A STUDY AND EVALUATION OF CERTAIN PRACTICES OF
THE FINANCIAL ADMINISTRATION OF INDUSTRIAL
ARTS DEPARTMENTS IN CLASS A
HIGH SCHOOLS OF TEXAS

THESIS

Presented to the Graduate Council of the
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MASTER OF SCIENCE

By

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CHAPTER I

INTRODUCTION

In the field of general education, industrial arts probably offers one of the greatest financial administrative problems. The nature of the courses and the procedures involved in the operation of the classes play important roles in industrial arts administration. Unit costs in this, as in all laboratory subjects, are usually higher than those in pure academic subjects. Continuous overhead costs, large space requirements, and investments in equipment and supplies rapidly increase the total cost of industrial arts programs. In the course of one school term, a great many financial transactions involving business firms, school administrators, teachers and students occur. Problems of purchasing materials and equipment, making inventories of tools and equipment and supplies, and making financial reports require the time and consideration of all persons involved, and particularly that of the industrial arts teacher. The keeping of records is often a tiresome task because it is an activity from which few objective results are observed. However, records are important

William T. Bawden, Industrial Arts in Modern Education, p. 156.
and very necessary for the protection of the teacher and
student and for the improvement of instruction. ²

History and Background

Every new venture usually requires many adjustments be-
fore it even has a semblance of stability and efficiency. In
the school curriculum industrial arts might be termed as a
new venture. From its very nature, industrial arts requires
much equipment and material, and because of this fact, it is
generally conceded to be an expensive venture. This need not
reflect on the industrial arts, for it may be said that all
good things cost money and that industrial arts is one of
them. Since much money is involved, there is necessarily an
administrative problem.

It would seem necessary, then, that the same history of
the industrial arts movement should be introduced, and we
look to Charles A. Bennett's History of Manual Training and
Industrial Education up to 1870 for our information. ³ Bennett
traces the history of manual training from 2250 B. C. to 1917,
and reveals much data concerning the financing of schools
where trades, and later manual training, were taught. Those
schools were, in most cases, supported by private donations,

³C. A. Bennett, History of Manual Training and Industrial
Education up to 1870.
⁴C. A. Bennett, History of Manual Training and Industrial
Education, 1870 to 1917.
churches, industry, and the government. The first information concerning the financial administration of an industrial arts program was on the program of the Worchester Polytechnical Institute which was established in 1862. This program was operated on a commercial basis and produced articles which were sold to help defray expenses of the program. The work was done by the students in order to learn the operation, and no pay was received for the work which they did.

S. A. Blackburn, in his study of the development of vocational education in Texas from 1930 stated,

that of the many institutions which began to introduce courses involving handiwork, the most direct influence, so far as the development of manual training in Texas was concerned, was the establishment of the Woodward Manual Training School in connection with Washington University at St. Louis in the year 1879.5

Concerning the economic aspects of the school, it was found that industries of the locality paid for the operation of its program and expected, in return, skilled mechanics for employment in the factories and shops. The financial administration of the classes in the school was not discussed.

John T. Allan, a citizen of Austin, Texas, from 1850 until his death in 1888, is credited, more than any other person, with introducing manual training into the white

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public schools of Texas. Allan, at his death, bequeathed property valued at $75,000 to be held in trust for the establishment of an industrial school. The financial administration of the program established from this fund was not revealed.

Objectives of Industrial Arts

The objectives of industrial arts are indicative of the processes, procedures, and cost involved in the establishment and administration of an industrial arts program in the public schools.

Wilber has listed the following objectives of industrial arts:

1. To explore industry and American industrial civilization in terms of its organization, raw materials, processes and operations, products and occupations.
2. To develop recreational and vocational activities in the area of constructive work.
3. To increase an appreciation for good craftsmanship and design, both in the product of modern industry and in artifacts from the material cultures of the past.
4. To increase consumer knowledge to a point where students can select, buy, use and maintain the products of industry intelligently.
5. To provide information about, and—in so far as possible—experiences in, the basic processes of many industries, in order that students may be more competent to choose a future vocation.
6. To encourage creative expressions in trends of industrial materials.
7. To develop desirable social relationships, such as cooperation, tolerance, leadership and followship, and tact.

Ibid., p. 39.
8. To develop a certain amount of skill in a number of basic industrial processes.

Statement of Problem

This is a study and evaluation of certain practices in the financial administration of industrial arts programs operating in accredited four-year class "A" high schools in Texas. The study seeks to answer the following questions:

1. Are industrial arts teachers properly prepared to administer the financial transactions involved in an industrial arts program?

2. Is there a need for establishing standard practices and principles to be used in administering industrial arts finance?

3. Is there a danger of criticism of the industrial arts departments and the teachers, because of inefficiency in the administration of shop finance?

4. Are practices now in use basically sound?

5. Are adequate records being kept?

6. What steps should be taken to eliminate the objectional practices now in use and to initiate the more desirable ones?

Delimitation of Study

The study was limited to a survey and evaluation of certain practices used in the administration of funds allotted

Wilber, op. cit., p. 42.
industrial arts departments in four-year accredited class "A" high schools in Texas. The bulletin, *Standards and Activities of the Division of Supervision and Accredition of School Systems*, listed 201 class "A" high schools, and ninety-five of the 201 schools were listed as having an affiliated industrial arts program. A letter containing a questionnaire was mailed to each of these ninety-five schools. Seventy-one of the schools replied; however, only fifty-two were actually teaching industrial arts, and the study was limited to those fifty-two class "A" high schools in which affiliated industrial arts units were taught during the school term of 1949-1950.

**Definition of Terms**

In conducting the study, it was necessary to define the terms "industrial arts," "vocational education," manual training," "financial administration" and "class A schools." They are set forth and discussed below.

"Industrial arts" was defined by Wilber as "those phases of general education which deal with industry--its organization, materials, occupations, processes and products--and with the problems resulting from the industrial and technological nature of society."  

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"Vocational education" has been defined as "those experiences of any individual whereby he learns successfully to carry on any gainful occupation. Those experiences are controlled and organized for a specific occupation."

"Manual training" signifies "subjective training in which the student was taught the names and uses of tools, the methods of working materials, and the construction and use of shop-drawings, where the mastery of tools, materials, and methods was the end in view."\(^{11}\)

"Financial administration" refers to the activities of budgeting, recording, purchasing, policy making, supervising, and accounting as they occur in the administration of an industrial arts department.

"Class A high schools" are those schools composed of the last four years of high school which are shown in the Superintendent's Annual Report as having for the previous year an "average membership" ranging from 200 to 500 students.

**Sources of Data**

Information necessary for this study was contributed, for the most part, by the superintendents and industrial

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10 Nicholas Rilliard and Ira Kibby, *Readings in Vocational Education*, p. 10.


arts teachers of the schools under consideration. It was secured through a questionnaire, a copy of which is included in the appendix of this study. Additional data were secured from books, bulletins, professional magazines, and personal interviews with industrial arts teachers.

Method of Procedure

The bulletin, *Standards and Activities of the Division of Supervision and Accredition of School Systems*, listed 201 class "A" high schools in Texas. Ninety-five schools of the 201 had one or more units of industrial arts affiliated for the school year of 1949-1950. A letter and questionnaire were sent to each of the ninety-five schools, requesting data concerning the financial administration of industrial arts departments. Copies of the letter and of the questionnaire together with a map showing the geographical location of the schools that participated in the study are included in the appendix.

A criterion for evaluating the practices of shop finance now in use was established from books, bulletins, professional magazines, and personal interviews with industrial arts teachers.

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Recent and Related Studies

Harold Farmer and Ray Karnes made similar studies concerning the adequacy of industrial arts teacher-training. Those studies are closely correlated to this study in that this study will seek to determine if industrial arts teachers are adequately trained to administer the financial transactions involved in an industrial arts program.

Rouillion has discussed certain phases of shop finance in his book, *The Economics of Manual Training*. He gave specifications as to needed equipment and materials for several courses of industrial arts. Price lists of tools, machinery, and materials, with the total cost of instituting certain classes in industrial arts, were included. The procedures of shop finance and the records kept of financial transactions were not discussed.

One of the outstanding books of recent date related to this study is Wilber's *Industrial Arts in General Education*.

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14 Harold Farmer, "To Determine Whether or Not the Colleges of Texas Are Preparing Their Students of Industrial Arts to Teach Effectively in the High Schools of Texas," Unpublished Thesis, North Texas State College, 1939.


17 Wilber, op. cit.
Many suggestions for procedures in shop management are given, and he lists and illustrates shop records as to their administrative, instructional, and financial aspects. Chapter XVII is devoted to shop planning and layout, while the choice and purchase of industrial arts equipment is covered in Chapter XVIII.

Chester Wetsel has recently conducted a study to determine the adequacy of classroom organization of the junior high school industrial arts shops of Texas. In connection with the study, he has made a survey that shows that, in fifty-three of fifty-seven junior high schools, the industrial arts instructor collects the shop fees.

18 Ibid., pp. 253-298.

19 Ibid., pp. 299-310.

CHAPTER II

CRITERIA

There are certain Texas school laws that may contribute to the judging of the soundness of some of the practices in the financial administration of industrial arts programs. Since some of the schools studied were independent school districts and others were common school districts, laws governing both types of schools were studied and presented.

The county superintendent is the chief administrator in common school districts, whereas the superintendent of schools is the chief administrator of an independent school district. 1

The problem of making the school budget is of importance and certain questions should be considered by those interested in industrial arts administration. These questions include such queries as, Who should make the budget? Who should help, if anyone? From what sources should information be sought before the making of the budget? Some of these questions are answered in the school laws of Texas. Laws governing the budget officer are as follows:

The president of the board of school trustees in each independent school district is hereby designated as the budget officer for such district.

The county superintendent of schools is hereby designated as the budget officer for each common school district of such county. 2

It is the duty of the trustees of the school districts to see that a budget for the anticipated income and expenditures for the ensuing scholastic year is prepared on or before the twentieth of August of each calendar year, regardless of who the budget officer may be. 3

Article 414 of the Penal Codes of the State of Texas reads as follows:

Neglect of duty concerning the budget. Any officer, employee, or official of the State Government, or of the county government, or of any school district who shall refuse to comply with the provisions of this act shall be deemed guilty of misdemeanor, and upon conviction thereof shall be fined not less than $100 or not more than $1,000 or be imprisoned in the county jail for not less than one month, or more than twelve months, or shall be punished by both such fine and imprisonment. 4

Since the State of Texas considers school budgets of such importance that laws are in force concerning the making and administering of such budgets, it is logical and obvious to reason that it would be a wise practice for the teachers of industrial arts to prepare a budget for that particular department.

2Ibid., p. 8.


4J. C. Hinsley, Texas School Law, p. 292.
Every public school administrator is required by law to make certain reports concerning the activities and administration of the school he administers. Hinsley states that the Commissioner of Education shall require of each school superintendent reports relating to school funds and affairs he may deem proper for collecting information and advancing the interest of the public schools. The Commissioner of Education also furnishes each school with the proper forms on which to supply the required information.

In addition to the regular teacher reports of grades, student progress, and attendance, the industrial arts teacher should prepare certain records of the industrial arts program, such as bills due and paid, the inventory of shop tools and equipment, and the materials and equipment needed for the following year. The law that assures the school that the above reports will be turned in satisfactorily also gives the school the right to withhold the teacher's final check until such reports as are required of him are filed properly.

A practice in some schools is to hold the student's grades until he has paid all debts due the school. A study of the school laws of Texas failed to reveal any information on this subject. The writer was directed to S. B. McAlister,

5Ibid., p. 292.

Director of the Department of Government of North Texas State College, for information on the subject. According to the information McAlister has, no one has ever contested the practice to the extent that it was sent to court. There has not been an Attorney General ruling on the question, although it is considered as a common law.

One problem that faces the industrial arts teacher, more than any other teacher, is the possibility of a student's receiving injury in the industrial arts shop. This fact is true because of the wide variety of activities, including the use of tools, machinery, heat, and electricity. Heading the list is the power-driven saw; altogether too many accidents are caused by unguarded buzz or rip-saws. In some cases, the student, the parent, or, for that matter, the instructor may believe that the school may be liable for such injury. If that is the case, the school is expected to pay medical bills, and the cost may be deducted from the industrial arts budget. The prevailing principle of law in the United States is that a school district or a school board is not, in the absence of statute, subject to liability for injuries suffered by pupils who attend their school. The nature of defective slides,


8Ibid., p. 17.
unsafe bleachers, or unguarded buzz saws has no effect whatsoever upon the final decision of the case. A specific law of the State of Texas is,

The board of trustees of an independent school district is not liable for injuries received by a student while performing duties assigned to him in a manual training class.

In support of the Texas laws concerning the liability of the school for accidents in the shop, it was found, in a study by A. C. Poe, that a great many court decisions have been rendered to the effect that the school may not be held responsible in the event of personal injury.

The recommendations for practices and procedures of writers in the fields of finance, industrial arts, and public school administration may be used to establish standards by which the present practices of industrial arts administration may be judge. Some of the recommendations of these writers may conflict with the above laws; however, some of their suggested practices are widely used.

A large part of the tax dollar collected in any community goes for the building and equipping of schools, supplying materials used in instruction, and for providing salaries for school personnel. Persons responsible for the

9 Ibid., pp.18-19.  
10 Hinsley, op. cit., p. 565.  
expenditures should spend wisely. There has never been dissent from the premise that school expenditure can be more effectively made when available funds are apportioned among the various items necessary for the efficient conduct of the school system and that serious efforts should be made to restrict expenditures to the amount set forth in the adopted budget. Budgeting originated in business and industrial concerns, from which it spread to state and national government, and then into local subdivisions of the states--cities, counties, and school districts. The construction of a budget is nothing more or less than an estimate of the expense of remaining in business during the year for which the budget is compiled. The first step is to estimate as accurately as possible the total income from all sources; the second step is to allocate certain amounts of this total to various accounts as a guide in limitations for the year's expenditures that need to be made in order to live within the estimated income.

It is commonly agreed that the superintendent and high school principal frequently must assume the responsibility

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13 Paul Mort and Walter Reusser, Public School Finance, p. 129.

14 Ibid., p. 130.

for the lack of primary prudence and business practices in the administration of the high school budget. Revis and Woelmer found that 70 per cent of the principals included in their study were charged with the duty of administering the school budget.

Agreeing with the above, Mort and Reusser say that, since the superintendent of schools is the chief executive of the board of education, he should be responsible for all phases of school administration and that the separation of educational from business administration in public schools is fundamentally unsound.

In order that the superintendent or principal may be able to prepare and administer the school budget, he must have certain information and assistance. In the past two decades the question of teacher participation in the administration of the schools has received much attention in educational literature and discussion, with most educators agreeing that democracy should prevail in school administration and that the teacher should share in the exercise of administrative


18 Mort and Reusser, *op. cit.*, p. 121.
control over the school. It is not expected that each teacher should take an active part in the preparation of the school budget, but each one can contribute to its successful completion by supplying the essential information required of him. It is impossible for the budgeting officer to do a completely satisfactory job by himself, and it highly desirable that the teachers lend all the assistance they can. Each teacher should maintain an account of all receipts and expenditures in connection with any funds in his care. These records should show separately each amount received, with the date of receipt, the person or organization from whom it was received, and the occasion for the receipt of the amount. They should also show the amount of each expenditure, to whom it was paid, the purpose or object of payment, and the date.

If, at the close of each school year, the superintendent receives these records from the teachers, along with requisitions for the next year, he may, with other budget data, be able to prepare and administer the school budget successfully.

In the school of earlier days, the procedure of purchasing needed materials and supplies was relatively simple.

19 Leonard V. Koos, Administering the Secondary School, p. 481.


21 Carl R. Douglass, Organization and Administration of Secondary Schools, p. 455.
A few items of school furniture, books, and fuel were about the only materials and supplies required in the one-room rural school. As the work of education expanded in the number of persons it serves and in the extent of its program, more and more specialized items of supply and equipment became necessary until today one finds in the storerooms of a modern city school hundreds of different items of supply. Unless the purchasing, storing, and distribution of materials and supplies are carefully supervised and managed, there is likely to be waste and inefficiency in supplying items to those who need them. The whole procedure of selecting, purchasing, and storing materials should be carried on in accordance with certain recognized standards that have been developed through practice. In some communities, the high school superintendent or principal will find it necessary to persuade his school board that a ruling should be made prohibiting the teachers, janitors, or any other school employees from ordering or buying supplies directly from merchants. When teachers and other school personnel make such purchases, the cost is usually higher, and the practice generally means the lack of centralized control of finance.

22 Mort and Reusser, op. cit., p. 306.

The National Association of Public School Officials has prepared a list of thirty-six rules that are a basis for efficient supply management. They are as follows:

1. There should be a standardized list of supplies and equipment indicating supplies, equipment available per subject per year, which should be subject to annual revision.
2. The kind, quantity, and quality of all equipment and supplies in any school system should be justified from the standpoint of improvement of educational or instructional service.
3. Controlled experimental studies which have as their objective the scientific determination of quality and quantity of supplies and equipment required should be continuous.
4. Request for new and additional supplies and equipment should come from the teacher.
5. These requisitions for a particular supply or equipment should be based on justifiable needs of desirable activities.
6. Sufficient notice of contemplated change in any equipment or supply should be given the purchasing agent to permit arrangement whereby supplies on hand can be used before change is made.
7. Hoarding of supplies and equipment by teachers and janitors should be prevented.
8. As soon as any supply or equipment becomes unnecessary in the place which it is located, it should be returned to the warehouse or storeroom.
9. A periodical inspection of classrooms and individual school storage rooms should be made to see that supplies and equipment are being properly and economically used.
10. Equipment and supplies should be kept in proper repair at all times and all means should be used to prevent any deterioration.
11. Expenditures for supplies and equipment should be in strict accordance with budgetary policies.
12. Purchase should be made at times when best advantages of market prices may be had.
13. All purchases, in so far as possible, should be made from the largest number of competitive closed bids.
14. Purchases should be made from specifications wherever possible.
15. The quality of the materials should not be in excess of that which will meet the specific need; neither should it be below such standards.
16. The direct responsibility for the selection of educational supplies and equipment should be lodged with the superintendent or someone responsible to him, those who are to use this equipment, and those assigned purchasing duties.

17. The use of supplies and equipment should determine their selection.

18. Supplies and equipment used in carrying out the curriculum should be selected on the basis of reliability, adequacy, flexibility, simplicity, durability and economy.

19. Supplies and equipment should be selected at such times as will avoid all delay in purchasing, delivering, and distribution, and so permit the greatest service.

20. The selection of supplies and equipment should be a co-operative task between user, purchasing agent, committees and superintendent.

21. Supplies and equipment should be selected by those who know their value for the purpose for which they are to be used.

22. A scientific study should be made to determine which material or substitute is best.

23. Selection and expenditure should be in accordance with budgetary provisions.

24. Supply and equipment should be selected in the order of the greatest need.

25. The purchasing agent should keep up-to-date files containing names of all reliable vendors handling the various items.

26. A copy of the specifications should be available for each vendor requesting it, provided an intention to participate in the bidding is indicated.

27. When bids have been opened and tabulated, consideration should be given to the lowest and best bidder.

28. It is essential that samples be submitted with bids when substitutes are offered or when specifically requested.

29. All bids should be accompanied by a certified check amounting to not over ten per cent of the bid, assuming a fixed minimum and maximum.

30. When specifications have been prepared, bids received, and contracts awarded, it should be understood that no changes are to be made until the supply and equipment purchased have been exhausted.

31. The person in charge of purchasing should retain supervision and control until the supplies are delivered.

32. All supplies should be kept in and delivered from a central or separate storeroom.
33. The stockroom should have a diagram showing location of all items stored in it.
34. Cooperative purchasing among school boards is worthy of consideration.
35. An order to purchase should constitute an order to use discount for prompt payment.
36. Emergency orders of principals, teachers, and janitors should be submitted for approval to a central agency in their respective departments before purchase is made. 24

Unless the responsible school officials learn and adopt business practices and procedures, they must inevitably either lose their positions or be embarrassed when the board of education or school patrons demand an adequate accounting for all school supplies and equipment. 25 The industrial arts teacher is in a similar position. Frequently the teacher's reputation and his standing in the school and community may depend on his ability to account accurately for the funds which he has collected for projects and materials. 26

In education, as in other fields, hasty patchwork plans, poorly conceived upon subjective assumptions, must disappear in favor of a policy based upon scientific study both in the laboratory and in the field. 27

25 Cox and Langfitt, op. cit., p. 159.
26 Wilber, op. cit., p. 246.
27 Arthur Moehlamn, Public School Finance, p. 27.
Accounting is the basic operation in the financial administration of schools and is of major importance in the field of industrial arts.

Accounting is a means for making available to boards of education and school officers the data required for efficient administration of schools. The accounting system is an instrument for the wise administration of the school budget. It provides the means whereby the school officers may determine at any time the extent to which the financial plan as set forth in the budget is being carried out.

The financial accounting records should reveal at any time the extent to which school officials have exercised the wise stewardship of the funds entrusted to them. 28

The purposes of accounting are to prevent theft and waste of materials and equipment, render an account of stewardship of supplies, equipment and funds, and to furnish a basis for budget estimates. 29 The development of adequate school records and significant school reports may be traced, on the one hand, to the growth of the profession of education, and, on the other hand, to the demand which the public is now making for complete information concerning public enterprise. 30

The industrial arts teacher may easily be one of the most valuable members of a school system, or he may be what,

28 Mort and Reusser, op. cit., p. 205.

29 Douglass, op. cit., p. 389.

too often, he is— one of the minor factors in the school. Where the latter situation prevails, it will be found that the trouble lies in inadequate training or in misdirected energies of the instructor. The industrial arts teacher is charged with the accounting and recording for his classes. All the administrative principles concerning recording and accounting can easily be applied to the shop instructor. Laxity of supervision and tolerance of improper usage of equipment and supplies by teachers should be regarded as evidence of inefficiency and administrative irresponsibility.

The problem of how to manage a shop and still have a maximum amount of teaching time is of foremost importance. No school system can afford to have an instructor who must spend fifty per cent of his time waiting on the class. It is important, therefore, that the industrial arts teacher study and adopt practices that will afford him more teaching time. Some of the duties that consume teaching time are checking attendance, recording financial transactions, issuing materials, preparing lists of necessary equipment, materials and supplies, and preparing the annual budget for

31 Samuel Vaughn and Arthur Mays, Contents and Methods of Industrial Arts, p. 381.

32 Koos, op. cit., p. 556.
the maintenance and extension of the department. At the close of the school year the teacher must get the shop in order, check the materials used and determine the cost to each pupil, bring all records up to date, and assign grades to the pupils. There have been cases where the school assumes the cost of unpaid shop bills if the fact is known that a student's family can not pay the bill; however, if the student has been negligent in attending to the matter, his grade should be withheld, or he should be given "incomplete" on the course.33

The industrial arts class may be set up to simulate an industrial shop, with certain responsibilities delegated to the students. There may be a shop foreman, a toolroom foreman, a finish room foreman, and a clean-up foreman. Should the teacher have to be out, the shop foreman may be in charge to check roll, meet visitors to the shop, give assistance to other students, or supervise other foremen. The toolroom foreman may check tools at the beginning and close of the period to see that all are in order. The finish room foreman may make available the required supplies, see that proper procedures are followed, and be sure supplies and brushes are properly cleaned and stored at the close of the period. The

clean-up foreman sees that each student cleans his work area and that the shop, as a whole, is clean and in order at the close of the period.

Considerable time can be saved by selling students punch cards to cover the cost of shop projects. If satisfactory arrangements can be made whereby those cards are purchased from the central office and if the records of the financial transactions are kept there, considerable teaching time can be saved.\textsuperscript{34} Student office clerks can be taught the procedures for recording financial transactions in the central office.\textsuperscript{35}

The adequacy of industrial arts teacher-training determines the efficiency with which a teacher can administer the industrial arts programs. Herlihy states that consumer training is one of the basic philosophic concepts which determine the industrial arts teacher-training curriculum.\textsuperscript{36} The aims of industrial arts teacher-training institutions were ranked by seventy-six schools. The nine highest ranking aims of the institutions presented in order are:

\begin{itemize}
  \item \textsuperscript{34} Wilber, \textit{op. cit.}, p. 251.
  \item \textsuperscript{35} Ibid., p. 251.
  \item \textsuperscript{36} Charles M. Herlihy, "Professional Development of Industrial Arts Teachers," \textit{The Industrial Arts and Vocational Education Magazine,} XXXII (September, 1943), p. 414.
\end{itemize}
1. Train teachers of industrial arts for public school service.
2. Develop proper appreciation of the significance of industrial arts for the contributions to present-day living.
3. Attain certain standards of skill in subjects where skill is demanded. (Necessary to achieve number 2 above).
4. Develop proper appreciation of the significance of industrial arts for its own sake—its place in the social heritage.
5. Supply students with the necessary background of informational subject-matter for teaching purposes.
6. Make students familiar with the aims and problems of the subject.
7. Give practice in teaching, lesson planning, and experience in typical teaching activities.
8. Promote a scholarly and scientific attitude toward the problem of teaching.
9. Train in right methods of study, including training in location and use of references and source materials relating to the subject.

The education of a real industrial arts teacher is a continuous process. Specific training begins when he makes his choice of his vocation and continues to the end of service period. Upon completing his college training and taking his first degree, a teacher may pursue further training in several ways. In-service training is one method to further teacher education. Attending professional meetings and keeping in contact with other teachers in the field offer additional opportunities for professional growth. Although

37 Verne C. Fryklund, Industrial Arts Teacher Education in the United States, pp. 36-37.

38 L. W. Pickens, "In-Service Training for Industrial Arts Teachers," The Industrial Arts and Vocational Education Magazine, XXXIII (January, 1943), pp. 10-12.
the above activities provide excellent opportunities, many teachers do not pursue further college training past the bachelor's degree. Subscribing for and studying professional literature afford the teacher an opportunity to keep pace with the industrial arts program.

Personal interviews were held with thirty-four college graduates who had majors in industrial arts. Twenty-nine of those graduates have had teaching experience ranging in years from one to twelve. The average number of years of teaching experience was four. Certain questions concerning the financial administration of industrial arts were asked those graduates.

Seventy-nine per cent of those who had teaching experience had not been charged with the responsibility of opening or re-opening a high school shop. Of the ten teachers who had initiated the opening of a shop, six had no assistance in setting up the procedures for administering shop finance. One was assisted by a supervisor, one by the high school principal, and two were assisted by the school superintendent. Of the instructors who set up their systems alone, two were guided by observations they had made of the practices used in their college classes; three were guided by previous experiences gained while in other teaching positions, and three went into schools where practices and procedures had been previously established.
The second question asked those interviewed was, "Do you, as a shop teacher, feel the need for specific training in the administration of industrial arts finance?" Thirty-two of the thirty-four answered "yes" to that question. Even though all the people interviewed were college graduates, and some had taught school for twelve years, ninety-four percent felt the need for additional training in industrial arts finance. Several teachers suggested that it would be of great benefit if a course of study concerning financial administration of industrial arts could be worked out and a class initiated into the college curriculum in order that industrial arts majors would be more adequately prepared to administer their own departments.

Industrial arts teachers should be the best qualified to judge the adequacy of the funds provided for the successful operation of industrial arts departments. According to the teachers questioned, approximately 77 percent of the schools in which they teach provide adequate funds for financing the industrial arts departments. If these figures are correct, approximately 23 percent of the teachers who enter the field may be expected to operate their shops on inadequate funds. In schools where there is a lack of funds, the financial administration of the shops is an even more important phase of the program.
Twenty-five of the thirty-four teachers expressed the belief that the cost of industrial arts does not limit the membership of their classes. Most of them were in agreement that, under close supervision and under guidance in the choice of projects, most students that were financially able to come to school could afford to take industrial arts courses. It is their belief that the teacher should know student course cost and should be able to control that cost to a certain extent. By having that information and being able to control cost, teachers may make it possible for students to take industrial arts courses.

In discussing shop finance, 73 per cent of the teachers indicated that they had rather not handle shop money. The chief objection voiced was that too much teaching time was consumed in keeping the records. They did not need the shop money in their possession for the purchase of supplies, as, in most instances, supplies were purchased by other methods. Two teachers were indifferent to the question, and seven indicated that they wanted to handle the shop money.

The efficiency with which the teacher administers the industrial arts finance was considered by twenty-four of those interviewed to be of great enough importance to have a direct bearing on teacher tenure. The question of honesty was not considered a major factor in the administration, because, it is the belief that the teachers are of sufficiently high
character to remove that phase of the problem. All realized, of course, that proof of dishonesty would cause immediate termination of their services. Methods of accounting, recording, procedures followed, and the ability to operate within the established budget were the chief points considered before stating their views on the question.

Since there is an indication that instructors recognize the need for standard practices and procedures in industrial arts finance, and since twenty-nine teachers stated that they would do away with their present system and adopt standardized practices and procedures if they were made available to them, the following chapter is devoted to a study of this subject.
CHAPTER III

A STUDY OF PRACTICES AND PROCEDURES OF THE FINANCIAL ADMINISTRATION OF INDUSTRIAL ARTS IN CLASS "A" HIGH SCHOOLS IN TEXAS

Plans and procedures should be established for administering the finance of industrial arts in each school. This having been accomplished, the teacher can perform his duties more effectively. He will know what is expected of him and what to expect of the administration and of the school. If the department is in existence at the time a teacher enters a system, the practices are, in most instances, already established. Teachers in the schools surveyed were asked to indicate their participation in the planning of the financial administration of the departments in which they teach. The results are shown in Table 1.

TABLE 1

TEACHER'S PARTICIPATION IN THE PLANNING OF THE FINANCIAL ADMINISTRATION OF THEIR CLASSES

<table>
<thead>
<tr>
<th>Extent of participation</th>
<th>Per cent checking as applicable</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alone</td>
<td>16.5</td>
</tr>
<tr>
<td>With department head</td>
<td>3.7</td>
</tr>
<tr>
<td>With superintendent of schools</td>
<td>65.0</td>
</tr>
<tr>
<td>With one or more of above and sch. bd.</td>
<td>0.0</td>
</tr>
<tr>
<td>No participation</td>
<td>1.9</td>
</tr>
<tr>
<td>With department head and superintendent</td>
<td>3.7</td>
</tr>
</tbody>
</table>
As can be seen in Table 1, 98.1 per cent of the teachers took an active part in the planning for the financial administration of their classes. Sixty-five per cent of the teachers worked with the superintendent in establishing the procedures to be followed.

In some schools the industrial arts departments are expected to be very nearly self-supporting. In other schools, the cost of the industrial arts program is of minor importance. The method of determining the student course cost may indicate the desire of the school concerning the financial independence of the industrial arts department. The method used by the teacher to determine student course cost also reflects on his teacher-training background. The procedures used to determine student course cost in the schools surveyed is shown in Table 2.

TABLE 2

METHODS USED TO ESTABLISH STUDENT COURSE COST

<table>
<thead>
<tr>
<th>Method of determining cost</th>
<th>Per cent of schools using method</th>
</tr>
</thead>
<tbody>
<tr>
<td>Flat rate for course</td>
<td>5.8</td>
</tr>
<tr>
<td>According to projects completed</td>
<td>73.0</td>
</tr>
<tr>
<td>An established rate plus cost for additional projects</td>
<td>11.6</td>
</tr>
<tr>
<td>Other methods not given.</td>
<td>9.6</td>
</tr>
</tbody>
</table>

Evidence concerning the expectation of the schools in regard to industrial arts financial independence was indicated by the response to a direct question concerning
budgeting. None of the schools expected the industrial arts departments to make a profit; sixty-four per cent of the schools did not expect the department to pay for its own operation. Twenty-seven and eight-tenths per cent of the schools expected the departments to return from 75 to 90 per cent of the amount allotted for supplies. Seven and four-tenths per cent of the schools were indifferent as to the amount of return.

Money must be collected from the industrial arts students at some time by some procedure in order that the department may be in any measure self-supporting. Sixty-one per cent of the schools surveyed have established methods for charging and collecting shop bills. Table 3 shows persons collecting shop fees.

### Table 3

**Collector of Industrial Arts Fees**

<table>
<thead>
<tr>
<th>Collector of shop fees</th>
<th>Per cent of the schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shop instructor</td>
<td>83.3</td>
</tr>
<tr>
<td>Business manager</td>
<td>5.5</td>
</tr>
<tr>
<td>Superintendent, principal or assistants</td>
<td>11.2</td>
</tr>
<tr>
<td>Department head</td>
<td>0.0</td>
</tr>
<tr>
<td>Others</td>
<td>0.0</td>
</tr>
</tbody>
</table>

The time of collecting shop bills influences the industrial arts program in two ways. First, if the bills are collected before the close of school, the problem of unpaid bills at that time is eliminated. Also, in order to keep
the accounting of the department up to date, the records of all money collected must be made at the time of collection. To make these records at time of payment, the teacher must use what, normally, would be teaching time. Table 4 shows the practices in use in the schools surveyed.

TABLE 4
TIME FOR COLLECTION OF SHOP FEES

<table>
<thead>
<tr>
<th>Time</th>
<th>Per cent of schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Upon entering the class</td>
<td>29.4</td>
</tr>
<tr>
<td>Upon completion of projects</td>
<td>35.6</td>
</tr>
<tr>
<td>End of term</td>
<td>9.8</td>
</tr>
<tr>
<td>End of six weeks</td>
<td>15.6</td>
</tr>
<tr>
<td>Start of project</td>
<td>5.8</td>
</tr>
<tr>
<td>Monthly</td>
<td>1.9</td>
</tr>
<tr>
<td>No set policy</td>
<td>1.9</td>
</tr>
</tbody>
</table>

One of the most widely established practices of industrial arts financial administration was shown to be that of the instructor's collecting the shop fees. However, the most variation in procedures was shown to be in the time of his collecting those fees. As can be seen in Table 4, the most popular procedure is to collect for a project when that project is completed. The collection of bills at the beginning of the course ranks second. The two methods, together formed a majority over the other five methods used.

Records of shop bills paid and due are of major importance to industrial arts accounting. These records, if kept up to date, show the disposition of funds handled by the
shop teacher. He should be able, at any time, to account for any money paid in to the shop. Table 5 shows that 65 per cent of the teachers returning questionnaires personally kept those records. Obviously, if the money is collected elsewhere, the teacher cannot be held responsible.

TABLE 5
PERSONNEL KEEPING RECORDS OF SHOP BILLS PAID AND DUE

<table>
<thead>
<tr>
<th>Person keeping records</th>
<th>Per cent of schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Instructor</td>
<td>65.6</td>
</tr>
<tr>
<td>Student</td>
<td>8.9</td>
</tr>
<tr>
<td>Superintendent, principal, or assistant</td>
<td>13.6</td>
</tr>
<tr>
<td>Department head</td>
<td>0.0</td>
</tr>
<tr>
<td>Business manager</td>
<td>8.9</td>
</tr>
<tr>
<td>Other - office secretary</td>
<td>3.0</td>
</tr>
</tbody>
</table>

The survey indicated that the procedures for purchasing shop materials, tools, and machinery are not too varied. Sixty-three and nine-tenths per cent of the schools surveyed reported that the shop teacher purchased the requirements and charged them to the school after having received approval of the administration. In six and nine-tenths per cent of the schools, the shop teacher made the purchases and paid for materials with shop money collected from the students. The school superintendent, business manager, or department head purchased tools, machines, and supplies in 29.2 per cent of the school.

Each set of records a shop instructor is required to keep consumes teaching time. In 50 per cent of the schools
responding to the questionnaire, the maintenance department of the school used supplies from the industrial arts department. In 59.3 per cent of those schools, records were kept of the material used by the maintenance department. If the industrial arts shop is to furnish the maintenance department supplies, those supplies must be estimated and purchased in addition to the requirements of the shop. Another effect on the economics of the shop is indicated by the fact that, in 40.7 per cent of the schools in which the maintenance department uses shop materials, no record whatsoever is kept of the amount. Where that is the practice, the cost of industrial arts materials and supplies must be figured as a loss to the department. In that case, the inefficiency lies with the administration rather than with the teacher.

Procedures in shop administration may serve as an indication of the efficiency of the colleges of Texas in preparing their students of industrial arts for the work they are to do. Some of the planning procedures are shown in Table 6.

<table>
<thead>
<tr>
<th>Method used</th>
<th>Per cent of schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average student bill for past term times number of students expected next year</td>
<td>44.8</td>
</tr>
<tr>
<td>Other methods not given</td>
<td>44.8</td>
</tr>
<tr>
<td>Not determined by instructor</td>
<td>10.4</td>
</tr>
</tbody>
</table>

Table 6

METHOD USED TO DETERMINE THE SHOP NEEDS FOR THE NEXT FISCAL YEAR
To determine budgetary procedures and to indicate teacher knowledge of pupil course cost of industrial arts, the teachers were requested to list approximately the amount of money that was allowed in the school budget for the purchase of materials per student per class for nine months in six industrial arts courses. Thirty and eight-tenths percent of the teachers did not give information concerning the cost per course. One reason for this lack of information was that in 11.5 per cent of the schools the supplies for the industrial arts department were not figured in the school budget. Another possible explanation of this lack of information was the fact that the remainder of the teachers did not know the statistics. A possible misunderstanding on the part of the teachers may be another explanation for this lack of information. Several schools indicated the course cost for some of the subjects as ranging from $100 to $300. Where student course cost was listed that high, the figures were not used to determine the average.

Table 7 shows the average cost of the six industrial arts classes as reported by schools in the survey.

Two practices, both similar fundamentally, are those of the school's holding the teacher's final check until all reports and records required of him are turned in, and the holding of the student's final grade until he has paid his shop bill. Of the schools reporting, only 32.6 per cent held the teacher's checks. Four and two-tenths per cent of the
schools did not require final reports from the teachers. Seventy-six and nine-tenths per cent of the schools held the student's final grades until his shop bills were paid. Ninety-five and eight-tenths per cent of the teacher indicated that they turned in final reports at the close of the school year.

**TABLE 7**

**APPROXIMATE AMOUNT OF MONEY ALLOWED IN THE SCHOOL BUDGET PER STUDENT PER COURSE FOR NINE MONTHS**

<table>
<thead>
<tr>
<th>Course</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Laboratory of industries</td>
<td>$6.66</td>
</tr>
<tr>
<td>First year hand woodwork</td>
<td>7.55</td>
</tr>
<tr>
<td>Second year machine woodwork</td>
<td>7.77</td>
</tr>
<tr>
<td>Sheetmetal</td>
<td>5.00</td>
</tr>
<tr>
<td>Machine metal work</td>
<td>4.62</td>
</tr>
<tr>
<td>Mechanical drawing</td>
<td>3.20</td>
</tr>
</tbody>
</table>

Table 8 lists the items included in the teacher's reports and gives the percentage of schools including those items in the reports. More than 69 per cent of the schools

**TABLE 8**

**ITEMS INCLUDED IN THE INDUSTRIAL ARTS TEACHER'S FINAL REPORT**

<table>
<thead>
<tr>
<th>Item</th>
<th>Per cent of schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>Materials on hand</td>
<td>69.1</td>
</tr>
<tr>
<td>Amount of material out and not paid for</td>
<td>28.8</td>
</tr>
<tr>
<td>Requisitions for next year</td>
<td>48.1</td>
</tr>
<tr>
<td>Machine and tool inventory</td>
<td>61.2</td>
</tr>
<tr>
<td>Receipts for all money collected</td>
<td>48.1</td>
</tr>
<tr>
<td>Complete financial statement</td>
<td>1.9</td>
</tr>
<tr>
<td>Other--not listed</td>
<td>3.9</td>
</tr>
</tbody>
</table>
studied included materials on hand in the teacher's final reports. The second item in importance in the report is an inventory of tools and equipment. Requisitions for the coming year and receipts for money collected during the current year come third in the list of items mentioned. Only 28.8 per cent of the schools include the amount of materials out and unpaid. Approximately 2 per cent of the schools give a complete financial statement.

Table 9 shows the methods used in handling the cost of industrial arts courses to needy students, with the per cent of the schools using those methods. Because of the course

<table>
<thead>
<tr>
<th>PROCEDURES FOR HANDLING COURSE COST OF INDUSTRIAL ARTS FOR NEEDY STUDENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Required materials</td>
</tr>
<tr>
<td>Given to students free of charge ...................................</td>
</tr>
<tr>
<td>Students allowed to work at school to pay for materials ..........</td>
</tr>
<tr>
<td>Students allowed to make arrangements to sell projects to pay school</td>
</tr>
<tr>
<td>Other--not given ..................................................</td>
</tr>
</tbody>
</table>

cost of industrial arts, some students might be deprived of taking the courses. The survey showed that 47 per cent of the schools have made provisions for the needy students. Supplies are furnished needy students by 16.1 per cent of the schools, whereas 48.3 per cent of the schools believe in making students responsible for supplies by working at school; 29.2 per cent allow their students to sell their projects to pay for materials and supplies needed in the courses.
CHAPTER IV

A COMPARISON OF THE PRACTICES AND PROCEDURES OF FINANCIAL ADMINISTRATION OF INDUSTRIAL ARTS DEPARTMENTS IN CLASS "A" HIGH SCHOOLS OF TEXAS TO THE RECOMMENDATIONS OF PUBLIC SCHOOL ADMINISTRATORS AND INDUSTRIAL ARTS TEACHERS

The fact that industrial arts teachers are college graduates and can demonstrate skills in the activities of industrial arts does not necessarily guarantee that they will be successful teachers. There is a possibility that their training may be inadequate. The shop teacher should have training in psychology, principles of education, history and philosophy of education, curriculum construction, and special methods courses which relate to the organization and administration of industrial arts classes. Thirty-two of thirty-four shop teachers interviewed indicated that they felt a need for specific training in the financial administration of industrial arts classes.

A teacher who is properly trained may be able to participate successfully in the administration of the school. The administration of the industrial arts department is of major importance to the teachers in that field. Most of the

1 Newkirk and Stoddard, op. cit., p. 185.
discussions and writings concerning teacher participation in the administration of public schools have reiterated the fact that teachers should take an active part. The survey showed that in planning the administration of the industrial arts classes, 98.1 per cent of the teachers took an active part. Although the superintendent of schools is the chief administrator of the school, 79 per cent of the teachers that had assistance in planning the policies of shop finance worked with the superintendent of schools.

According to the laws of the State of Texas, each school must submit a budget for the school year. In order that the budget will include the necessary appropriations for the operation and expansion of the industrial arts department, the industrial arts teacher must furnish the budgeting officer with the required information. In order to comply with this requirement, it is wise for the teacher to prepare a budget for his department. Vaughn and Mays list the preparation of a shop budget as one of the important duties of industrial arts teachers. Of the thirty-four teachers interviewed, 77 per cent of them stated the belief that schools provide adequate funds for industrial arts departments. Budgeting of those funds affords the best advantage for the operation of the department. In schools

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2 Vaughn and Mays, *op. cit.*, p. 278.
where inadequate funds are available, budgeting is of even greater importance.

An important factor in the preparation of the shop budget is the estimating the needs for the ensuing year. The shop teacher should be able to anticipate needs over a term of a year. Three Eighty-nine and six-tenths per cent of the teachers included in this study estimated the needs for their classes for the ensuing year. In estimating the needs for the year, it would be helpful to the teacher if he knew the approximate course cost per student. Forty-four and eight-tenths per cent of the teacher indicated that they determined the requirements for the next year by multiplying the average student bill for the past year by the number of students expected to be in the next year's classes. Adequate information concerning student course cost was given by 69 per cent of the teachers. Indications are that the remainder of the teachers would not be able to estimate the needs by the above discussed procedure.

It is generally agreed that the industrial arts teacher must do a certain amount of accounting for his classes. The most important reason for keeping records, from the teacher's point of view, is for his own protection.

3 Louis M. Roehl, Shop Management in Rural High Schools, p. 38.
The teacher should be protected against any question concerning financial accounting. The only positive way to have that protection is for the teacher to do the work himself. In 65.6 per cent of the schools surveyed, the instructor kept records of shop bills paid and due. Where the teacher does not have to collect the money, he is automatically relieved of that responsibility. In an organized industrial arts class students may be assigned the responsibility of keeping records that do not involve financial transactions.

In 83.3 per cent of the schools included in this study the shop instructor collects shop fees. Wilber recommends that punch cards be sold to the industrial arts students by the central office. There are two advantages in using this method of handling shop finance. First, the time required to punch the cards is less than that required to collect the money and to write a receipt, thus teaching time is saved. The second advantage is that the teacher is relieved of the duty of handling shop money and therefore does not have to make additional accounting records. Seventy-three per cent of the teachers interviewed stated that they would welcome a practice that relieved them of

\[4\] Wilber, op. cit., p. 251.

\[5\] Ibid., p. 251.
the duty of handling shop money. Only one of the schools surveyed used the punch card system of handling the finance of industrial arts classes.

The law requires teachers to make reports and the school that does not require reports is under poor administration. Industrial arts teachers' reports should include: a list of necessary equipment, materials, and supplies, records of money received and spent with information concerning materials and persons involved, inventories of tools, machines and supplies, and records of student attendance and grades. Ninety-five and eight-tenths per cent of the teachers in the schools surveyed are required to turn in final reports. The fact that only 48.1 per cent of the teachers included a record of money received and spent in their final reports indicates inefficiency in administration. Not one of the items listed above was included in all of the teachers' reports. An inventory of tools and machines ranked highest among items included in the reports. Twenty-four of the thirty-four industrial arts teachers interviewed expressed the belief that the efficiency with which a teacher administers the finance of the department is of major importance in determining teacher tenure.

In order to efficiently administer the funds of the industrial arts department the teacher must follow the practices and procedures based upon scientific principles.
developed both in the field and laboratory. A method by which to charge the students of industrial arts for the materials used in their classes is an example of one of the procedures that should be standardized. No recommendations for that particular activity were given in the study of procedures.

The survey revealed that 73 per cent of the schools charge students for materials and supplies used in the construction of projects. The sum total cost of the projects determined student course cost. Other methods used to determine course cost are: flat rate for the course and established rate plus cost for additional projects.

There are certain economical factors operating today that tend to deny a fair educational opportunity to many children to whom the school doors are theoretically open. There is evidence that some schools are endeavoring to overcome the problem of finance by limiting the enrollment in industrial arts classes. Seventy-four per cent of the teachers interviewed express the belief that student course cost did not limit the number of students taking industrial arts. A survey of Class "A" schools showed that 47 per cent of the schools make some provision for the needy student. Sixteen and one-tenth per cent of the schools give

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the materials to the student free of charge, which is in accordance with the recommendation of G. W. Wilber. 7

It was found by the survey that 32.6 per cent of the schools hold the teacher's final check until all reports required of him are turned in. The schools following this practice are exercising a privilege afforded them by the laws of Texas.

The 79.6 per cent of the schools surveyed which hold student grades until shop bills are paid are in accordance with the recommendations made by Wilber. The practice is established to the extent that it is considered to be a common law.

The returned questionnaires and other studies made indicate that the teachers in the field need further training in the practices and procedures of industrial arts accounting and administration. Slightly more than half of the teachers included in a study by Karnes had adequate college training for specific problems which arise in teaching industrial arts. 9 Seventy-six teachers reported in a study made by Farmer that they need more information and preparation in administration and supervision of industrial arts. 10

7 Wilber, op. cit., p. 251. 8 Ibid., p. 251.
9 Karnes, op. cit., p. 57. 10 Farmer, op. cit., p. 63.
The survey shows that the time for collecting shop bills varies greatly with the different schools. In 35 per cent of the schools shop bills were collected at the time of the completion of the projects; 29 per cent of the schools collected for the materials and supplies at the beginning of the term. Either of the two above mentioned methods would have an advantage over the practice of collecting the bills at the end of the term, because at that time the teacher has many records to complete and is engaged in many other activities. If all the bills were paid before that time, the problem of holding the student's grades could be eliminated. The only recommendation on this point was set forth by Newkirk and Stoddard who stated that the collection of shop fees was one of the duties an industrial arts teacher must perform at the close of school.

Eighty per cent of the teachers in the schools included in the study purchase shop materials and equipment, charging it to the school, after receiving the approval of the administration. Only 6.9 per cent of the teachers bought equipment and supplies with money collected as shop fees. The latter practice is not recommended. The first practice, however, is basically sound for the following reasons: the teacher should know the needs better

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11 Newkirk and Stoddard, op. cit., p. 132.
than anyone else; he should be able to judge the value of materials and supplies purchased, and by making the purchases he can see and will know what he is getting. Then, too, the teacher should be the one to decide if substitutes are to be purchased.

Less than 28 per cent of the schools included in the survey assume financial responsibility for the injury of a student in industrial arts classes. The attorney general of Texas has ruled that without statutes, which Texas does not have, which call for the payment for such injuries, the payment to the parents is illegal.12 Ten per cent of the schools make no payment, but the services of the school nurse are available for the injured student.

CHAPTER V

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

A survey of ninety-five class "A" high schools in Texas which had industrial arts affiliated for the school year of 1948-1949 revealed that only fifty-two were teaching industrial arts. The following courses were being taught: laboratory of industries, first year hand woodwork, second year machine woodwork, sheetmetal, machine metalwork, and mechanical drawing. In a great majority of the schools the financial administration of the industrial arts classes was left entirely to the teacher.

Questionnaires containing questions bearing on the study were sent to the industrial arts teachers of the high schools which were included in the study. Although there were 201 class "A" high schools in Texas, only ninety-five had industrial arts affiliated.

Practices, principles, procedures, and laws of public school finance and administration were studied and applied to the field of industrial arts wherever possible. The activities as revealed by the survey were compared to and evaluated by those recommended.
The problem of finance in the field of industrial arts is mainly a teachers' problem and they realize its major importance to them, as indicated by the fact that 90.6 per cent of the teachers returning questionnaires requested the results of this study. Personal interviews held with thirty-four industrial arts teachers revealed that 94 per cent of them felt the need for further training in the financial administration of industrial arts.

Conclusions

Industrial arts teachers need additional training in the financial administration of industrial arts, particularly in the field of accounting, budgeting, and general school administration.

There is a need for establishing standard practices and procedures to be used in administering industrial arts finance. Some of the practices that have been standardized are in use in the schools today, but a complete set of practices and procedures would be of much benefit to the field if they were made available and adopted by the schools of the state.

Any person entrusted with public funds and who is paid by the public is subjected to criticism. The efficiency with which the industrial arts teacher administers the finance of the department is revealed in several ways. Student and public interest in the program is generated
when there is evidence of economical advantages gained by those participating in the program. If the project cost is high, which could be caused by improper administration, the parents will be reluctant to encourage their children to take the courses offered in industrial arts. If there is ever any evidence of misappropriation of shop funds, the teacher will surely suffer the consequences, possibly even lose his position.

Many of the practices as revealed by the survey are basically sound. There are two, however, which are questionable. Fifty-two per cent of the teachers in the schools included in the survey do not include a record of shop money collected and spent in their final report. Those teachers are not conforming to a recognized sound principle of administration. There is evidence that many of the industrial arts teachers do not prepare budgets for their department. The industrial arts teacher should be familiar enough with student course cost to be able to estimate the needs for the ensuing year. Most of the teachers in the schools surveyed do estimate those needs. Most of the schools do not assume financial responsibility for the injury of industrial arts students. That practice is in accordance with the laws of Texas. Provisions are made for the needy student in some of the schools. If a method of handling the cost of industrial arts to students
can be worked out, it should be a good practice. In most schools the number of students that fall in that group is so small that the school should be able to make some arrangements. The practice of holding a student's grade until he has paid his shop bill has been established in nearly 80 per cent of the schools surveyed and is considered a common law. In a large majority of the schools the industrial arts teacher keeps the records of financial transactions. If the teacher is to enter into cash financial transactions, he must, for his own protection, keep records of those transactions. In connection with financial transactions, the survey revealed that, in 80 per cent of the schools, the shop teacher made purchases of shop materials and equipment. He should be the best qualified person to make the purchases if the school does not handle all of its transactions through a purchasing agent. In that case, the teacher should request and commit the purchases of material and equipment needed.

There is no positive evidence that the lack of prudence in the financial administration of industrial arts has any relation to the closing of some high school shops in Texas. Some few of the practices of industrial arts finance are not sound; however, most industrial arts teachers realize they need further training and are anxious for additional information concerning the problem. Of the
schools which had industrial arts affiliated and were not teaching any of the courses, not one gave a reason for not having an active program.

Teacher education is evidently the best way to eliminate the objectional practices now in use and to initiate the more desirable ones.

Recommendations

1. The curriculum of industrial arts teacher training institutions should include a course in financial administration of industrial arts.

2. In-service training for industrial arts teachers should be established wherever possible.

3. Extension courses related to the subject should be offered by industrial arts teacher-training institutions.

4. Standards of practices and procedures should be adopted by the Division of Industrial Arts of the Department of Education. Those practices and procedures should be published in a bulletin and made available to all industrial arts teachers.
APPENDIX

Form 1

Dear sir:

A study is being made to evaluate certain practices in the financial administration of industrial arts departments in class "A" high schools in Texas. However, the results of this study may be applied to any school with an industrial arts department.

I have tried to devise a questionnaire which will take only a few minutes of your time to answer. The questions can be answered with a check mark (x) by the item that is applicable, with the exception of question number 9.

Any consideration you can give me will be appreciated. No reference will be made to individuals or to schools in the data. If you want the results of this study, please check the last question.

Sincerely yours,

Ward Anderson
Form 2

Name of school_____________________________________________________

School enrollment__________________________________________________

Name of person_____________________________________________________

I. To what extent do you participate in the planning of the financial administration of your classes?

A. Alone
B. With the industrial arts department head
C. With the superintendent
D. With one or more of above and the school board
E. No participation
F. B and C and above
G. Other

II. How do you arrive at the cost of each course?

A. Flat rate
B. According to the projects completed
C. An established rate plus cost for additional projects
D. Other

III. Do you use a shop fee system? _____ If yes, please check the applicable item below:

A. Who collects shop fees?
   1. Shop instructor
   2. Business manager
   3. Superintendent, principal, or assistant
   4. Department head
   5. Other

B. When are shop fees collected?
   1. Upon entering the class
   2. Upon completion of projects
   3. End of term
   4. End of six weeks
   5. Start of project
   6. Other

IV. Who keeps records of shop bills paid and due?

A. Instructor
B. Student
V. How is the purchase of shop materials, tools, and machines accomplished?

A. Instructor
   1. Buys above and pays with shop money collected
   2. Buys above and charges to the school after approval of the administration

B. School administrator, department head, or business manager makes purchases after the instructor has requisitioned

VI. Are you as a shop teacher expected to balance your budget, or are you

A. expected to make a profit
B. expected to hold its own
C. expected to return 75 to 90 per cent of that spent for supplies
D. other

VII. Do you furnish material out of your shop for general maintenance? If yes, check the applicable item below.

A. Maintenance takes any material needed
   1. No record made
   2. Materials checked out to the maintenance department and credit given to your shop

B. The maintenance department secures materials only by requisitions approved in the central office with credit being given to the shop

VIII. How do you determine the needs for your shop for the next fiscal year?

A. The average student bill for the past term multiplied by the number of students expected in the next classes
B. Other methods by instructor
C. Not determined by the instructor
IX. List the approximate amount of money allowed in the school budget for the purchase of materials per student per class for nine months in the following courses:

A. Laboratory of industries
B. First year hand woodwork
C. Second year machine-woodwork
D. Sheet metal
E. Machine metal work
F. Mechanical drawing

X. Are the student's final grades held until all bills are paid? Yes ______ No ______

XI. Is your (the instructor's) final check held until you have made a satisfactory final report? Yes ______ No ______

XII. What does your final report include?

A. Materials on hand
B. Amount of material out not paid for
C. Requisitions for the next year
D. Machine and tool inventory
E. Receipts for all money collected
F. Other

XIII. To what extent does your school assume financial responsibility for injury of students in your classes?

A. Assumes all doctor and hospital bills
B. Assumes no responsibility
C. Other arrangements

XIV. Does your school make provisions for students to take shop if their homes cannot afford to pay the cost? Yes ______ No ______

If "Yes" is your answer, how is the cost of the materials handled?

A. Given to the students free of charge
B. Students allowed to work for materials used
C. Students allowed to make arrangements to sell projects built, then pay for materials
D. Other

XV. Do you want the results of this study? Yes ______ No ______
Figure 1
Geographical Location
Of the Schools Included
In the Study
Questions Asked Thirty-Four Industrial Arts Teachers concerning Industrial Arts Financial Administration

1. How many years have you taught?

2. Have you initiated the original opening or reopening of a high school shop?

If your answer is "yes,"

   a. What did you use as a guide for setting up your accounting and record system?

   b. If you had assistance in setting up the policies of industrial arts financial administration, it was from whom?

3. Do you as a shop teacher feel the need for specific training in the administration of industrial arts finance?

4. Do you feel that the school in which you teach provides adequate funds for financing the industrial arts program?

5. Do you feel that the cost of industrial arts courses to the students limits the membership of the classes?

6. Would you be in favor of a system that would release from the responsibility of handling shop money?

7. Do you feel that the efficiency with which a shop teacher administers the finance of his classes has a direct bearing on his tenure?

8. Would you discard your present system of financial
administration and adopt standardized practices and procedures if they were made available to you?
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