

DEVELOPMENT AND USE OF SUBJECT MATTER MATERIALS  
FOR VOCATIONAL EDUCATION IN AGRICULTURE\*

Lloyd P. Jacks  
Mississippi State University

Vocational education in agriculture (vo-ag) has been an integral part of public education in Mississippi for half a century. Throughout most of this period teachers in this discipline have encountered many problems, including determining what to teach. Additionally, they have been confronted with the necessity securing adequate and useful reference materials directly related to their curriculum objectives.

Interest on the part of teachers, teacher-trainers, and state department personnel resulted in the organization in 1934 of a teaching materials service, administered jointly by the Mississippi Agricultural Experiment Station at Mississippi State University and the State Vocational Board. Later, the responsibility for providing such materials was transferred to the Subject Matter Service (SMS), an integral part of the Agricultural Education Department at the University. The SMS has provided teachers with materials prepared by its personnel and with materials purchased and secured "free-gratis" from other sources. Materials prepared by the SMS have consisted of illustrated pamphlets, job operation sheets, teacher guides, wall charts, and bulletins which are known as reference units. The reference units have been primarily of the comprehensive kind, each comprising a series of individual subject matter units related to a particular enterprise or broad area of agricultural instruction.

Additionally, the SMS operates a full-service 16mm film library which provides teachers with over 1500 prints covering more than 600 different titles

Both the printed materials and films are furnished "cost-free" to vo-ag teachers; however, the instructors defray postage costs of returning the film to the SMS office. Limited service has been provided to promote maximum effective use of these materials.

---

\* An abstracted version of the author's Ph.D. dissertation, Louisiana State University, August 1967. The investigation was funded by the Mississippi Research Coordinating Unit for Vocational-Technical Education, Social Science Research Center, Mississippi State University, report October 1967.

Most of the afore-mentioned teaching materials have been oriented primarily to subject matter useful in training for proficiency in farming. However, the provisions embodied by Congress in the 1963 Vocational Education Act, the resultant major objectives established for vocational and technical education in agriculture, and rapid technological developments in the field change materially the entire outlook for the preparation of teaching materials, both as to quantity and as to kind. Consequently, to keep abreast of the growing needs of vo-ag teachers for instructional materials and related services, the SMS must be adjusted to meet these needs.

#### The Problem

Meeting teacher needs for instructional material and related services necessitates the formulation and implementation of appropriate decisions. Basic to judicious decision making are sound data, properly interpreted. It was presumed that a treatment of three specific problems, comprising nine contributory objectives would yield new information that would aid in making appropriate decisions for improving the materials provided and services rendered by the SMS. The problems and objectives involved in the study were:

#### Problem I -- Evaluation of the subject matter materials developed by the SMS:

1. To determine improvements needed in subject matter references; and
2. To determine the extent to which teachers had an adequate number of copies of the references studied.

#### Problem II -- Determination of sources and usages of teaching materials:

1. To determine the relative importance of the major sources subject matter materials used by vo-ag teachers;
2. To determine the uses made of the selected subject matter references; and
3. To determine what supplemental references are utilized in instructional programs.

#### Problem III -- Determination of teacher preferences for new subject matter materials and of the method of servicing these individuals:

1. To determine teacher preference for mechanical format of references, such as size, permanency of binding, and type of permanent binding;
2. To determine teacher preference for types and kinds of references;
3. To determine new materials preferred by vo-ag teachers; and
4. To determine teacher attitudes concerning selected policies related to planning, developing, and using subject materials.

#### Problem Design

The descriptive method of research, involving the group-interview technique was used in the study. The entire respondent population (276) of experienced vo-ag teachers in Mississippi provided data for the study. Also involved in the undertaking were teacher training, research, and supervisory personnel.

### Data Collection and Treatment

Data were gathered on a validated, pretested schedule comprising seven major divisions plus a "general information" section. Teachers were interviewed by the researcher at nine group meetings which were convened by the state supervisory personnel.

These data were then programmed for processing by the MSU Computing Center, and subsequently organized in Tabular form. Statistical techniques involved frequency and percentage distributions and weighted mean scores.

### Major Findings and Conclusions

1. Teachers evaluated the quality of 10 selected subject matter references which they and their students used. Adjudging the strengths and weaknesses of the publications prepared by the SMS was believed to be helpful as a guide for determining improvements needed in these references and in similar materials to be prepared. Four major evaluative criteria (printed subject matter content, illustrations and photographs, readability, and format) comprising 13 sub-criteria served as standards for the evaluation.

None of the references were rated superior (Excellent) in quality, although ratings in some criteria and sub-criteria areas closely approached this level. All of the publications were rated as satisfactory (Good). Major improvements needed are: (a) revising the Landscape, Dairy, and Hog references to up-date subject matter content and effect other needed improvements such as additional illustrations and photographs; (b) greatly increasing the number of illustrations and photographs in the basic principle references on plant, animal, and soil science when they are revised; and (c) effecting greater cover and binding durability in most of the publications.

The investigation also indicated the need for using a larger number of visual aids in future references developed by the SMS. If implemented, this would doubtless necessitate the employment of professional art and photographic personnel.

2. Teachers had too few copies of each of the 10 selected references to meet class needs. (An accepted principle is that effective teaching and learning are in some measure dependent upon the quantity of references available; therefore, teaching-learning situations in the departments may have been below what they doubtless would have been had sufficient copies of these references been available.)

3. Findings clearly showed that the teachers considered the SMS as their most important source of instructional materials. Rated second in importance as a source was the Mississippi Agricultural Experiment Station. (Both sources furnish their materials to vo-ag teachers on a "no-cost" basis. A notable exception is that certain Experiment Station bulletins are purchased with vocational funds and distributed to teachers by the SMS.)

4. Extensive use was made of the 10 selected SMS references studied. "Readability" of the publications apparently did not influence differences in extent-of-use, as evidenced by the very narrow range of mean scores for this attribute in all references evaluated.

Moreover, the publications were used primarily in the manner intended, i.e., primarily as basic student (library) references. Evidence also revealed that some of these materials would have been used more extensively by students than indicated if teachers had had sufficient copies.

5. If teachers and students are to keep abreast of rapidly changing conditions and developments in their field, it is imperative that they utilize a greater variety of periodicals and similar materials than was indicated in the findings of this investigation. Consequently, there is a need for developing in teachers a greater appreciation for the importance of such reference materials and how they may be more effectively used. Further implications are that (a) adequate funds have not been provided for purchasing materials of instruction; (b) teachers have not availed themselves of the opportunity to obtain free materials; and (c) that the SMS should periodically provide teachers with an annotated bibliography of materials available from other sources.

6. No clear-cut preference was shown for either the 6 by 9 inch or the 8½ by 11 inch sized reference. Nor was a definite choice expressed for either one or two columns of print per page in the larger sized publication. However, a definite preference was shown for non-spiral, permanently bound publications, i.e., stapled and taped.

7. Evidence clearly indicated that teachers preferred both subject matter references and separate but related teacher guides, rather than either of the two types alone.

8. A definite preference was shown for the kind of subject matter reference that contains a series of individual units related to a single enterprise or broad area of instruction.

9. Findings not only indicated that teachers need a more adequate quantity of reference materials provided by the SMS, but also a preponderance of new materials. Moreover, teachers showed the greatest need for new materials on (a) pastures; (b) economic principles in agribusiness; (c) economic principles in farm management; (d) several sub-areas in agricultural mechanics; (e) basic social and educational competencies essential in agricultural occupations; (f) career opportunities in selected agricultural occupations; (g) organizing agribusiness; (h) nature and operations of feed and farm supply stores and of farm implement dealerships; (i) financing and managing agribusinesses and (j) controlling weeds.

10. The five most preferred supplementary teaching aids were, in order of preference: (a) illustrated pamphlets, job operation sheets, information sheets, and similar materials; (b) overhead projection transparencies; (c) 16mm films; (d) wall charts; and (e) 35 mm filmstrips.

11. A need exists for establishing and implementing sound policies by and through efforts of the Division of Vocational-Technical Education of the Mississippi State Department of Education which would assure adequate subject matter materials in local vo-ag libraries. Such policies would (a) establish standards and requirements for kinds and quantities of materials needed; (b) provide departments with an adequate quantity of materials furnished by the SMS; (c) require local schools to provide funds for supplementing materials provided by the SMS; (d) promote retention of major subject matter materials in department libraries; and (e) assure teachers of a more equitable quantity of the reference books available from the State Textbook Purchasing Board.

12. A statewide SMS Advisory Committee should be established. Representatives should include members of both Departments of Agricultural Education, the state supervisory staff, vo-ag teachers, and specialists in technical subject matter fields.

13. There should be a continuation of the practice of securing assistance from specialists in technical subject matter fields for the review of reference manuscripts during development. This would assure adequate and accurate coverage of information in materials prepared by the teaching materials service.

14. Teachers need additional assistance through inservice programs from teacher training and state supervisory staffs to enable them to more effectively interpret and use instructional materials.

15. Studies are needed to determine the feasibility of using programmed instructional materials and other such media in vo-ag departments in the state.

In conclusion, The 1963 Vocational Education Act (federal) changes the entire outlook for the preparation of teaching materials, both as to quantity and as to kind. The Act now provides for vocational education both in off-farm agricultural occupations and in production agriculture; moreover, jobs are constantly changing, that is, new jobs are emerging, and old ones are disappearing. All this necessitates the development of new training programs, and the deletion of others, thus requiring a continuous flow of new teaching materials. It might be said that vocational curricula must be in a perpetual state of revision to keep pace with and provide for these occupational changes.

Much has been done by the Subject Matter Service to supply Mississippi teachers of vocational agriculture with teaching materials; however, it is evident from the findings of this study, the provisions of The 1963 Act for expanding vocational education in agriculture and the rapid technological changes occurring in this field, that the current service is

lagging far behind in meeting teacher needs. Consequently, to keep abreast of the growing needs of teachers for instructional materials and related services, the Subject Matter Service must be adjusted to meet these needs. Undoubtedly, this will necessitate additional facilities and personnel to enable the Service to function as a complete curriculum materials laboratory.