A SURVEY OF STUDENT OPERATION OF
AUDIO-VISUAL EQUIPMENT
IN FLORIDA SCHOOLS WITH RECOMMENDATIONS

By
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A Paper
Submitted to the Graduate Council of Florida State University in partial fulfillment of the requirements for the degree of Master of Arts under Plan II.

School of Library Training and Service
Tallahassee, Florida

March, 1949

Approved:
Professor Directing Paper

Representative, Graduate Council
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A SURVEY OF STUDENT OPERATION OF AUDIO-VISUAL EQUIPMENT IN FLORIDA SCHOOLS WITH RECOMMENDATIONS

CHAPTER I

INTRODUCTION

More and more schools in Florida are purchasing various types of audio-visual equipment. Sound motion picture projectors, slide and filmstrip projectors, opaque projectors, and record players are types of equipment becoming very prevalent in many schools; while tape and wire recorders and television sets are beginning to make their appearance. Due to the increase in the amount of audio-visual equipment in schools, serious consideration must be given to the most efficient methods of using this equipment.

"The contribution of the sound picture to education depends upon its effective utilization quite as much as upon the manner in which it is produced."¹ Unsatisfactory projection can ruin the effectiveness of any audio-visual program and may damage both projectors and materials. This problem can be solved by having all projection equipment handled only by well-trained and competent operators, either teachers or students. This point was well expressed by the Superintendent of Schools of Oak Park, Ill. in an address given at a meeting of the National Conference on Visual Education when he said:

¹Frederick L. Devereaux, Education, LXIV (March, 1944), 427.
Efficient administration in the use of visual aids demands that some attention should be given to instructing teachers in the proper care and the operation of projection instruments. The modern projectors are marvels of perfection as precision instruments. Like the modern motor car, they can be operated by fools as well as skilled mechanics. It is regrettable to see how frequently the efficiency of an excellent instrument is destroyed by the operator who does not know how to retain sharp focus, to clean the lens, to properly thread a film, insert a lantern slide, or even handle a lantern slide so as to keep it clean. These techniques should be mastered by the teacher and in many instances can be mastered by the pupils of Junior High School age. This factor in administrative practice will obviate much of the poor projection work in the schools.\(^2\)

It seems reasonable to believe that if a student will volunteer for this type of work he will in all probability be enthusiastic and dependable. The writer feels that students as well as the school can benefit from this service. A student benefits because he has been given a responsible position. He is expected to do certain work and do it well. Pupils everywhere in our American school systems are being given opportunities to participate in the government of their respective schools, and in various other forms of school endeavor. By such participation pupils learn the fundamentals of cooperation – the quality so essential in a successful operation of our democratic form of government and so necessary to them individually in preparation for any life work. The principal of an elementary school in New Jersey strongly expressed himself on this matter when he said, "Believing that the boys and girls would gain in self-reliance, sportsmanship, and initiative, as well as in resourcefulness and valuable manipulatory skills if they controlled this distribution

and projection of the visual materials, we last year inaugurated a projection force. It is essential that we do not lose sight of the real objective of this work, which is pupil growth through participation in cooperative and worthwhile activities. The primary value, as in many other school activities, is not the getting done of a task; it is the learning experiences pupils go through while performing the task.

PURPOSE

The purposes of this study are:

I. To survey, through the questionnaire method and through the examination of the literature in the field, the general practice of using student operators of audio-visual equipment.

II. To determine the best method of using students as projectionists in relationship to the student as well as the service rendered the school.

III. To produce a projectionist's manual for the use of students training to operate audio-visual equipment. It is realized that there are on the market several audio-visual operator's manuals; also those produced by commercial concerns to accompany various pieces of equipment, but through personal experience and the

experience of others the writer feels that all of these manuals are too technical for use by elementary and high school students. Therefore the primary purpose of this study is to produce such a manual.

ASSUMPTIONS

This study is concerned only with the efficient and effective operation of audio-visual equipment and not with its selection and purchase. It is assumed that the equipment and materials have already been secured, therefore, no criteria for selection or sources of equipment and materials will be given.
CHAPTER II
SURVEY OF LITERATURE IN THE FIELD

In surveying the literature a search was made for articles which dealt with the use of student operators in audio-visual programs. The following indexes were used: (1) Education Index, (2) International Index, (3) Art Index, (4) Reader's Guide to Periodical Literature and (5) Vertical File Service. A period of fifteen years was covered (1933-48). Of the numerous articles listed in these indexes 22 were found to contain any information at all concerning the use of student projectionists. In addition, all the books in the Florida State University libraries which include material on student operators of audio-visual equipment were read.

One of the significant findings of this survey of literature in the audio-visual field is the fact that, despite the large number of articles indexed and books available, the amount of exact information on the use of student operators of equipment is very small.

Several articles described student operator programs in specific school situations. The main objective of these programs seemed to be to encourage and distribute the use of audio-visual equipment in the school. As a result of well organized student operator groups teachers are coming to realize that much time can be saved with the carefully planned use of audio-visual materials.

Student projectionists are found to be highly satisfactory in most high school situations when the teacher in charge sets and maintains high standards of operation and care of equipment. These boys and girls are put through a thorough training, then are assigned as operators during study periods.
New operators are assigned as apprentices to good experienced operators. Those assigned to a job deliver equipment and films, clean, set up, and run the projector, then return it to the storeroom or next assigned classroom.

The foregoing quotation is from a report by Miss Malyneaux, public school supervisor of Pittsburgh, Pa., on her observations of audio-visual education departments in twelve cities. This quotation well summarizes the information gathered from the material read.

Miss Grace Heacock of Kensington High School, Buffalo, N. Y. tells of using as part of the operator staff some girls taking secretarial courses who do the clerical work of keeping catalogs, card files on materials and take care of all correspondence about films. She also says:

There are the guidance values to be considered. The students on the projection staff gain a great deal of personal satisfaction from realizing that they are contributing to the work of their classmates and are very useful to the faculty.

From the point of view of educational guidance these students gain a rich experience. They help in evaluating films and often make worthwhile suggestions as to use.

Finally, the projection staff offers worthwhile experience along vocational lines. Here in school they have a work experience that will help later on the job.

This program which gives the students an opportunity to assist with projection is a welcome means of turning a burden for the teacher into a boon for education. Until such time as all teachers are trained in the mechanics of operation of all the projectors, and have sufficient free school time to obtain films

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1 Mary Louise Malyneaux, "Audio-visual aids - a survey," The Educational Screen, XXIII (January and February, 1944), 12.
and set up equipment, the student projection staff is an effective method of stimulating the use of audio-visual materials in any school.  

In all audio-visual literature the feeling seems to be that students should be trained to operate audio-visual equipment. Hoban says that, "The Army's projector operator training program demonstrated two things applicable to school use of motion pictures: (1) that a systematic training program for operators is necessary if 'student' operators are to be used for motion picture projection in the instructional program, and (2) that the use of adequately trained 'student' operators results in negligible film damage."  

Not only can high school students be used as projectionists but in many cases junior high and elementary pupils are used. "Even fifth- and sixth-grade boys and girls have proven their ability to handle projection satisfactorily."  

All authorities seem to agree that operators should be well trained, given tests, awarded licenses or permits, and certainly given some recognition for the service rendered. A number recommend that academic credit be given if possible.

---


CHAPTER III

METHOD

In addition to the examination of the literature concerned with student operators in audio-visual programs, the questionnaire method was used to determine the general practice of using student projectionists in Florida schools. In order to find out which schools are using student operators a return postal card was sent to each general supervisor in the 67 counties in the State. Each was asked to fill in the names of the schools and the person in each school who is in charge of the audio-visual program. A copy of this postal card may be found in appendix A.

The list of schools to whom the questionnaire was sent was made from the information supplied by the supervisors. In the case of counties from which the cards were not returned the schools were selected from the Florida Educational Directory, October, 1948. The questionnaire, a copy of which may be found in Appendix B, was sent to 215 elementary and high schools in the State. A letter explaining the purpose of the questionnaire was sent with each copy along with a self addressed stamped envelope for its return.

Twelve days after the questionnaire was sent out a follow-up letter was sent to each school that had not returned the questionnaire. Copies of both the accompanying letter and the follow-up letter are found in the appendicies.

A total of 155 questionnaires were returned. This is 72.09% of the 215 sent out. According to the NEA Research Bulletin on questionnaires
the typical questionnaire receives a 69% reply. This varies with the length of the questionnaire; those having from 75-100 items have an average return of 66%. ¹ Since the questionnaire sent out had 82 items, the return of 72.09% is better than average.

Of the sixty questionnaires not returned thirty-nine, or 65%, were schools selected from the counties not replying to the preliminary post-card questionnaire. The other twenty-one not returned were schools recommended by the various county supervisors as having student operator programs.

Of the 67 counties in the State, all except 9 are represented in the returns. Of these nine counties three had returned cards stating that there were no student operator programs in the counties; from two of the nine counties cards had been returned with schools listed, but none of these answered the questionnaire; and no cards were returned from the other four counties. The map which follows shows where the schools are located that returned the questionnaires. The significant fact shown by this map is that all parts of the state are represented from Pensacola on the Gulf to Key West in the Caribbean.

FLORIDA, SHOWING DISTRIBUTION OF SCHOOLS REPLYING TO QUESTIONNAIRE ON THE USE OF STUDENT OPERATORS IN AUDIO-VISUAL PROGRAMS
CHAPTER IV
RESULTS OF QUESTIONNAIRE

Question 1

Audio-visual materials (films, filmstrips, slides, recordings) are administered:

____(a) As a part of the library collection, under the supervision of the librarian.
____(b) As a separate and distinct division or department under the supervision of:
____(1) A materials specialist (in charge of both audio-visual and printed materials)
____(2) An audio-visual specialist, supervisor, or director.
____(3) A classroom teacher
____(4) Principal
____(5) Other, please name __________

Results - Total of 155 questionnaires returned.

TABLE 1
SHOWING HOW AUDIO-VISUAL MATERIALS ARE ADMINISTERED

<table>
<thead>
<tr>
<th>Answer</th>
<th>No. Ans.</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>37</td>
<td>23.87%</td>
</tr>
<tr>
<td>B</td>
<td>110</td>
<td>70.96%</td>
</tr>
<tr>
<td>A &amp; B</td>
<td>6</td>
<td>3.87%</td>
</tr>
<tr>
<td>Various depts. (Not A or B)</td>
<td>2</td>
<td>1.29%</td>
</tr>
</tbody>
</table>
Breakdown of Question B - Total 116

TABLE 2
SHOWING DEPARTMENTS UNDER WHICH AUDIO-VISUAL MATERIALS ARE ADMINISTERED

<table>
<thead>
<tr>
<th>Answer</th>
<th>No. Ans.</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>.86%</td>
</tr>
<tr>
<td>2</td>
<td>8</td>
<td>6.89%</td>
</tr>
<tr>
<td>3</td>
<td>57</td>
<td>49.13%</td>
</tr>
<tr>
<td>4</td>
<td>19</td>
<td>16.37%</td>
</tr>
<tr>
<td>5</td>
<td>14</td>
<td>12.06%</td>
</tr>
<tr>
<td>2 &amp; 3</td>
<td>2</td>
<td>1.72%</td>
</tr>
<tr>
<td>3 &amp; 5</td>
<td>3</td>
<td>2.58%</td>
</tr>
<tr>
<td>4 &amp; 5</td>
<td>6</td>
<td>5.16%</td>
</tr>
<tr>
<td>3 &amp; 4</td>
<td>5</td>
<td>4.30%</td>
</tr>
<tr>
<td>2 &amp; 5</td>
<td>1</td>
<td>.86%</td>
</tr>
</tbody>
</table>

Comments

From the results shown in the tables it can be definitely stated that in the majority of schools audio-visual materials are handled as a separate department under the supervision of a classroom teacher in about half of the schools. Several questionnaires stated that the classroom teacher in charge had some special training in audio-visual materials.
Question 2

Audio-visual equipment (motion picture projectors, filmstrip projectors, slide projectors, opaque projectors, record players, recorders) are administered:

___(a) As a part of the library collection, under the supervision of the librarian.

___(b) As a separate and distinct division or department under the supervision of:

____ (1) A materials specialist (in charge of both audio-visual and printed materials)

____ (2) An audio-visual specialist, supervisor or director.

____ (3) A classroom teacher

____ (4) Principal

____ (5) Other, please name __________________

Results - Total 155

<table>
<thead>
<tr>
<th>Answer</th>
<th>No. Ans.</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>31</td>
<td>20.00%</td>
</tr>
<tr>
<td>B</td>
<td>118</td>
<td>76.12%</td>
</tr>
<tr>
<td>A &amp; B</td>
<td>3</td>
<td>1.93%</td>
</tr>
<tr>
<td>No. ans.</td>
<td>3</td>
<td>1.93%</td>
</tr>
</tbody>
</table>
Breakdown of Question B - Total 121

**TABLE 4**

**SHOWING DEPARTMENTS UNDER WHICH AUDIO-VISUAL EQUIPMENT IS ADMINISTERED**

<table>
<thead>
<tr>
<th>Answer</th>
<th>No. Ans.</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2</td>
<td>8</td>
<td>6.61%</td>
</tr>
<tr>
<td>3</td>
<td>55</td>
<td>45.45%</td>
</tr>
<tr>
<td>4</td>
<td>28</td>
<td>23.14%</td>
</tr>
<tr>
<td>5</td>
<td>15</td>
<td>12.39%</td>
</tr>
<tr>
<td>2 &amp; 3</td>
<td>2</td>
<td>1.65%</td>
</tr>
<tr>
<td>3 &amp; 5</td>
<td>1</td>
<td>.82%</td>
</tr>
<tr>
<td>4 &amp; 5</td>
<td>4</td>
<td>3.30%</td>
</tr>
<tr>
<td>2 &amp; 4</td>
<td>1</td>
<td>.82%</td>
</tr>
<tr>
<td>3 &amp; 4</td>
<td>7</td>
<td>5.78%</td>
</tr>
</tbody>
</table>

**Comments**

This table shows that more than three-fourths of the schools have their audio-visual equipment administered under separate divisions or departments. This is a larger percentage than shown in question one for audio-visual materials under separate departments. From the breakdown of question B it will be noted that in approximately half of the schools the equipment is in charge of a classroom teacher, with the next largest number stating that the principal is in charge.
Question 3

Audio-visual equipment owned by the school or loaned to school by county:

<table>
<thead>
<tr>
<th>Type</th>
<th>Number</th>
<th>Operated by students</th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Motion picture projectors</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>(b) Filmstrip projectors</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>(c) Lantern slide projectors</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>(d) Opaque projectors</td>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>(d) Other (Please list)</td>
<td></td>
<td>Yes</td>
</tr>
</tbody>
</table>

Results - Total 155

GRAPH 1

SHOWING TYPES OF AUDIO-VISUAL EQUIPMENT USED IN SCHOOLS

<table>
<thead>
<tr>
<th>Type</th>
<th>No. Ans.</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>98.06%</td>
</tr>
<tr>
<td>b</td>
<td>72.90%</td>
</tr>
<tr>
<td>c</td>
<td>42.58%</td>
</tr>
<tr>
<td>d</td>
<td>38.06%</td>
</tr>
<tr>
<td>e</td>
<td>81.93%</td>
</tr>
<tr>
<td>f</td>
<td>37.41%</td>
</tr>
<tr>
<td>g</td>
<td>17.44%</td>
</tr>
</tbody>
</table>
TABLE 5
SHOWING EQUIPMENT OPERATED BY STUDENTS

<table>
<thead>
<tr>
<th></th>
<th>Number Ans. Yes</th>
<th>% of total for each type equipment</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>131</td>
<td>86.18%</td>
</tr>
<tr>
<td>b</td>
<td>89</td>
<td>78.76%</td>
</tr>
<tr>
<td>c</td>
<td>55</td>
<td>83.33%</td>
</tr>
<tr>
<td>d</td>
<td>46</td>
<td>77.96%</td>
</tr>
<tr>
<td>e</td>
<td>100</td>
<td>78.74%</td>
</tr>
<tr>
<td>f</td>
<td>45</td>
<td>77.58%</td>
</tr>
<tr>
<td>g</td>
<td>19</td>
<td>70.37%</td>
</tr>
</tbody>
</table>

Comments
The results of this question show what a large percentage of the schools have audio-visual equipment, especially motion picture projectors, filmstrip machines and record players. In answer to the part of the question concerning whether or not the equipment was operated by students the percentages show an overwhelming "yes" for each type.

Question 4
Do you use students to operate audio-visual equipment?

___ Yes   ___ No

If no what plan do you follow?

___(a) Each teacher operates own equipment.
___(b) A few teachers act as projectionists for whole school.
___(c) Principal operates machines.
___(d) Other, please name __________________________
Results - Total 155

135, or 87.09%, answered "Yes"

20, or 12.90%, answered "No"

Comments

In view of the overwhelming percentage of "yes" answers it is felt that it would not be significant to break down the 12% of "no" answers.

Question 5

Student operators are selected: (Check as many as apply)

- (a) General announcement for volunteers.
- (b) Through guidance program.
- (c) Through teacher selection.
- (d) Through a certain club (such as Key Club)

Name__________________________

- (e) Other, please name__________________________

Results - Total 135 (based on total of "yes" answers in No. 4)

TABLE 6

SHOWING HOW STUDENT OPERATORS ARE SELECTED

<table>
<thead>
<tr>
<th></th>
<th>No. Ans.</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>31</td>
<td>22.96%</td>
</tr>
<tr>
<td>b</td>
<td>33</td>
<td>24.44%</td>
</tr>
<tr>
<td>c</td>
<td>76</td>
<td>56.29%</td>
</tr>
<tr>
<td>d</td>
<td>23</td>
<td>17.03%</td>
</tr>
<tr>
<td>e</td>
<td>18</td>
<td>13.33%</td>
</tr>
</tbody>
</table>
Comments

This tabulation shows that over half of the schools choose their student operators through teacher selection. Of the total number one school did not answer this question and thirty-six checked a combination of more than one way of selecting operators. Of the twenty-three that answered D, thirteen gave the Motion Picture Operators Club and did not specify how the club members were chosen. Other clubs mentioned were Science Club, Student Council, Kay Club, Hi-Y, and Library Club. Of the eighteen that answered E, some of the answers were principal, librarian, from certain classes - such as shop and science.

Question 6

Is a certain scholarship required of students?

____ Yes  ______ No

If yes, what average is required?__________

Results - Total 135

TABLE 7
SHOWING SCHOLARSHIP REQUIREMENTS OF OPERATORS

<table>
<thead>
<tr>
<th></th>
<th>No. Ans.</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>45</td>
<td>33.33%</td>
</tr>
<tr>
<td>No</td>
<td>85</td>
<td>62.96%</td>
</tr>
<tr>
<td>Did not answer</td>
<td>5</td>
<td>3.70%</td>
</tr>
</tbody>
</table>
-19

Of the 45 that answered "Yes" -
17, or 37.77%, said Passing
13, or 28.88%, said C average
11, or 24.44%, said B average
3, or 6.66%, said 85 average
1, or 2.22%, said 80 average

Comments

There are good arguments on both sides of this question. From the point of view of those who do not require any particular scholastic average, the argument is that by requiring certain grades it would deprive some students of an opportunity that they might benefit more from than other students who had the required average. On the other side of the argument - if a certain average is not required there might be some students giving time to this service who needed the time to study. Some feel that the privilege of operating equipment should be an incentive to maintain a high average.

Question 7

From what grade levels are students chosen?
Results - Total 135

GRAPH 2
SHOWING GRADE LEVELS
OF STUDENT OPERATORS

<table>
<thead>
<tr>
<th>Grade</th>
<th>Comments</th>
<th>No. Schools</th>
</tr>
</thead>
<tbody>
<tr>
<td>5</td>
<td>4.44%</td>
<td>6</td>
</tr>
<tr>
<td>6</td>
<td>8.88%</td>
<td>12</td>
</tr>
<tr>
<td>7</td>
<td>23.70%</td>
<td>32</td>
</tr>
<tr>
<td>8</td>
<td>29.62%</td>
<td>40</td>
</tr>
<tr>
<td>9</td>
<td>49.62%</td>
<td>67</td>
</tr>
<tr>
<td>10</td>
<td>64.40%</td>
<td>91</td>
</tr>
<tr>
<td>11</td>
<td>69.62%</td>
<td>94</td>
</tr>
<tr>
<td>12</td>
<td>64.40%</td>
<td>91</td>
</tr>
</tbody>
</table>

Comments
Due to the fact that the schools surveyed do not all include the same grade levels it is difficult to compare the results. Some of the schools include grades 1 - 6, others grades 1 - 12, some include grades 7 - 9, and various other combinations. It is significant to note that no school uses students below the fifth grade. In studying the questionnaires it was found that the majority use students from the upper grades of that particular school. Very few schools use students from only one grade; most select them from two or three grade levels.
Question 8

Do you use as operators: ____ Boys  ____ Girls

Results - Total 135

TABLE 8

SHOWING USE OF
BOYS AND GIRLS AS OPERATORS

<table>
<thead>
<tr>
<th>No. Ans.</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boys</td>
<td>98</td>
</tr>
<tr>
<td>Girls</td>
<td>1</td>
</tr>
<tr>
<td>Boys &amp; Girls</td>
<td>36</td>
</tr>
</tbody>
</table>

Comments

Over 99% of the schools reported using boys, with about one-third of these also using girls. Several said that they would use girls but none had been interested in this type of work. The one that reported using only girls explained that this is a part of the work done by the library assistants, who are all girls. This particular school uses five types of audio-visual equipment, including a motion picture projector. From the number of reporting the use of girls as well as boys it seems to contradict the old idea that only boys are interested in mechanical things.

Question 9

Training of student projectionists is done by:

___(a) Other experienced student operators.
___(b) Person in charge of the program.
___(c) Other, please name_____________
Results - Total 135

TABLE 9
SHOWING SOURCE OF TRAINING
OF STUDENT OPERATORS

<table>
<thead>
<tr>
<th></th>
<th>No. Ans.</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>25</td>
<td>18.51%</td>
</tr>
<tr>
<td>b</td>
<td>48</td>
<td>35.55%</td>
</tr>
<tr>
<td>c</td>
<td>8</td>
<td>5.92%</td>
</tr>
<tr>
<td>a &amp; b</td>
<td>46</td>
<td>34.07%</td>
</tr>
<tr>
<td>a &amp; c</td>
<td>5</td>
<td>3.70%</td>
</tr>
<tr>
<td>b &amp; c</td>
<td>2</td>
<td>1.48%</td>
</tr>
<tr>
<td>a b &amp; c</td>
<td>1</td>
<td>.74%</td>
</tr>
</tbody>
</table>

Comments

In the greater number, almost 70%, of the schools the training of student operators is done by the person in charge of the audio-visual program or a combination of this person and other experienced student operators. Of those who answered C, various people were named - such as, county materials supervisor, principal, science teacher, and professional projectionist.

Question 10

Testing of Projectionists by:

   (a) Written test
   (b) Practical test
Tests given by:

- (a) Other students
- (b) Person in charge of program
- (c) Other, please name _______________

Results - Total 135

Part I

TABLE 10
SHOWING TESTING OF
STUDENT OPERATORS

<table>
<thead>
<tr>
<th></th>
<th>No. Ans.</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>3</td>
<td>2.22%</td>
</tr>
<tr>
<td>b</td>
<td>123</td>
<td>91.11%</td>
</tr>
<tr>
<td>a &amp; b</td>
<td>3</td>
<td>2.22%</td>
</tr>
</tbody>
</table>

No. Ans. 6 4.44%

Comments

The greater majority of the schools give some kind of test, mostly practical, to students before they are permitted to operate equipment. A number of replies stated that these tests are very informal. It is surprising to note how few schools require a written test.
Results - Total 135

Part II

TABLE 11
SHOWING SOURCE OF TESTING OF STUDENT OPERATORS

<table>
<thead>
<tr>
<th></th>
<th>No. Ans.</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>13</td>
<td>9.62%</td>
</tr>
<tr>
<td>b</td>
<td>76</td>
<td>56.29%</td>
</tr>
<tr>
<td>c</td>
<td>8</td>
<td>5.92%</td>
</tr>
<tr>
<td>a &amp; b</td>
<td>24</td>
<td>17.77%</td>
</tr>
<tr>
<td>a &amp; c</td>
<td>2</td>
<td>1.48%</td>
</tr>
<tr>
<td>b &amp; c</td>
<td>2</td>
<td>1.48%</td>
</tr>
<tr>
<td>No Ans.</td>
<td>10</td>
<td>7.40%</td>
</tr>
</tbody>
</table>

Comments

The person in charge of the audio-visual program does the testing in more than half of the schools, and in a number of cases with the help of experienced student operators. These results show that the schools with student operator programs are concerned to know that the students are well trained and capable of handling the equipment.

Question 11

What recognition is given for the services rendered by the student operators?

(a) Operator's license
(b) Operator's certificate
(c) Service award
(d) Academic credit. How much?________________
(e) Other, please name ____________________
Results - Total 135

TABLE 12
SHOWING RECOGNITION GIVEN OF SERVICES OF STUDENT OPERATORS

<table>
<thead>
<tr>
<th></th>
<th>No. Ans.</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>b</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>c</td>
<td>28</td>
<td>20.74%</td>
</tr>
<tr>
<td>d</td>
<td>3</td>
<td>2.22%</td>
</tr>
<tr>
<td>e</td>
<td>12</td>
<td>8.88%</td>
</tr>
<tr>
<td>a &amp; c</td>
<td>2</td>
<td>1.48%</td>
</tr>
<tr>
<td>a b &amp; e</td>
<td>1</td>
<td>0.74%</td>
</tr>
<tr>
<td>c &amp; d</td>
<td>1</td>
<td>0.74%</td>
</tr>
<tr>
<td>d &amp; e</td>
<td>2</td>
<td>1.48%</td>
</tr>
<tr>
<td>No Ans.</td>
<td>86</td>
<td>63.70%</td>
</tr>
</tbody>
</table>

Comments

It is surprising how little attention is given to any recognition for the services rendered by student operators of audio-visual equipment. This question was answered on less than one-half of the questionnaires returned. It is thus assumed that in 63% of the cases no recognition is given at all.

Of the five who answered D, the amount of credit varies from $\frac{1}{4}$ credit per year to $\frac{1}{2}$ credit per semester, with one school giving additional credit in connection with a science course.
Of those that checked E, many different awards were listed:

- Club pins (3)
- School letter (5)
- Movie tickets (2)
- Listing service on permanent record
- Parties
- Public recognition and praise
- Citizenship points
- Citizenship grade
- Honorable mention
- Page in yearbook for club

From the eighty-six that indicated no definite recognition three comments seemed to express the feeling on this matter:

"For the love of operating machines and glad to help." (12)

"Prestige and honor sought." (6)

Expressed interest in giving some recognition and intend to do something about the matter. (8)

Question 12

Schedule of operators:

- (a) From study hall
- (b) From classes
- (c) Other, please name ____________________________
Results - Total 135

Table 13
SHOWING SCHEDULE OF OPERATORS

<table>
<thead>
<tr>
<th></th>
<th>No. Ans</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>56</td>
<td>41.48%</td>
</tr>
<tr>
<td>b</td>
<td>23</td>
<td>17.03%</td>
</tr>
<tr>
<td>c</td>
<td>14</td>
<td>10.37%</td>
</tr>
<tr>
<td>a &amp; b</td>
<td>24</td>
<td>17.77%</td>
</tr>
<tr>
<td>a &amp; c</td>
<td>5</td>
<td>3.70%</td>
</tr>
<tr>
<td>b &amp; c</td>
<td>1</td>
<td>.74%</td>
</tr>
<tr>
<td>No definite schedule</td>
<td>12</td>
<td>8.88%</td>
</tr>
</tbody>
</table>

Comments

From the number that checked A, the trend seems to be to use students during their study hall periods for projection work. In further study of the questionnaires it was found that of the eighty-five that checked A all were schools that were either high schools, junior high schools or included grades 1 - 12 or 1 - 9.

The schools that include only elementary grades, for the most part, answered B or C, since elementary students do not have regularly scheduled study halls.

One practice that appeared a number of times was the use of students from physical education classes to operate projectors.
Question 13

How many operators are scheduled for each hour or period? __

Results - Total 135

<table>
<thead>
<tr>
<th>Answer</th>
<th>No. Ans.</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>45</td>
<td>33.33%</td>
</tr>
<tr>
<td>1 or 2</td>
<td>8</td>
<td>5.92%</td>
</tr>
<tr>
<td>2</td>
<td>34</td>
<td>25.18%</td>
</tr>
<tr>
<td>3</td>
<td>4</td>
<td>2.96%</td>
</tr>
<tr>
<td>2 or 3</td>
<td>1</td>
<td>.74%</td>
</tr>
<tr>
<td>3 or 4</td>
<td>2</td>
<td>1.48%</td>
</tr>
<tr>
<td>4</td>
<td>1</td>
<td>.74%</td>
</tr>
<tr>
<td>5</td>
<td>1</td>
<td>.74%</td>
</tr>
<tr>
<td>6</td>
<td>1</td>
<td>.74%</td>
</tr>
<tr>
<td>2-5</td>
<td>1</td>
<td>.74%</td>
</tr>
<tr>
<td>4-8</td>
<td>1</td>
<td>.74%</td>
</tr>
<tr>
<td>2-10</td>
<td>1</td>
<td>.74%</td>
</tr>
<tr>
<td>&quot;as needed&quot;</td>
<td>8</td>
<td>5.92%</td>
</tr>
<tr>
<td>No. Ans.</td>
<td>27</td>
<td>20.00%</td>
</tr>
</tbody>
</table>

Comments

Since over two-thirds of the answers were one or two operators scheduled for each hour or period, this shows a definite trend in practice. In instances where a larger number are scheduled a further check reveals a large school using a number of projectors.
Question 14

Are they scheduled to work:

(a) Individually
(b) In teams of two
(c) In teams of three
(d) In teams of more than three

Results - Total 135

<table>
<thead>
<tr>
<th></th>
<th>No. Ans.</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>74</td>
<td>54.81%</td>
</tr>
<tr>
<td>b</td>
<td>35</td>
<td>25.92%</td>
</tr>
<tr>
<td>c</td>
<td>1</td>
<td>.74%</td>
</tr>
<tr>
<td>d</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>a &amp; b</td>
<td>22</td>
<td>16.29%</td>
</tr>
<tr>
<td>a &amp; c</td>
<td>1</td>
<td>.74%</td>
</tr>
<tr>
<td>No. ans.</td>
<td>4</td>
<td>2.94%</td>
</tr>
</tbody>
</table>

Comments

The questionnaire reveals an overwhelming use of student operators individually and in teams of two. Several answers qualified the replies by explaining that less experienced operators were assigned to work in pairs and more experienced operators individually. In most cases elementary students work in teams of two.
Question 15

In addition to the actual running of the projectors the student operators are responsible for: (check as many as apply)

- (a) Obtaining equipment from storage room.
- (b) Setting up equipment.
- (c) Preparing room, such as darkening.
- (d) Returning equipment to storage room.
- (e) Checking projectors for needed repairs.
- (f) Replacing lamps.
- (g) Replacing fuses.
- (h) Replacing tubes.
- (i) Oiling and cleaning
- (j) Keeping log books on projectors.
- (k) Other responsibilities, please name.

Results - Total 135

GRAPH 3
SHOWING ADDITIONAL RESPONSIBILITIES OF STUDENT OPERATORS

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>77.03%</td>
</tr>
<tr>
<td>b</td>
<td>94.07%</td>
</tr>
<tr>
<td>c</td>
<td>82.94%</td>
</tr>
<tr>
<td>d</td>
<td>83.70%</td>
</tr>
<tr>
<td>e</td>
<td>42.22%</td>
</tr>
<tr>
<td>f</td>
<td>37.77%</td>
</tr>
<tr>
<td>g</td>
<td>35.55%</td>
</tr>
<tr>
<td>h</td>
<td>28.14%</td>
</tr>
<tr>
<td>i</td>
<td>47.40%</td>
</tr>
<tr>
<td>j</td>
<td>13.33%</td>
</tr>
<tr>
<td>k</td>
<td>14.81%</td>
</tr>
</tbody>
</table>
Comments

From the graph it is seen that the duties most student operators are responsible for, in addition to running the projectors, are obtaining equipment from storage room; setting up equipment; preparing room; returning equipment to storage room; checking projectors for needed repairs; oiling and cleaning projectors. Over one-third of the operators are responsible for replacing lamps and fuses. The fact that so few students are required to keep log books on projectors is reason to believe that this important information on how long a projector has been run is not being kept.

Question 16

Do student operators run equipment for groups, such as civic clubs, outside the school?  ____Yes  ____No

If yes: (check as many as apply)

____(a) During school hours
____(b) After school hours
____(c) For any group that requests
____(d) School equipment is used
____(e) School receives payment for service
____(f) Student receives compensation

Results - Total 135

59, or 43.70%, answered "Yes"

76, or 56.30%, answered "No"
Breakdown of Yes Answers - Total 59

TABLE 16
SHOWING OUT-OF-SCHOOL ACTIVITIES
OF STUDENT OPERATORS

<table>
<thead>
<tr>
<th></th>
<th>No. ans.</th>
<th>% of Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>a</td>
<td>25</td>
<td>42.37%</td>
</tr>
<tr>
<td>b</td>
<td>54</td>
<td>91.52%</td>
</tr>
<tr>
<td>c</td>
<td>31</td>
<td>52.54%</td>
</tr>
<tr>
<td>d</td>
<td>41</td>
<td>69.49%</td>
</tr>
<tr>
<td>e</td>
<td>3</td>
<td>5.08%</td>
</tr>
<tr>
<td>f</td>
<td>11</td>
<td>18.64%</td>
</tr>
</tbody>
</table>

Comments

It was rather surprising to find that almost one-half of the student operators in schools are acting as projectionists outside the school. From the pattern of the breakdown of the "Yes" answers it seems that in the majority of cases school equipment is used after school hours and for any group that requests the service. In many cases this was specified for P. T. A. and other school connected groups. It is believed that this trend is significant of schools becoming a more active force in community life and taking more interest in out-of-school activities. In many cases the schools would not have any audio-visual equipment if it were not for the interest taken by the P. T. A. and other civic groups.

Question 17
Are operators organized into a club? _____Yes _____No
If yes:

Who sponsors club? __________________________
How often does it meet? _______________________
Does it have any other activities?
Name ____________________________________

Results - Total 135

30, or 22.22%, answered Yes
101, or 74.82%, answered No
4, or 2.96%, gave no answer

Comments

From the results of this question it would seem that the trend is not to organize student operators into clubs. The writer feels that this is not a true picture since many of the schools do not have enough operators to make a club practical and many of the audio-visual programs are comparatively new. Quite a number of those who answered "no" expressed an idea of organizing a club later.

Of those who answered "yes" some interesting data was given:

Sponsor for Club -

Librarian (5)
Audio-visual Chairman (teacher) (19)
Science Department (2)
Principal (4)

Each of these people was the one responsible for the audio-visual program in the particular school.

Frequency of meetings -

Once a week (12)
Twice a month (5)
Once a month (6)
Occasionally (4)
Other activities of various clubs -

Social gatherings (3)
Some annual special project (2)
High School Museum
Operate public address system
Sponsor coke machine in school
Operate cold drink stand at football games
One special trip a semester
Taking pictures for club contests
Studying sources of films
Studying projectors, other than type in school
Sponsoring money-making projects for audio-visual fund
Assist in operation of equipment for dances
Entering a team in intramural basketball tournament
Making recordings for glee club and band.
CHAPTER V
CONCLUSIONS

The study of the literature in the field and the results of the questionnaire lead to some definite conclusions and recommendations concerning the use of student operators in audio-visual programs. First is the recommendation that students should be used to operate the equipment. This practice relieves the teacher of much of the so-called "extra work" necessary in using audio-visual equipment. "Audio-visual materials make teaching more effective, not easier."¹ Many teachers would like to enrich their courses by using more audio-visual materials but either do not find the time to learn how to operate the equipment or, as in the case of so many, say they have no "mechanical ability".

A well organized plan for using students as projectionists can greatly facilitate the effective use of projected materials. The program should be under the direction of one person in the school in order that the operators' services will be used most efficiently.

Students must be carefully selected for the job of operating audio-visual equipment. A number of qualities should be considered - cooperativeness, interest, willingness, and aptitudes. It is often best to allow students to volunteer for this type of service to the school. With the assistance of the teachers and the guidance service the group of students best suited for the job can be selected. The debatable question of requiring a certain scholastic average must be solved within each particular

school situation. The writer feels that a certain scholastic average should not be a requirement of student operators. By setting a standard of this kind some students who would render the best service and personally gain the most by this participation in the school program might be denied this privilege. However, the audio-visual chairman, or person in charge of the student operators, should encourage the students to maintain a good scholastic average and see that the time they give to operating the projectors does not interfere with their class work.

Girls as well as boys should be given the opportunity to act as projectionists. Of course some pieces of equipment are too heavy for girls to handle, but many types of equipment can be set up and operated successfully by girls. In programs where the students help to make up film orders and perform other clerical duties girls are of great assistance. As has been previously stated, elementary students have been successfully used as projectionists in many audio-visual programs. It is not usually advisable to use students below the fifth grade.

Having selected the group of student operators, the next step is to train them properly. This training should be thorough and systematic. It is usually done by the person in charge of the equipment, often with the help of other experienced student operators. Each operator should be given ample opportunity to practice with all types of equipment. Before allowing students to operate the machines they should prove their ability by passing certain practical tests and a written test if this is considered necessary in the particular situation. Practical tests should include setting up the equipment, successfully operating the machine, replacing lamps and fuses, and cleaning and oiling correctly.
The scheduling of projectionists will vary with each school. In any case it should be done by one person in order to make the service most effective. Schedules should be worked out at least a week in advance so that the students will know when they are expected to work. It is advisable to schedule operators to work in teams of two whenever possible. This gives the student, especially the less experienced operator, a feeling of security in having another projectionist to help in case something goes wrong. Setting up equipment for a showing can be done more quickly and easily by two operators.

In situations where a number of students are used as operators it is well to have them organized into a club. This gives the projectionists a feeling of "belonging" to a group and makes the service a more definite part of the school activities. If the group is organized the members have a tendency to feel more responsibility for the audio-visual equipment. A club of this nature may have many other worthwhile activities which will enrich the experiences of the members.

Some recognition should be given for the many hours service rendered the school. This point in student operator programs seems to be greatly neglected in most schools. For many years librarians and school administrators have discussed giving academic credit to students who work as library assistants. This same type of credit can be worked out for assistants in audio-visual programs in high schools. Certainly some recognition of appreciation should be given in any school. A number of suggestions are given in the results of number eleven of the questionnaire.

One definite conclusion reached as a result of this study is that there is a need for a simple manual of instruction to be used by student operators. A manual of this type would be of great assistance to the
teacher or librarian in charge of student operators as well as to the students themselves. Practical experience has found that the manuals that are available on the market are too technical for use with elementary and high school students. A manual has been worked out, a copy of which is found in Appendix D.

Cooperation on the part of the faculty, student body, and principal should make a plan of using students as operators of audio-visual equipment beneficial to all concerned. Who knows but what the student who becomes interested in audio-visual equipment in elementary or high school may some day be an audio-visual director, a librarian directing an audio-visual center, or a specialist in a materials center.
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Jensen, H. R. "Importance of Good Showmanship," Scholastic, XXXVI (March 25, 1940), p. 5 T +.

Miracle, E. "Film Showing Made Easy; Student Engineers Club," Scholastic, LII (February 2, 1948), p. 17 T.


Dear ________________________________

Box 141, F.S.U.
Tallahassee, Fla.

I am making a study of the use of student operators in audio-visual programs, as part of my work at Florida State University. Please list on the attached card the schools in your county that are using student operators and, if possible, the person in that school responsible for the program. I will greatly appreciate any help you can give me in this matter.

Yours truly,

Frances Hatfield

County ________________________________
Schools using student operators of Audio-Visual Equipment:
Schools ________________________________
Person in Charge ________________________
Florida State University  
School of Library Training and Service  
Tallahassee, Florida  
January 6, 1949

Dear Sir:

Do you use student operators for your motion picture projector? We hope to develop a student operator's manual and furnish you with a copy if you will help us by answering the questions on the enclosed sheets.

We are undertaking a study of the use of student operators in audio-visual programs in elementary, junior and senior high schools. Your school has been recommended as one which uses student operators in its audio-visual program. We would appreciate it if you would fill out the enclosed questionnaire and return it at your earliest convenience.

Sincerely yours,

Frances Hatfield,  
Graduate Student

Sara M. Krentzman,  
Faculty Sponsor

Louis Shores,  
Faculty Sponsor

M. H. Ritchie,  
Faculty Sponsor
SURVEY OF THE USE OF STUDENT OPERATORS IN AUDIO-VISUAL PROGRAMS

School ____________________________

Person in Charge of Audio-Visual Program ____________________________

1. Audio-visual materials (films, filmstrips, slides, recordings) are administered:

   ___(a) As a part of the library collection, under the supervision of the librarian.
   ___(b) As a separate and distinct division or department under the supervision of:
           ____(1) A materials specialist (in charge of both audio-visual and printed materials)
           ____(2) An audio-visual specialist, supervisor or director.
           ____(3) A classroom teacher
           ____(4) principal
           ____(5) other, please name ____________________________

2. Audio-visual equipment (motion picture projectors, filmstrip projectors, slide projectors, opaque projectors, record players, recorders) are administered:

   ___(a) As a part of the library collection, under the supervision of the librarian.
   ___(b) As a separate and distinct division or department under the supervision of:
           ____(1) A materials specialist (in charge of both audio-visual and printed materials)
           ____(2) An audio-visual specialist, supervisor or director.
           ____(3) A classroom teacher
           ____(4) principal
           ____(5) other, please name ____________________________

3. Audio-visual equipment owned by the school or loaned to school by county:

   (a) Motion picture projectors ________ Yes____ No____
   (b) Filmstrip projectors ________ Yes____ No____
   (c) Lantern slide projectors ________ Yes____ No____
   (d) Opaque projectors (delineascope) ________ Yes____ No____
   (e) Record players ________ Yes____ No____
   (f) Recorders ________ Yes____ No____
       Type ________
   (g) Other (Please list) ________

   Number Operated by students
4. Do you use students to operate audio-visual equipment?  
   ___Yes ___No  
   If no what plan do you follow?  
   ___(a) Each teacher operates own equipment.  
   ___(b) A few teachers act as projectionists for whole school.  
   ___(c) Principal operates machines.  
   ___(d) Other, please name _____________________________  
   If yes please answer following questions.  
5. Student operators are selected: (Check as many as apply)  
   ___(a) General announcement for volunteers.  
   ___(b) Through guidance program.  
   ___(c) Through teacher selection.  
   ___(d) Through a certain club (such as Key Club)  
   Name _____________________________  
   ___(e) Other, please name _____________________________  
6. Is a certain scholarship required of students:  
   ___Yes ___No  
   If yes, what average is required? ____________  
7. From what grade levels are students chosen? _____________________________  
8. Do you use as operators: ___Boys ___Girls  
9. Training of student projectionists is done by:  
   ___(a) Other experienced student operators.  
   ___(b) Person in charge of the program.  
   ___(c) Other, please name _____________________________  
10. Testing of projectionists by:  
    ___(a) Written test  
    ___(b) Practical test  
    Tests given by:  
    ___(a) Other students  
    ___(b) Person in charge of program  
    ___(c) Other, please name _____________________________
11. What recognition is given for the services rendered by the student operators?

- (a) Operator's license (Please attach sample if available)
- (b) Operator's certificate (Please attach sample if available)
- (c) Service award
- (d) Academic credit. How much? ______
- (e) Other, please name ______

12. Schedule of operators:

- (a) from study hall
- (b) from classes
- (c) other, please name ______

13. How many operators are scheduled for each hour or period? ______

14. Are they scheduled to work:

- (a) Individually
- (b) In teams of two
- (c) In teams of three
- (d) In teams of more than three

15. In addition to the actual running of the projectors the student operators are responsible for: (check as many as apply)

- (a) Obtaining equipment from storage room.
- (b) Setting up equipment.
- (c) Preparing room, such as darkening.
- (d) Returning equipment to storage room.
- (e) Checking projectors for needed repairs.
- (f) Replacing lamps.
- (g) Replacing fuses.
- (h) Replacing tubes.
- (i) Oiling and cleaning projectors.
- (j) Keeping log books on projectors.
- (k) Other responsibilities, please name ______

16. Do student operators run equipment for groups, such as civic clubs, outside the school? ______Yes ______No

If yes: (check as many as apply)

- (a) during school hours
- (b) after school hours
- (c) for any group that requests
- (d) school equipment is used
- (e) school receives payment for service
- (f) student receives compensation
17. Are the operators organized into a club?  
____Yes  ____No

If yes:
- Who sponsors club?
- How often does it meet?
- Does it have any other activities?

Name ______________________________

If you wish to furnish any other information about your use of student operators in addition to that given in the questions above it will be greatly appreciated.

_________________  ___________________  
(Signature)        (Date)

_________________  
(Address)
Dear Sir:

Recently we sent you a questionnaire concerning the use of student operators in your audio-visual program. Due to necessity of collecting this data in as short a time as possible we will greatly appreciate it if you will return the questionnaire at your earliest convenience.

If you have already returned this questionnaire please accept our thanks for your cooperation.

Yours truly,

Frances Hatfield
Graduate Student

M. H. Ritchie
Faculty Sponsor
I. Responsibilities

The projectionist is an important link in the chain of the teaching and learning process. Having been chosen as a projectionist places upon you the responsibility of whether the audio-visual aids chosen by the teacher will be effectively utilized or much of the value lost by poor projection. You must know how to handle your job well if you are to fulfill your obligation to your fellow students and teachers. Remember that the work of good operators will go unnoticed, but poor projection will be evident by the distractions and interruptions which it causes. By learning your job well and carrying it out efficiently you will greatly aid in the effective use of audio-visual equipment.

The old saying "practice makes perfect" certainly applies to this equipment. To become a good projectionist takes much practice so that you feel perfectly at ease with the machine and can quickly detect any defects in its operation.

The success of the picture depends on how well it is shown and this is your job. The teachers and your fellow students are expecting you to be a good "showman".

II. Basic Material All Projectionists Should Know

Types of Film

There are three standard sizes of motion picture film in general use today - 35 millimeter, 16 millimeter, and 8 millimeter. The 35 millimeter is standard width (1 3/8 in.) used in commercial motion picture
theaters. This film usually has a nitrate base which is inflammable material and must be projected in a fireproof booth, by a licensed operator in order to conform to state and federal laws.

The non-inflammable acetate base sixteen millimeter film is the type commonly called "safety film" which is used in schools. As it is almost fireproof there is no problem of projection. This film covers 400 feet to the standard reel and is made in both silent and sound. The silent type is projected at a rate of 16 frames per second, while the sound film is projected at a rate of 24 frames per second. Since one edge of the film must be used for the sound track, sprocket holes will be found only on one side of sound film. Both silent and sound film can be projected on a sound projector, but a sound film cannot be run on a silent projector. A silent projector has double teeth on the claw and sprockets, therefore, the sound track on a sound film would be ruined by the holes punched in it.

The third type film, 8 millimeter, at present is not used to any great extent in schools. This is the width film used by most amateurs for home movies.

It is easy to see from this explanation of these three types of film that each width requires a special projector. Only 35 millimeter film can be projected with a 35 millimeter projector; similarly, only 16 millimeter film can be used with a 16 millimeter projector, and only 8 millimeter film with an 8 millimeter projector. On both 35 millimeter and 16 millimeter film, sound tracks may be added; there are, therefore, sound and silent projectors for both these film widths. "Remember a silent film can be projected on a sound projector, but a sound film cannot be projected on a silent projector."
Slides

There are in use today two common types of slides, one, often called the "lantern slide", is 3½"x4", while the other is 2"x2" in size. The larger size slide may be made in a number of ways - drawn in ink or crayon on clear glass, etched glass, or cellophane, covered with a cover glass and bound; or they may be made by a photographic process and covered with glass. The 2"x2" slide is made by photographing directly on black and white or color 35 millimeter film. The individual frames of the film are then mounted in cardboard or placed between glass. Although both types of slides produce still pictures when projected, because of the difference in size they cannot be used in the same projector, each requires a different machine for projection.

Filmstrips

The filmstrip is another type of projected still picture. Various other names have been given to this type slide - slidefilm, filmslide, stripfilm, and film roll, but to avoid confusion they will be called filmstrips throughout this manual. They are a sequence of still pictures made on a continuous roll of 35 millimeter, non-inflammable motion picture film, in black and white or color, with sprocket holes on both sides and projected by means of a special projector made for this type of film. The filmstrips in which the pictures are connected vertically are called single frame, while those connected horizontally are called double frame.

As has been stated the 2"x2" slide and the filmstrip are both made on 35 millimeter film. The only difference between these two is that to make the slide the film is cut up and each frame mounted separately;
for a filmstrip the pictures are made in a sequence and kept in one continuous roll.

Motion Picture Projectors

Just as there are three sizes or widths of films so there are projectors for each kind. Since most of our schools use 16 millimeter projectors that is the kind we will be concerned with.

A machine of this type is made either for the projection of silent motion pictures or for sound motion pictures. Only silent film may be projected on a silent projector; a sound projector will project sound film and also silent film when the amplifier is not connected.

There are a number of different makes of motion picture projectors in use today and most of the more popular ones have the same basic features. They all operate on the same basic principle.

Slide and Filmstrip Projectors

There are different size projectors for the two sizes of slides, 3½"x4" or lantern slides and 2"x2" slides. These projectors may be made to project only one type of slide or may be a combination type machine. Most standard filmstrip projectors are equipped to show 2"x2" slides. Other kinds of combination equipment are also in use, such as opaque projectors that have slide and filmstrip attachments. The slide and filmstrip machines operate on a very simple arrangement.

Opaque Projectors

An opaque projector is a machine which projects on a screen by the system of mirrors any pictures, diagrams, and other flat or near-flat surfaces. These projectors often have attachments for showing lantern
slides and filmstrips. This kind of projector is often referred to as "balopticon" or "Delineascope" which are trade names for certain makes of opaque projectors.

III. Duties as a Projectionist

Any piece of projection equipment, and especially motion picture projectors, are complicated mechanically but the operation of them is simple and requires no particular mechanical ability.

First we will consider a 16 millimeter sound motion picture projector since this is the piece of equipment that requires the most skill and greatest care.

Setting Up the Projector

1. Check the equipment to see that you have all cords and reels needed to run the machine.

2. Place the projector so that it will be behind the audience if possible, and so that the projected rays will pass over their heads. In a classroom this will probably be in the center back of the room.

3. The projector should be on a solid table or stand and close to an electrical outlet.

4. The screen should be placed in the front of the room and the height at which the audience can see best. Be sure that no outside light falls directly on the screen and that it is set up solidly so that it will not tilt.
5. If using sound equipment, place the speaker (sound box) near the screen and at least 18 inches off the floor. When using two speakers place them on either side of the screen and not closer together than six feet.

6. Arrange the speaker cords and extension cords so that people will not stumble over them in the dark. Be sure to anchor the cords from the projector around a table leg so that the machine cannot be jerked off the stand.

7. Before threading film in the machine, turn on the motor and lamp. Now adjust the projector to the screen so that the light fits the screen - it should not be larger or smaller than the screen. Remember - the closer the projector is to the screen, the smaller the picture; and the farther the projector from the screen, the larger the picture will be. If using sound equipment, turn on the amplifier to warm it up. If you can hear a small crackling sound when the volume control switch is moved, then the amplifier is working all right.

**Threading the Film**

When the projector is properly set up and adjusted, you are ready to thread the film. Since every make of projector threads differently, no specific threading directions can be given here. Each projector has a chart for threading either in a manual or placed somewhere on the
machine. Follow these directions carefully. Silent film has sprocket holes on both sides, sound film on only one side. Make sure that the film is properly engaged on the sprockets, that the film gate behind the lens and all sprocket guards are closed. There must be a loop on the film before it goes into the film gate and just after it goes through, check to see that these are large enough. Attach the end of the film to the take-up reel and take up all film slack from the projector to both reels; this is to avoid a quick jerk which might break the film when the motor is turned on.

When you think you have the film threaded correctly, check it by turning the hand setting knob and see if the film moves properly. If your machine does not have a hand setting knob check the threading by turning on the projector switch and allowing just a few inches of film to run through the machine.

Showing the Picture

When you see a movie do you like to see a lot of numbers, letters and blank spots flash on the screen before you see the title, and have the sound hit you like a bolt of thunder? Or would you like for the picture to begin where it should - with the title, and the sound come in at the right volume and at the proper time? As a projectionist you will want the movies you show to fit the second description, so let us consider a few points of good "showmanship". Here are several things to remember if you want your "show" to be professional.

1. After the film is threaded correctly turn on the motor and lamp and adjust the focus and see that the picture is framed correctly.
2. On each film there are several feet of "leader" film, which is the part that has the numbers on it. Let this run through the machine and reach the title so that when you start the picture for the audience it will be set right.

3. A minute or so before starting the picture turn on the sound so that the tubes will be heated and ready to perform.

4. When you are ready to start the picture have someone turn out the room lights, switch on the projector and lamp and slowly turn up the sound to the right volume and adjust the tone. By stepping back from the projector you can check the volume of the sound to see if it is clear and loud enough.

5. Never leave a running projector. Even though it seems to be running properly it is always wise to remain within reach of the control switches.

6. Keep checking the film as it comes out of the machine onto the take-up reel by feeling it with your fingers to see if it is being damaged by the machine. If it is being damaged in any way or is not running smoothly through the projector stop the machine immediately and check for causes of the trouble.

7. As the film nears the end of the reel be ready to fade the volume and turn off the light as the last scene is shown. The motor switch should be left on to allow the remainder of the film to pass through the projector.
This will prevent the sudden glare on the screen as the film ends and will also prolong the life of the bulb.

8. Unless it is necessary, rewinding should be done after the show to avoid delaying the next reel or distracting the discussion of the picture.

Rewinding

Always follow the manufacturer's directions for rewinding. All makes rewind differently - sometimes belts have to be twisted or taken off, or a special motor used, sometimes reels have to be interchanged. Be careful in rewinding that the film goes back on the reel just as it came off and that there are no twists.

Sometimes, especially when using reels of different sizes, it may be necessary to retard one reel a little with your hand to insure tight winding.

Never stand in front of a reel being rewound as the film might come loose and cause an injury with its sharp edge.

Making Reports and Keeping Log Books

Another duty as a projectionist may be to fill in attendance reports on films, especially rented or borrowed films. If you are asked to do this remember it is part of your job. A good projectionist sees that it is done promptly and accurately.

Keeping log books on motion picture projectors is just as important as keeping a mileage check on a car for oil changes and greasing. It is important to know how many hours a machine has been run in order to know
when to oil it. You may be asked to keep this record. If so, be sure to keep it up to date; do not trust your memory.

After the showing be sure that everything is back in its proper place. All cords, reels and films properly put away so that there will be no confusion for the next person that is to use the machine.

In using filmstrip and slide projectors and opaque projectors the same principles of setting up the machine, screen, placing cords, etc. apply. Threading of a filmstrip machine is very simple if directions are carefully followed; the same goes for slide and opaque projectors. Everything should be set up and tests made before time for the showing. Except in the case of sound filmstrips, which are filmstrips with accompanying records, there is no problem of sound.

When handling slides, filmstrips and films always pick them up by the edges. Remember that fingerprints will make permanent marks on film and scratches cannot be repaired.

In the use of radios, record players and recorders follow directions carefully. Always test any piece of equipment before time for use in order not to cause delay when the audience is assembled.

The equipment that you handle is costly and should be given utmost care. Be very careful in moving any machine not to drop or jar it, and avoid when possible moving a "hot" machine. Moving a machine while the lamp is still hot may break the delicate filaments that are soft until they cool.

All parts should be carefully accounted for each time they are used, this includes reels, extension cords, extra lamps, and other extra pieces. By doing this you will avoid causing other operators and yourself much loss
of time having to look for carelessly misplaced parts. A machine without the electrical cord or a take-up reel would be of little use.

IV. Care and Maintenance of Equipment

Just as any other kind of machinery a projector runs better if it is kept clean and in good repair. Minor repairs, cleaning and oiling can easily be taken care of by the operator. Major repairs should never be attempted since these machines are quite complicated. It is best to send the projector back to the factory or have a factory-trained mechanic do any major repair work.

Here we will discuss only those repairs that a projectionist would be expected to take care of:

1. Cleaning

   All reflectors, lenses and gates should be kept free of dust and grease by cleaning with a soft cloth dampened with carbon tetrachloride. Study manual of operation and care that comes with the machine and follow directions for cleaning. A dirty film gate will cause scratches on the film.

2. Oiling

   Know the location of all oil holes and cups. Be sure to use the right type of oil. Follow manual as to how often oil is required. Do not over oil; too much oil is as bad as not enough. Over oiling causes sluggish motor, oil on film and blurred sound. Under oiling causes motor freezing, noisy projector and worn bearings.
3. Replacing Parts

It is often necessary to replace burned out projector lamps, exciter lamps and pilot lights. This is very simply done if directions as given for the particular machine are followed. It is always wise to have spare lamps and fuses on hand during a showing in case one burns out. Be very careful in changing a lamp if it burns out during a showing for it may be very hot and a serious burn might result. Do not attempt to replace a tube, a photo cell, or belt unless you have been given specific directions as to how to make such repairs.

4. Care of film

Any kind of film should be handled very carefully. Never allow fingerprints or scratches to get on the film, always handle it by the edges. Keep all film away from extreme heat or cold. If a film should break during a showing do not attempt to repair it with tape, clip or pin. Rethread and wind the broken end around the take-up reel and continue the showing. Films should only be repaired by correct splicing. If a splicer is part of your equipment follow directions carefully for its use. When using rented or borrowed film you may be asked not to rewind or splice film; if so, do as asked and send the film back not rewound, putting a note in the film can if the film is broken or damaged.
## Troubleshooting

<table>
<thead>
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<th>Condition</th>
<th>Motor won't run</th>
<th>No picture on screen</th>
<th>Poor Picture</th>
<th>No Sound</th>
<th>Sound not clear</th>
<th>Loss of Film loops</th>
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<tbody>
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