master sheet is not included in this thesis, but the tables used are taken directly from the master sheet.

There were one hundred ten questionnaires mailed out; and eighty-two, or seventy five-per cent of the instructors, responded by returning the questionnaires.

The number responding, as well as the promptness with which the questionnaires were returned, indicated that the instructors were actively interested in the subject of the study. Several instructors added personal notes asking for results of the study.

The enrollment in the high schools surveyed ranged from eighteen hundred to twenty-one students, and the shop enrollment ranged from two hundred to eight students.

The percentage of students enrolled in shop courses varied rather widely, but, in most cases the shop had a large percentage of the total students, the range being from sixty to ten per cent of the total enrollment.

The small schools had the largest percentage of students enrolled in shop courses. Perhaps this is explained by the small variety of course offerings necessitated by a small teaching staff.

Subject Offerings

The types of shop work which this inquiry showed as being taught are indicated in Table I.

Twenty-one types of industrial arts courses were taught. Some of the types of work listed were of a

TABLE I

TYPES OF WORK OFFERED IN OREGON SCHOOLS
AS REPORTED BY 82 INDUSTRIAL ARTS INSTRUCTORS

Rank	Subject	Frequency
1	Woodwork	82
2	Mechanical Drawing	30
3	General Metal	12
4	General Shop	9
5	General Crafts	5
6.5	Home Mechanics	4
6.5	Carpentry	4
7.5	Leather	3
7.5	Cabinet Work	3
8.5	Auto Mechanics	2
8.5	Plastics	2
8.5	Architectural Drawing	2
9.5	Fibre and Cane	1
9.5	Model Airplane Building	1
9.5	Machine Lathe	1
9.5	Blueprint Reading	1
9.5	Blacksmithing	1
9.5	Printing	1
9.5	Stage Craft	1
9.5	Boat Building	1

general nature rather than of a specific type. The instructors who listed a general shop course did not list specific types of shop work, which would indicate that they were teaching several types of shop experience.

Woodworking was the course most commonly taught. It ranked first with a frequency of eighty-two. In all of the schools that were investigated woodworking was taught to some extent.

Mechanical drawing ranked second, with a frequency of thirty. In most instances, it was indicated that mechanical drawing was taught concurrently with the woodworking.

General metal also had a high rank of three, with a frequency of twelve. Those ranking next were general shop, general crafts, home mechanics, carpentry, leather, and cabinet work.

A tabulation of the grade levels at which these various types of work were taught indicated that there was no set time for introducting students to any type of work. For example, some schools offered woodworking in all four high school grades; others offered it in the two lower grades only; while some offered it in but one grade. The same was true in all types of work listed.

Sources of Income

In each industrial arts shop, the problem of financing the shop must be considered.

Most writers on this problem agree that there are three major methods of financing an industrial arts shop. One is for the students to furnish everything for themselves. The second is for the school to buy and furnish all supplies to the student. The third is for the school to buy all supplies and sell them to the student.

The questionnaire results showed that all three methods were in practice in the schools surveyed.

In the finance methods of a shop the question arose as to whether the shop was to be allowed a budget or a fixed sum of money to take care of instructional supplies. Of the number of instructors responding, thirty-six indicated that they did have a definite budget, and forty-five did not.

Table II shows the proportion of the budget that the administration expected shop teachers to return in cash or school equipment.

In nine cases the administration expected one hundred per cent of the budget to be returned. This would

TABLE II

THE PER CENT OF THE BUDGET TO BE RETURNED TO THE ADMINISTRATION IN CASH OR SCHOOL EQUIPMENT

Per Cent	Number of Schools
100	9
90	4
85	1
80	2
75	3
60	2
50	1
5	1
0	4

leave no allowance for practice work, demonstrations, or supplies which could not be allocated to any particular student project.

In four of the cases it was expected that ninety per cent of the allotment be returned. The remainder of Table II shows a scattering of from fifty to eighty-five per cent, and a few indicated that no return was expected.

It is often a point of contention in schools as to whether janitors should be permitted to take supplies from the shops to use in upkeep and repair of the school, and also whether supplies and projects are to be donated to other departments.

The inquiry revealed that in thirty-one schools supplies or projects were sold to other departments, and in eighteen schools supplies were sold to janitors. In fifty-six schools supplies and projects were furnished to other departments and in thirty-five schools supplies and projects were furnished to the janitors.

If accurate records are kept, the accounting is complicated by the handling of supplies in addition to those used by the students.

In the finance of a shop, it must be decided how the supplies are to be secured, that is, whether they

are to be purchased by the school or to be brought in by the students.

In answer to the question, "Do the students bring all of their supplies from home," instructors in three schools stated that the students did bring all of their supplies from home. These schools were checked on the master tabulation sheet and found to be schools of small enrollment. The shop enrollment in two of them was ten students, and in the other school it was twenty students.

The author believes it may be safely assumed that the small enrollment made it unwise to try to maintain an adequate store of supplies in the school shop; consequently, these instructors had the students buy their own supplies from local merchants or bring them in from home.

Fifty-nine industrial arts instructors stated that students brought in part of their supplies from home, and seventeen industrial arts instructors required students to bring in some supplies from home or from local merchants.

Table III lists the articles brought in from home or from local merchants, and also the rank and frequency of the articles.

TABLE III

TYPES OF MATERIALS WHICH STUDENTS BRING TO SCHOOL TO BE USED IN PROJECTS

Rank	Materials	Frequency
1	Lumber	33
2	Hardware	23
3	Special Woods	20
4	Finishes	14
5	Metal	11
6	Repair Work	9
7	Special Supplies	6
8.5	Screws and Nails	4
8.5	Upholstry Material	4
9	Leather	3
10.5	All supplies, if they wish	2
10.5	Electric Fixtures	2
10.5	Sandpaper	2
10.5	Everything except nails screws, and glue	2
11.5	Some tools	1
11.5	Brushes	1
11.5	Rags and Cans	1

Lumber had the rank of one and a frequency of thirty-three. Hardware ranked second, with a frequency of twenty-three. Several instructors teaching in lumbering areas indicated that the students were able to secure lumber at the mills through their fathers, who were employed in them.

This list of supplies brought in from home covered a wide range, and the sampling was not adequate to determine any standard procedure. The supplies most commonly brought from home were lumber, hardware, special woods, and finishes.

Seventy-one per cent of the instructors responded to the question relating to the value of the supplies brought in over a period of one year. The value of the supplies brought in ranged from five dollars to one thousand dollars for the year's period. However, it is the writer's opinion that the question dealing with the value of the supplies brought was interpreted differently by the various instructors responding. In some instances it was taken to mean the total amount used to run the shop for a year rather than the amount of materials students obtained from other sources than the school shop.

Purchasing of Supplies

The purchasing of supplies is a part of the shop routine that is often relegated to the industrial arts instructor. It involves a great deal of forethought and study to make the necessary purchases. Not only must the amount and kinds of materials be accurately estimated, but they must be purchased as economically as possible.

The inquiry indicated that in some schools supplies were ordered through a purchasing agent or board clerk; in others, this was the duty of the superintendent; in others, the principal took over the task; and in others, the industrial arts instructor did the ordering.

Table IV shows that the industrial arts shop supplies were ordered through the instructor in fifty-eight schools. In twenty schools the supplies were ordered through the principal; in seventeen schools the supplies were ordered through the superintendent; and in eleven schools the supplies were ordered through a purchasing agent or board clerk. In one school the supplies were purchased through a school board member, while another ordered through the local dealers, and in still another they were ordered through the district office.

TABLE IV

LIST OF SCHOOL OFFICIALS
WHOSE DUTY IT IS TO ORDER SUPPLIES
FOR THE INDUSTRIAL ARTS DEPARTMENT

Rank	School Official	Frequency
1	Industrial Arts Instructor	58
2	Principal	20
3	Superintendent	17
4	Purchasing agent or board Clerk	11
5.5	Member of School Board	1
5.5	Local Dealers	1
5.5	District Office	1

Total- - - - - 109

The total of the frequencies listed on Table IV is 109. This indicates that some schools ordered through more than one official. A check on the master tabulation sheet showed that in several schools the orders were made out by the industrial arts instructor and signed by the superintendent or principal. However, in the majority of cases, the supplies were partially or wholly ordered through the industrial arts instructor. This is probably to be expected, as the industrial arts instructor knows the types of projects his students will make and can more accurately estimate the supplies needed.

The question of locating the needed supplies is one confronting each industrial arts instructor. In small towns, not all the necessary items are carried in the local stores. Then, too, some of the larger supply houses are able to give better prices on materials than are local merchants. Table V shows the percentage of supplies that are purchased locally. Some industrial arts instructors did all of their purchasing locally, others purchased only two per cent of them from local dealers.

Eleven instructors purchased one hundred per cent

TABLE V

APPROXIMATE PER CENT OF THE SUPPLIES FOR THE INDUSTRIAL ARTS DEPARTMENT THAT ARE PURCHASED LOCALLY

Per cent	Frequency
100	11
98	1
95	8
90	9
85	2
80	2
75	13
65	1
60	2
50	10
40	2
30	3
25	5
20	2
15	1
10	6
5	1
2	1

Median - - 77.3%

of their supplies from local merchants; one instructor purchased ninety-eight per cent; eight instructors purchased ninety-five per cent; nine instructors purchased ninety per cent; two instructors purchased eighty-five per cent, two instructors, eighty per cent; and thirteen instructors, seventy-five per cent.

The table shows that more instructors purchased fifty per cent or more of their supplies locally than did not. This would indicate that the greater percentage of instructors bought at least half of their supplies locally.

Of the instructors reporting that most of the supplies were purchased locally, twenty-five instructors indicated that they were required by the administration to buy locally, with the exception of hard-to-get materials.

Concerning the actual buying of supplies, several practices exist. Some instructors sent out for bids on supplies, and bought large enough amounts to take advantage of quantity prices. These two practices were most frequently used by schools of a fairly large enrollment. Small schools were unable to take advantage of quantity prices, as their consumption was too low to make it advisable to buy in large quantities.

The buying of supplies ahead of time in large enough quantities to take advantage of quantity prices necessitates the instructor's organizing the work to be done by the students throughout the year before he makes his purchases.

Eighteen per cent of the instructors sent out for bids on supplies, and fifty-two per cent of them bought large enough amounts to get quantity prices where possible.

Industrial arts instructors of Oregon purchased the shop supplies either annually, or semiannually, or all as needed, or some as needed.

Thirty-five instructors purchased shop supplies annually; ten instructors purchased supplies semi-annually; twenty-four instructors purchased all the shop supplies as they were needed; and fifty-three instructors purchased some shop supplies as they were needed.

The industrial arts instructors that purchased annually and semiannually also purchased some supplies as they were needed.

The main supplies, or those that could be estimated fairly accurately, were purchased annually or semiannually; but the instructors were also allowed to purchase some

supplies as they were needed.

Fifty-six instructors were required to make out a budget in advance for the entire year. This budget was made out upon the basis of anticipated enrollment, with consideration for supplies on hand and types of work to be done.

Collecting for Instructional Supplies

The purchasing of supplies to keep on hand to sell to the students presents the problem of how these are to be sold; how and when they are to be paid for; and also how loss by waste is to be prevented.

The inquiry revealed that, in sixty-nine per cent of the schools, the collecting was done by the instructor and in thirty-one per cent of the schools, the collecting was done by the school office.

Since the majority of industrial arts instructors of Oregon have to do the collecting, it was necessary to determine the means they used in making collections and the time of the year when the collections were made.

Table VI shows that in the majority of schools the students paid in advance. In this way an initial deposit was required, and students charged against it

TABLE VI

THE TIME WHEN STUDENTS PAY
FOR THE MATERIALS USED
IN THE INDUSTRIAL ARTS SHOP

When Students Pay	Frequency
Students pay in advance	52
Students pay at the end of the semester	6
Students pay at the end of the school year	8
Students pay as they complete each project	38
Students pay on the installment plan	12

for materials needed in their shop work.

In fifty-two of the schools surveyed the students paid in advance. In six schools, the students paid at the end of the semester; eight, at the end of the school year, thirty-eight, as they completed each project; and in twelve, on the installment plan.

Several of the instructors used more than one plan. Some required a deposit in advance and collected again at the end of the semester or school year if the cost of the materials charged was greater than the deposit.

Many of the instructors collected as the students completed each project. This would seem to make the record keeping more complicated than if all the students paid at one time.

Table VII is a tabulation of the means used in collecting money from the students. In forty-seven schools the students paid for materials by cash; in twenty-seven schools they used a shop ticket; in seven schools they used a purchase card; and in six schools they used the coupon book.

The shop ticket used was of the meal ticket type. An example of this type is found in Appendix B. An example of the purchase card is also found in Appendix B.

TABLE VII

METHODS USED IN COLLECTING FROM THE STUDENTS FOR THE MATERIALS USED IN THE INDUSTRIAL ARTS SHOP

How the Materials are Paid for	Number of Schools Reporting
Students pay for Materials by Purchase card	7
Students pay for the materials by Shop Ticket	27
Students pay for the materials by Coupon Book	6
Students pay for the materials by Cash	47

To check the efficiency of the various methods of collecting from the students, it was asked, "Approximately what per cent of the value of student accounts do you collect?"

In twenty-seven schools one hundred per cent of the bills were collected; in twenty-nine schools ninety-five per cent of the bills were collected; in five schools ninety per cent were collected; in two schools eighty per cent were collected; in four schools seventy-five per cent of the bills were collected; and in two schools fifty per cent of the bills were collected.

A check of the schools collecting the greatest percentage of their bills was made on the master tabulation sheet in an effort to discover by which method the greatest amount of money was collected. However, no one method seemed to be outstandingly better in this respect. Rather it seemed to be the financial condition of the students that was the determining factor.

It was significant that so many instructors collected from ninety-five to one hundred per cent of the materials sold. Eighty per cent of the instructors

surveyed collected from ninety-five to one hundred per cent of the bills.

The inquiry revealed that in some forty-five schools, or fifty-six per cent, the purchasing agent did make an annual report of supplies bought and consumed to the superintendent or principal.

It was also asked whether a supply list was posted or kept available to show item costs, the value of this list being to give the students a chance to see the cost of materials. By this device, a student may estimate the cost of a contemplated project and thus stay within the bounds of his own personal budget.

Sixty instructors, or seventy-five per cent, did keep a supply list available showing item costs.

It was desired to know if instructors issued all of the supplies to students, or if the students were allowed free access to some of them. The inquiry revealed that sixty of the instructors retained the responsibility of issuing all supplies, and twenty-six instructors allowed supplies to be issued by certain students under the instructor's supervision.

The students were allowed free access to certain items as Table VIII shows.

TABLE VIII

LIST OF MATERIALS TO WHICH STUDENTS HAD FREE ACCESS

Materials	Frequency
Nails, screws, glue, and sandpaper	18
Lumber	17
Finishes	16
All materials	8
Small articles (brads, pumice, etc.)	6
Leather	2
Metal	2
Exercise materials	2

The most common items that students were allowed to get for themselves were nails, screws, glue, and sandpaper; next in frequency were lumber and finishes.

Students who have not the money necessary to buy shop materials have always been a problem in a shop class. There are several ways by which these students are provided for. The administration in some schools allowed them to make projects for the school or for patrons; others let them use salvage material; still others let them work out their bill by working for the school. Regardless of the method used, there seems to be a loss of interest in the project, as these students do not have the feeling that they are making something that is their own, to be taken home as evidence of their efforts.

Fifty-two instructors in the schools surveyed, said that they did have a definite method of caring for the indigent students.

The methods used were:

1. Allow students to work on school projects and models
2. Allow students to make projects for patrons who pay for the project
3. Give students N. Y. A. Work
4. Have the board of education absorb the loss

5. Use materials donated by mills and merchants

6. Assign students special duties about the shop

7. Permit students to work out their shop bill at twenty-five cents per hour

8. Hold an auction sale of the projects not paid for

9. Use the projects not paid for as prizes for the school carnival

10. Use salvage materials

11. Allow students to make two projects and sell one to pay for materials used in both projects

12. Have the board of education buy plywood and spruce for indigent students

13. Permit students to give "I.O.U's" to the office for the bill

Some instructors had just one method of caring for the students who were unable to pay; other instructors used several methods. The instructors in the lumbering areas stated that the lumber mills either donated cheaper materials or allowed them to use salvage materials. Other instructors stated that merchants furnished materials for the students if it were evident that they were in need of assistance.

The industrial arts shop is usually allowed money to buy the materials needed in the shop, but the pur-

chase of additional equipment is often a problem to the instructor. In the schools surveyed, thirty-four had to purchase equipment out of the regular shop fund, and thirty-eight were given other funds for the purchase of equipment.

Accounting Methods

The actual keeping of records varied with each instructor. That records of transactions are necessary was generally conceded, since it is one means of knowing at all times how much each student has used and how much he has paid on his account.

In answer to the question, "Do you require a bill of materials from students before checking out materials," fifty-nine instructors stated that they did require a bill of materials. Only nineteen instructors had the bill of materials made out in duplicate, with one copy for the instructor and one for the student. This procedure follows the same method used in general business practice, that of giving one copy of a bill to a customer and retaining one for the merchant's files.

Sixty-two instructors said that the bill of materials also included the price of materials, so that the

student might know the value of the materials with which he worked. Fifty-three of these instructors filled and recorded the bill of materials. This would eliminate the "memory" element in the accounting system.

Sixty-nine instructors stated that they gave the students a price list to figure the cost of materials used in projects. Forty-four instructors stated that they either figured the students' bills or else checked the bills after the students had figured them.

The majority, seventy-three per cent, of the instructors in Oregon figured the bills from the students' bills of material. Twenty-seven per cent of the instructors figured the bills from an estimate of the finished project. In the latter method, the students received no instruction or practice in figuring the cost of a project, since it was all done by the instructor.

In thirty-two of the schools surveyed, the charge for finishing materials was a set price per square foot. In twenty-seven schools the charge was a set price per job. Some of the other methods of charging for finishing materials were: estimating the amount used out of the spray gun; having pupils bring their own finishes;

charging a flat fee; charging fifteen to twenty per cent of the material costs; charging one fifth the cost of the lumber; asking ten per cent of the cost of the project; selling to students by the pint or quart; or estimating of costs by the instructor.

No matter how careful an instructor is, there is a certain amount of waste due to defective stock, pieces from cuttings too small for further use, evaporation of some kinds of materials, and other conditions of this kind.

To provide for waste, eighty per cent of the instructors in Oregon charged the students higher prices than those paid by the school.

The amount that the prices were raised to cover waste varied widely. Table IX shows the percentage prices were increased. The majority of instructors charged from ten to fifteen per cent for waste, but a few instructors charged as much as fifty per cent.

There are two major systems of bookkeeping used by instructors in Oregon, the ledger system and the card system. Both systems appeared to be equally efficient. It seemed to be a matter of the instructors convenience which decided the system to be used.

TABLE IX

PRICE INCREASE
TO COVER COST OF WASTE

Per cent of increase	Frequency
50	2
40	1
30	3
25	1
20	4
17	1
15	11
10	22
8	2
5	7
2	1
1	2

The ledger system was used in thirty-three schools and the card system was used in forty-two schools. Of the schools surveyed, all but five of the instructors kept their own records. The other five indicated that the records were kept by someone other than the instructor.

About half, or forty-eight per cent, of the instructors were satisfied with their method of keeping shop finance records.

Table X shows the source of the instructor's methods of keeping shop finance records. The majority originated their own methods; others adopted methods of another instructor. Several of the instructors indicated that their methods were a combination of methods adapted from various sources and fitted to their own situation. For example, one instructor indicated that his method was one taken partially from another instructor and partially from one given in a college training course. Another indicated that his method was one devised by the administration, but that he had supplemented it with one given in a college training course.

TABLE X

SOURCES OF ACCOUNTING METHODS
USED BY OREGON INSTRUCTORS

Rank	Origin	Frequency
1	One which you originated	49
2	One adopted from another instructor	21
3.5	One given in a College training course	10
3.5	One in use in the school when you were employed	10
4	One set up by the administration	8

CHAPTER IV

SUMMARY

The methods of shop finance used by industrial arts instructors of Oregon were surveyed by means of a questionnaire. One hundred ten were mailed out, and eighty-two replies were received. This represented a response of seventy-five per cent.

The objective of the author was to study the methods of shop finance now in use and to make recommendations for the administering of shop finances.

The following is a summary of the findings of the questionnaire.

1. Woodworking, mechanical drawing, and metal working were the most frequent course offerings of the twenty-one listed.

2. The typical teacher is expected to return eighty-five per cent of his allotment to the board of education.

3. It is evident that the problem, created by the furnishing or the selling of supplies to the janitors or to the other departments in the school, is still in existence.

4. In general, industrial arts instructors maintained a store of supplies in the shop to sell to students for projects and exercises. But students were allowed to bring in part of their materials from home.

5. Lumber, hardware, special woods, and finishes were the items most frequently brought in by the students.

6. Shop supplies were most frequently ordered by the industrial arts instructor.

7. The teacher at the median buys about three-fourths of his instructional materials from local merchants.

8. Less than fifty per cent of the schools investigated had a budget or a fixed sum of money with which to buy supplies; and in these schools, the administration expected an extremely high percentage of the budget to be returned in cash or school equipment.

9. Only one-fifth of the instructors sent out for bids on supplies but about one-half of the instructors took advantage of quantity prices in buying supplies.

10. The typical teacher bought supplies annually and supplemented these supplies by small purchases as they were needed.

11. About two-thirds of the instructors collected money from the students for supplies.

12. In most of the schools, students paid in advance for shop materials.

13. Most of the instructors were able to collect a large percentage of the student bills.

14. In approximately one-half of the schools an annual report was made of the supplies bought and consumed.

15. In the majority of schools a supply list showing item costs was available to students.

16. More than one-half of the industrial arts instructors retained the responsibility of issuing all supplies to the students.

17. The items most frequently listed to which the students had free access were nails, screws, glue, and sandpaper; lumber; and finishes.

18. The typical instructor required a bill of material with costs from students before materials were checked out to them.

19. Most of the instructors figured and recorded the student bills.

20. The methods most frequently used by instructors

to estimate cost for finishes were; a set price per square foot, or a set price per job.

21. The typical instructor charged the students ten to fifteen per cent more for materials than the original cost price, to provide for waste.

22. The card system and the ledger system of bookkeeping were each used in about one-half of the schools.

23. Almost one-half of the instructors were satisfied with their method of keeping shop finance records.

24. Instructors stated most frequently that their method of record keeping was one which they originated or one which they adopted from another instructor.

In order to aid in performance of these responsibilities the author has drawn conclusions based on the investigation and from these conclusions, has made recommendations for the administering of shop finances.

Conclusions

This investigation indicates that there are two major methods used for securing supplies for class work. One is for the student to buy part of the supplies from the school shop and to bring part of them from home; the other is for the student to bring in all of the supplies from home or from local merchants.

In the majority of schools surveyed, the total responsibility of knowing how and where to buy suitable supplies in reasonable quantities rested with the industrial arts instructor. The supplies purchased by the industrial arts instructor were not only used by the instructor but by others in the school plant, which obviously increased the work of purchasing and of recording.

There is a wide variation in methods used in the collecting and handling of money paid in by the students, but the following methods were predominant: In two-thirds of the schools investigated, the money paid by the students for shop materials was collected by the instructor; and in one-third of the schools the money was collected by the school office. This money was generally collected either in advance of

or at the completion of each project by means of a shop ticket or by payment in cash. Regardless of the method used in collecting money from the students, the percentage of the bills collected ranged from ninety per cent to one hundred per cent.

The issuing of supplies, the recording of student accounts, and the figuring of students' bills were the joint responsibility of the students and instructor.

The instructors sold shop materials to the students at a price higher than that paid for them, to provide for waste. The amounts, that the prices were increased varied greatly, but were adequate in each situation.

Recommendations

This study, based on an investigation of eighty-two Oregon schools, seems to justify the following recommendations:

1. That instructors build up a file of supply catalogues and available information that will aid them in keeping informed on suitable materials for shop work.

2. That instructors plan their orders far enough in advance to permit orders large enough to get quantity prices and to permit submitting the orders for bids, where this would be advantageous.

3. That a certain amount of free material be furnished by the board of education for the first few projects of beginning students and for instructional work.

4. That the school office collect the money for student projects in advance of issuing material.

5. That the instructor keep a check on all materials issued to the students.

6. That responsible students aid in the dispensing of materials.

7. That students have free access to such

materials as nails, screws, and glue only as they are needed.

8. That a list of the material costs be made available to students.

9. That a list of the materials and costs be made out in duplicate as the materials are issued; one copy for the student and one for the instructor.

10. That eighty-five per cent of the allotment for shop supplies be returned to the board of education.

11. That a detailed record be kept of all supplies purchased.

12. That the instructor be privileged to purchase some supplies as needed.

13. That the charge for finishing materials be estimated by the instructor for each job.

14. That the cost of all materials, except finishes, be figured at the time the materials are issued.

15. That the janitors not be allowed free access to the materials purchased for student use.

16. That the shop account be credited with the cost of materials plus a reasonable allowance for labor for items made in the shop for use in the school.

The author wishes to recommend the following

accounting system.

The supplies that are purchased are recorded in a columnar purchases journal. These supplies are classified as to type and listed in the various columns, to facilitate checking back for prices and amounts purchased in each classification.

This purchases journal gives a permanent record of the supplies bought and the prices paid for them and is an aid in making out new orders and in compiling price lists from which the students figure costs of materials.

Students are required to secure a purchase card from the school office for materials to be used in the shop. Beginning students buy a three dollar purchase card, and advanced students buy a five dollar purchase card. If these purchase cards are used up, another one must be obtained. All unused portions of the purchase card are refunded to the students.

The amount, the date, and the number of the purchase card are recorded on a standard form in duplicate, the original form to be given to the student and the duplicate form to be kept by the instructor for further recording. This standard form is bound in convenient

sized pads, and the duplicate remains in the pad as a permanent record, to use in filing and recording. This standard form is shown in Appendix B.

The standard form is also used to record materials and the prices of these materials sold to students, and to serve as a refund slip. The materials and prices are itemized on these standard forms as the materials are checked out to the student.

All duplicate copies of the standard form are recorded in a ledger, under each student's name. This recording need not be done daily, but must be done at intervals sufficiently frequent to permit easy access to any student's present standing. This recording of the standard forms into the ledger may be done by a student from the commercial department.

The ledger, with its entries of purchase cards, materials sold, and refunds, gives the total picture of the student's financial standing.

Further Research Needed

There were several problems that arose in the process of making this study which would be appropriate for further research. They are as follows:

1. A comparison of the prices for common shop supplies as quoted by local merchants and by supply houses and the determination of a reasonable margin for local merchants above outside bidders.
2. A study of existing methods for keeping shop finance records in such a way as to discover why a large percentage of the instructors are dissatisfied with their own methods and the submission of a method that would correct as many deficiencies as possible.
3. A survey of industrial arts teacher training courses dealing with finance methods.

BIBLIOGRAPHY

Bauersfeld, A. G. Equipping and Maintaining Industrial Arts Departments In a Large City School System. Industrial Arts and Vocational Education. 20:157-159, 1931.

Bohning, Frederic W. Finance Methods used by Industrial Arts Teachers in Iowa. Iowa State Teachers' College Ames, Iowa, 1933.

Bollinger, J. W. Keeping Account of the Materials used in the School Shop. Industrial Arts Magazine. 16:335-336, 1927.

Bonser, Frederick G. Industrial Arts for Public School Administrators. Bureau of Publications. Teachers' College, Columbia University New York, 1930.

Bawden, W. T. Problems Connected with Shop Supplies. Industrial Education Magazine. 31: 170, 1929.

Ericson, Emanuel E. Teaching Problems in Industrial Arts. Peoria, The Manual Arts Press, 1930.

Hausrath, Alfred H. A Shop Record System. Industrial Arts and Vocational Education. 23: 50-51, 1934.

Hoskins, H. A. An Accounting System for School Shops. Industrial Arts Magazine. 17:390-393, 1928.

Hudson, Charles P. Methods of Administering Shop Supplies and Equipment. Colorado State College of Education Greeley, Colorado, 1935.

Kinison, G. R. A System of Accounting for the Industrial Arts Shop. Industrial Arts Magazine 18:342-344, 1930.

Mead, Cary Robert A Study of Teaching Problems Common to New Teachers of the Industrial Arts Subjects. Oregon State Agriculture College Corvallis, 1936.

Myron, Elias Ferdinand. A Survey of Local Industrial Arts Units in a Representative Number of Schools in Washington Seattle, University of Washington, 1939.

Newkirk, Louis V. and Stoddard, George D. The General Shop. Peoria, The Manual Arts Press, 1929.

Norton, John M. A Comparative Study of Finance Methods used by Industrial Arts Teachers in Illinois Iowa State College, Ames, 1933.

Osburn, Burl M. Business Management of an Industrial Arts Department. Industrial Arts Magazine. 8: 386-388, 1921.

Public Schools. Industrial Arts Handbook. Industrial Arts Department, Seattle, Washington, 1925-1926.

Struck, F. Theodore. Creative Teaching Industrial Arts and Vocational Education. New York, John Wiley and Sons, Inc., 1938.

Taylor, Byron M. Industrial Arts Supplies. Industrial Arts and Vocational Education. 36: 183-186, 1933.

Van Duzee, Roy R. Industrial Arts Departmental Supplies, Maintenance, and Equipment, Planning and Accounting. Industrial Arts and Vocational Education. 21: 143-149, 1932.

APPENDIX A

March 28, 1941

To Teachers of Industrial Arts:

The enclosed blank is to determine what present practices are used with regard to the administration of shop finance methods. It is my desire to secure information which will aid in the setting up of standards from which instructors may evaluate their own methods. This form has been assembled to obtain the necessary data but to take a minimum amount of your time.

It is hoped that your interest in this problem will inspire you in checking this inquiry.

It will be greatly appreciated if you will check the blank and return it in the enclosed envelope at your earliest opportunity. An extra copy of the blank is enclosed for your files. All who cooperate will be furnished with a copy of the tabulated results of this study.

Thank you for your cooperation.

Yours very truly,

Harold C. Tresler
Industrial Arts
Instructor

HCT:d

Enc.

AN INQUIRY TO CHECK METHODS OF SHOP FINANCE USED BY INDUSTRIAL ARTS INSTRUCTORS OF OREGON

by

Harold C. Tresler
The Dalles, Oregon

in cooperation with the
INDUSTRIAL EDUCATION DEPARTMENT
OREGON STATE COLLEGE

Name_____ Name of school_____

For teachers of woodworking and metal-working in classes above the eighth grade level.

Enrollment in High School (9-12 grades inclusive)_____.
Enrollment in High School Shop (9-12 grades inclusive) _____.

List the different types of shop work that you teach. (Woodwork, metalwork, etc.,) and give grade levels.

Subject	Grade	Subject	Grade

YES NO

1. ____ ____ Does the school furnish a budget or a stated sum to be spent for industrial arts instructional supplies?

2. _____% What proportion of this budget does the administration expect to be returned in cash or school equipment?

YES NO

3. ____ ____ (a) Do you sell supplies or projects to other departments in the school?
____ ____ (b) To the janitors?

4. ____ ____ (a) Do you furnish supplies or projects to other departments in the school?
____ ____ (b) To the janitors?

5. ____ ____ (a) Do the students bring all of their supplies from home?
____ ____ (b) Part of their supplies?

6. ____ ____ Do you require students to bring in supplies from home or from local merchants?

7. List types of materials which pupils bring to school to be used in projects.

_____

_____

_____

8. $_____ Approximately what is the value of supplies brought in over a year's period?

9. Are supplies bought through:
____ ____ (a) Purchasing agent or board clerk?
____ ____ (b) Superintendent?
____ ____ (c) Principal?
____ ____ (d) Industrial arts instructor?
(e) Others_____

10. _____% Approximately what per cent of the industrial arts supplies are purchased locally?

11. ____ ____ Does the administration require you to buy locally, with the exception of "hard-to-get" materials?

12. ____ ____ Do you usually send out for bids on supplies?

13. ____ ____ Do you buy large enough amounts to get quantity prices where possible?

YES NO

14. Do you purchase supplies:
___ ___ (a) Annually?
___ ___ (b) Semi-annually?
___ ___ (c) All as needed?
___ ___ (d) Some as needed?

15. ___ ___ Are you required to make out a budget for supplies in advance of the entire year to follow?

16. Are fees collected from the students for shop materials, by:
___ ___ (a) The school office?
___ ___ (b) The instructor?
(c) Other individuals not lister here?

---

17. Do the students pay for materials:
___ ___ (a) In advance?
___ ___ (b) At the end of the semester?
___ ___ (c) At the end of the school year?
___ ___ (d) As they complete each project?
___ ___ (e) On the installment plan?

18. Do the students pay for materials by:
___ ___ (a) Purchase card?
___ ___ (b) Shop ticket? (Meal ticket type.)
___ ___ (c) Coupon book?
___ ___ (d) Cash?
(e) Others not listed here.

---

19. ___ ___% Approximately what per cent of the value of student accounts do you collect?

20. ___ ___ Do you make an annual report of supplies bought and consumed to your superintendent or principal?

21. ___ ___ Do you post or keep available a supply list showing item costs?

22. ___ ___ (a) Do you retain the responsibility for the issuing of <u>all</u> supplies?
___ ___ (b) Are some supplies issued by certain students under the supervision of the instructor?

YES NO

22. (con't) (c) Do students help themselves to needed supplies? If so, which?_____

_____

23. ____ ____ (a) Do you have a definite method of caring for students who are unable to purchase supplies?
(b) If so, will you tell how this is handled?_____

_____

_____

24. ____ ____ (a) Does the purchase of equipment come out of the regular shop fund?
____ ____ (b) Other funds?

25. ____ ____ Do you require a bill of materials from students before checking out supplies?

26. ____ ____ Is the bill of materials made out in duplicate, one copy for the instructor and one for the student?

27. ____ ____ Does this bill of materials include the price of materials?

28. ____ ____ Is this bill of materials filed and recorded?

29. ____ ____ Is the student given a price list to figure the cost of materials?

30. ____ ____ Does the instructor figure all bills?

31. ____ ____ Are the bills figured from the students' bills of material?

32. ____ ____ Are the bills figured from an estimate of finished projects?

33. If a charge is made for finishing materials, how is this charge made?
____ ____ (a) So much per square foot?
____ ____ (b) So much per job?
(c) Any other method of charging for finishing materials?

YES NO

33. (con't) _____

_____

_____

34. ___ ___ (a) To account for waste, are the prices charged students higher than those paid by the school?

_____% (b) How much higher? (In per cent)

35. ___ ___ Do you use a ledger system of keeping records?

36. ___ ___ Do you use a card system of keeping records?

37. ___ ___ Are records kept by someone other than the instructor, such as a student from the commercial department?

38. ___ ___ Are you satisfied with your method of keeping shop finance records?

39. Is your system of keeping records:

___ ___ (a) One which you originated?

___ ___ (b) One adopted from another instructor?

___ ___ (c) One given in a college training course?

___ ___ (d) One set up by the administration?

___ ___ (e) One in use in the school when you were employed?

Will you please enclose a copy of any forms you use in keeping shop finance records and give any information concerning their use?

APPENDIX B

Examples of shop tickets that are used by some instructors in Oregon.

10 10 10 10 10

NAME OF HIGH SCHOOL

_____
(Student's Name)
Good for $1.00 in Supplies

5 5 5 5 5 5 5 5 5 5

5 5 5 5 5 5 5 5 5 5

NAME OF HIGH SCHOOL

10 $2.00 SHOP TICKET 25

10 Student_____ 25

10 Instructor_____ 25

10 Ticket No._____ 25

1 1 1 1 1 1 1 1 1 1

An example of a bill of material used by some instructors in Oregon.

MATERIAL BILL

Project Part	No.	T.	W.	L.	Material	Am't	Pc.	Cst.
O. K.					Total Cost:			

An example of a material bill used by some instructors in Oregon. This material bill was printed on a card. The form that was printed on the reverse side of the card is found on page seventy.

Name _____

Course _____ Bench No. _____

Date Begun _____ Finished _____

Record of extra hours

	Total Hours	Rate

Quantity	Hardware	Cost

No. Coats	Stain	No. Sq. Ft.	Cost
	Stain ½¢ per sq.ft. per coat		
	Filler ½¢ per sq.ft. per coat		
	Shellac ½¢ per sq.ft. per coat		
	Lacquer or oil Varnish at 1¢ per sq.ft. per coat		
	Wax ½¢ per sq.ft. per coat		

CK			Total for	
	Design		Total for lumber	
	Workmanship		Total for hdware	
	Final		Total for Finish	
			Total for Labor	
Instructor			Cost of Problem	

This lumber bill form was printed on the reverse side of the form given on page 69.

Lumber Bill for _____
(Name of Problem)

Name of Part	No. of Pieces	T	W	L	Material	No. Ft.	Price Pr. Ft.	Cost

Cost of Lumber

An example of the purchase card to be used with the accounting method recommended on page 56.

NAME OF HIGH SCHOOL
Town
State

Receipt
No. 1025

Date _____

Received of _____

	Amount
Art	
Commercial	
Home Ec.	
General Shop	
Locker Fee	
Mechanical Drawing	
Physical Ed.	
Science Lab.	
Book Rental	
Total	

Adjustment will be made if student withdraws from school

Received by _____
Cashier

An example of the Standard Form to be used with the accounting system recommended on page 56.

GENERAL SHOP
Name of high school

Stock Memo

Date _____ 194__

Name _____

Checked out by _____

No.	Description	Price

An example of a page from the ledger to be used with the accounting method recommended on page 56.

(Name of Student)

Date		Dr.	Cr.

An example of the columnar purchases journal to be used with the accounting method recommended on page 56.

Date	Name of Company and list of Purchases	Wood	Metal	Leather	Misc.	Maint.