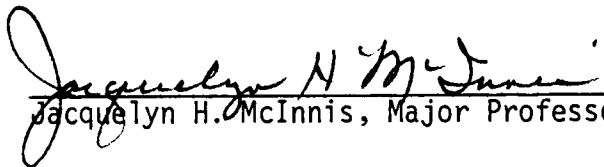
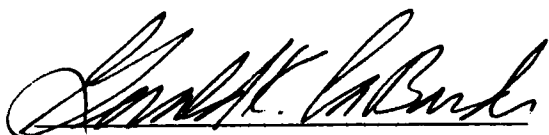


To the Graduate Council:

I am submitting herewith a thesis written by Cheryl Ann Smith entitled "Evaluation of a Model for Curriculum Development and Instructional Design in Food Service." I recommend that it be accepted in partial fulfillment of the requirements for the degree of Master of Science, with a major in Home Economics Education.

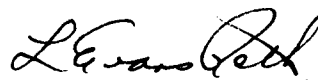

Jacquelyn H. McInnis, Major Professor

We have read this thesis and
recommend its acceptance:





Accepted for the Council:


Vice Chancellor
Graduate Studies and Research

EVALUATION OF A MODEL FOR CURRICULUM DEVELOPMENT
AND INSTRUCTIONAL DESIGN IN
FOOD SERVICE

A Thesis
Presented for the
Master of Science
Degree
The University of Tennessee, Knoxville

Cheryl Ann Smith
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ABSTRACT

Purpose

The purpose of this study was to evaluate the processes and product of curriculum development and instructional design used in developing an articulated competency based food service curriculum for secondary and post-secondary levels within the State of Tennessee. Questions were proposed to arrive at an evaluation of the processes and product used; and thereafter, incorporated into a questionnaire to assess their summative effectiveness.

Sample and Procedure

The study was limited to a sample group of seventy-eight food service instructors (1980-81) from across the State who volunteered to participate in the study. Of this total, fifty-six or 71.8 percent responded in time to be included in the tabulation of data.

Following distribution and return of the questionnaire, data were compiled and tabulated. The opinion statements of the teachers in evaluating the curriculum and instructional processes and product used were tallied by groups. The percent of positive and negative responses to each question was then computed from the total responding to each item. The responses to demographic or personal data statements were also grouped according to responses and converted into percentages.

Conclusions

Close analysis of the descriptive data obtained in this study from fifty-six respondents resulted in the following conclusions:

- 1) Teachers felt that both business and industry representatives and instructors should participate in the identification and validation of tasks for the purpose of curriculum development.
- 2) Teachers felt that both business and industry representatives and instructors should be involved in deciding curriculum content.
- 3) Teachers viewed instructors as qualified to write and evaluate learning modules/packages.
- 4) Both teachers and writing team members found the listing of tasks and objectives, arranged in a learning hierarchy, useful to direct student learning.
- 5) Teachers viewed the individualized, self-paced, self-contained modules as helpful in organizing instruction.
- 6) Teachers agreed that both cognitive and skill development evaluations should be included in competency based curriculum materials.
- 7) Teachers said that instructors should be used to field test curriculum materials. They also agreed that materials should be field tested in the actual school situation within the time frame of at least one school year.

Recommendations

It was recommended that, with regard to future curriculum development in other occupational areas, the models for curriculum development and instructional design used in this study be employed for systematic, planned process and delivery of a quality final product. It was further recommended that any learning modules/packages be written for the average first year occupational student with emphasis on the needs of slow learners.

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CHAPTER I

INTRODUCTION

Since the early 1950's an underlying sense of dissatisfaction with existing educational programs has increased demand for curriculum development. Numerous models for curriculum development have been proposed to transfer identified student needs into instruction for life and employment. Changes in contemporary society have emphasized the need for continuous input into the educational process to produce relevant outcomes.

As a key element in the educational process, any model for curriculum development combines learning theory, instructional models and instructional strategies. An "ideal" model would also include, "a joint effort of schools, industry, universities, and other agencies as a consortium" (Crunkilton and Finch, 1979, p. 8). A model for curriculum development focuses on planned content or what to teach; while instructional design centers on planned teacher-student interactions that result in student learning or how to teach. Overall, a model for curriculum making represents a planned process for "development, implementation, control, and evaluation" (Briggs and Gagné, 1979, p. 20).

A major factor in the growth of curriculum development has been the expanded activity of both state and federal governments in education. Beginning with The Smith-Hughes Act of 1917, and following federal legislations, historical precedents in vocational education

were set with implications for planned curriculum process. With subsequent passage of the National Defense Education Act of 1958, the U.S. Office of Education began increased financial aid and administrative involvement in curriculum planning. The push for educational accountability as well as nationwide declining test scores has also called attention to the need for curriculum development.

Vocational education, which has traditionally attempted to stress relevancy in terms of community/student needs and outcomes, stands on systematic, planned process for development of curriculum. Responsive to the ever-changing world of work, vocational curricula have been based on identified occupational needs. Any vocational curriculum should be "data-based, dynamic, explicit in its outcomes, fully articulated, realistic, student-oriented, evaluation-conscious, and future-oriented" (Crunkilton and Finch, 1979, p. 14). True assessment of curriculum development and student success in vocational education is the applied performance of the student.

Within the State of Tennessee there are approximately 90 programs in the vocational/occupational area for food service at the secondary and post-secondary levels. These programs include Food Management, Production and Services, administered by Home Economics Education; VAP programs in food-related services, administered by the Special Needs Program in Vocational-Technical Education; and Commercial Foods, administered by Trade and Industrial Education. There has not previously been a curriculum to guide teacher instruction in food service or to assure articulation and continuity among these programs.

In an informal survey of home economics professionals, conducted by the State Department of Education, the need for curriculum development in the occupational foods area was identified as one of high priority. Growing pressures toward accountability strengthen the need for an articulated competency based curriculum in this area of vocational education.

Purpose of the Study

The purpose of this study was to evaluate the processes and product of curriculum development and instructional design used in developing an articulated competency based food service curriculum for secondary and post-secondary levels within the State of Tennessee.

Questions to be Answered

The following comprehensive questions were proposed to arrive at an evaluation of the processes and product used:

1. Did the models used for curriculum development and instructional design systematically structure and verify the processes for delivery of a final product?
2. Did the final product guide instruction toward the expected learning outcome?

From these, several specific questions were also posed to further define the processes and product. These questions were:

1. Who should participate in the identification and validation of tasks for the purpose of curriculum development?
2. Why and to what extent should teachers and business and industry be involved in deciding curriculum content?

3. Who should be responsible for the writing and evaluation of curriculum materials?
4. Which aspects of the instructional process did teachers find useful to direct student learning?
5. Which aspects of the instructional process did the writing team find helpful to guide curriculum writing and evaluation?
6. What kinds of evaluations are necessary for competency based curriculum materials?
7. Which qualities of the product did teachers find helpful in organizing instruction?
8. Who, where, and within what time frame should curriculum materials be field tested?
9. How did the students respond to the curriculum materials developed?
10. How did the teachers respond to the curriculum materials developed?

Importance of the Study

Curriculum development in vocational education was publicly stressed in the Vocational Education Amendments of 1968 and the Education Amendments of 1976. From this federal legislation, a National Network for Curriculum Coordination was formed in the U.S. Office of Education. Curriculum units and materials centers were established throughout the United States.

The vocational community was advised to continually reevaluate and improve both curriculum and instructional models to include

teachers, educators, and also business and industry. As Dommer (1968) stated, "All persons affected by . . . a program should be meaningfully involved in the planning and evaluation process" (p. 11).

If vocational education is to provide its students with saleable skills for future employment, it must attempt to identify and organize maximum data available to fulfill student needs. Selected occupations must be critically analyzed for skill content as a base of descriptive information for future use in program development.

To be transformed into curriculum content, tasks actually performed on-the-job must first be identified, organized and validated if "education's product (the student) is to be saleable in the job market . . . to meet the needs of the employer" (Minnesota Statewide Curriculum Articulation Center, 1979, p.1). From needs assessment, curriculum writers must then elect to revise, adopt, adapt, or develop materials for a specified vocational training area.

Competency based vocational education is training which "requires behaviors (competencies) and performance standards specified in advance of instruction" (Maryland Vocational Curriculum Production Project, 1978, p. 3). Competency based education clarifies both program and student expectations and, therefore, establishes a positive correlation among students, training institutions and the world of work. Articulation also becomes an integral part of the competency based curriculum development process to facilitate student transition through various levels of the educational system.

Assumptions

For purposes of this study, the following assumptions were made: (1) field test teachers were appropriate individuals to evaluate the curriculum and instructional processes and product; (2) the researcher constructed questionnaire had content and construct validity and yielded data regarding opinions of respondents as to the effectiveness of the curriculum and instructional processes and product used; (3) the survey respondents answered each question honestly and willingly; (4) the similarities and differences in teaching style of field test teachers did not effect the effectiveness of the curriculum materials used; and (5) food service students involved were typical of students who will be using the curriculum materials developed.

Delimitations

This study was delimited to secondary and post-secondary food service instructors (1980-81) within the State of Tennessee who volunteered to participate in the study. Other delimitations were: (1) use of intact groups or teacher-selected student groups and (2) time frame or period of time allowed for development and field testing of curriculum materials.

Limitations

Limitations to this study were identified as follows: (1) absence of the researcher when curriculum materials were in use; (2) lack of control of previous knowledge of instructors and students in food service; (3) lack of control over extraneous events which may have confounded use of the curriculum materials such as, snow days, teacher in-service

and other school activities; (4) varied levels of acquaintance of the instructors and students with competency based and individualized curriculum materials; (5) varied physical facilities among participating educational institutions which could effect implementation of materials; and (6) lack of instructor and student acquaintance with performance and enabling objectives as they were written in the instructional model used.

Definitions of Terms Used

For purposes of this study, the following definitions were formulated:

Competency. The ability to perform a task at a specified level or standard of performance.

Competency based education. Instruction which requires behaviors or tasks completed at a specified level or standard of performance.

Curriculum model. An effective plan for organizing total program content for instruction, what to teach.

Domain committee. A group of educators directed to research background information about the occupational area, develop the job structure, and identify competencies for articulation.

Instructional design. Planned teacher-student interactions for transmitting knowledge and skills to the learner, how to teach.

Learning hierarchy. A set of enabling and performance objectives, arranged in order of learning attainment, at successively higher levels of mastery or competence.

Learning module or package. An individualized set of instructional material covering one topic in food service such as Orientation, Safe Environment, Self Development, etc. .

Performance objectives and specific student performance. An expected outcome or skill which will develop through instruction toward a specific level or standard of competence. Enabling objectives are sub-objectives leading up to performance objectives.

Review team. A group of educators, teachers and business and industry representatives, whose purpose was to advise curriculum writers and help validate identified tasks.

Task. A job or duty performed on-the-job.

Task list. A record of related duties or tasks which must be completed to reach a certain level of competence.

Writing team. A group of teachers who were selected to write learning modules/packages on several different topics found in the occupational area.

Organization of the Study

The first chapter of this thesis contains the introduction, the purpose of the study, questions to be answered to arrive at an evaluation of the processes and product used, importance of the study, assumptions, delimitations, limitations, definitions of terms used and the organization of the study.

Chapter II presents a review of related research and literature in the areas of general curriculum and instructional models, competency based education, vocational education curriculum development, food service education, and field testing. The design and procedure of the study are presented in Chapter III, which describes the development

of the models for curriculum development and instructional design and the instructional product. Chapter IV includes a presentation and discussion of data. Chapter V contains a summary, conclusions and recommendations of the study.

CHAPTER II

REVIEW OF RELATED RESEARCH AND LITERATURE

Introduction

Paralleling significant changes in student needs and expectations from contemporary education, student instruction for life and employment has taken on added emphasis in many states during the late 1960's and 1970's. During this time there have been numerous models for curriculum planning developed in both general and vocational education.

This research study was concerned with the processes and product of curriculum development and instructional design used in developing an articulated competency based food service curriculum. The review of related research and literature included general curriculum and instructional models, competency based education, vocational education curriculum development, food service education and field testing. A brief summary of all related materials was also composed.

General Curriculum and Instructional Models

Andrews and Goodson (1979, p. 6) defined a model as a referent or management framework for quality instruction. They said that models describe, explain or predict the sequence of events and functions for tasks included in the model. Models, as they described them, may be constructed from empiricism, theory or other models. They may be large, as in curriculum, or small, as in instruction. The purpose of models

they described was "to monitor and control curriculum development for effectiveness and efficiency" (p. 7). Models may be used "on an individual project but become a model in practice for another project, if relevant" (p. 7).

Of the sixty models reviewed by Andrews and Goodson (1979), the authors identified fourteen common components of a curriculum model. Each part was described as follows:

- 1) Formulation of broad goals and detailed subgoals stated in observable terms.
- 2) Development of pre- and post-tests matching goals and subgoals.
- 3) Analysis of goals and subgoals for types of skills/learning required.
- 4) Sequencing of goals and subgoals to facilitate learning.
- 5) Characterization of learner population "as to age, grade level, past learning history, special aptitudes or disabilities and not least, estimated attainment of current and pre-requisite goals."
- 6) Formulation of instructional strategy to match subject matter and learner requirements.
- 7) Selection of media to implement strategies.
- 8) Development of courseware based on strategies.
- 9) Empirical tryout of courseware with learner population, diagnosis of learning and courseware failures, revision of courseware based on diagnosis.
- 10) Development of materials and procedures for installing, maintaining, and periodic repair of the instructional program.
- 11) Assessment of need, problem identification, occupational analysis, competence, or training requirements.
- 12) Consideration of alternatives.
- 13) System and environmental descriptions; identification of constraints.
- 14) Costing of instructional programs. (p. 15)

Several of the above components may be easily observed in the systems model developed by Robert M. Gagné and Leslie J. Briggs (1979). Their model reflected "processes of planning instruction which make

use of research and learning theory and employ empirical testing of data as a means for the improvement of the designed instruction" (p. 39). Their instructional systems design involved a cyclical process which included a variety of specialized people and agencies. The various stages in their design are outlined in Figure 1 below:

System Level

- 1) Analysis of needs, goals, and priorities
- 2) Analysis of resources, constraints, and alternate delivery systems
- 3) Determination of scope and sequence of curriculum and courses; delivery system design

Course Level

- 4) Determining course structure and sequence
- 5) Analysis of course objectives

Lesson Level

- 6) Definition of performance objectives
- 7) Preparing lesson plans (or modules)
- 8) Developing, selecting materials, media
- 9) Assessing student performance (performance measures)

System Level

- 10) Teacher preparation
- 11) Formative evaluation
- 12) Field testing, revision
- 13) Summative evaluation
- 14) Installation and diffusion

FIGURE 1. STAGES IN DESIGNING INSTRUCTIONAL SYSTEMS.
(Briggs and Gagné, 1979, p. 23)

At the system level, the difference between what is and what ought to be was investigated. Then, goals and priorities for instruction were outlined and a delivery system organized to structure system operation. Supervision of all phases of instruction was detailed, and end learner performance predicted.

At the course level, clusters of objectives were grouped for sequencing of instruction. Each objective was analyzed and classified as to the type of human capability involved to further define the outcomes of learning to be expected. Each of the five categories of learning outcome--cognitive strategies, intellectual skills, verbal information, motor skills and attitudes--was defined as an acquired human capability of the person who had learned. These capabilities were seen in a variety of human performances. They were descriptions of what humans ought to know or ought to know how to do. In short, learned capabilities were exhibited as specific human performances. To summarize the distinguishing features of each class of learned human capability and its relation to function and category of performance , see Figure 2 on the following page. This, again, is an outline formulated from the principles and outcomes of learning described by Robert M. Gagné and Leslie J. Briggs.

At the lesson level, performance or essential objectives were written to guide instruction. Successively simpler, supportive prerequisites--enabling objectives--were then identified and incorporated into a learning hierarchy. This hierarchy was a diagram

Capability	Function	Performance
Cognitive Strategy	Controls learner's behavior in learning and thinking	Solving a variety of practical problems by efficient means
Intellectual Skill	Component of further learning and thinking	Showing how an intellectual operation is carried out in specific application
Verbal Information	1) Provides directions for learning 2) Aids transfer of learning	Stating or otherwise communicating information
Motor Skill	Mediates motor performance	Carrying out the motor activity in a variety of contexts
Attitude	Modifies individual's choices of action	Choosing a course of action toward a class of objects, persons, or events

FIGURE 2. FIVE KINDS OF LEARNED CAPABILITIES.
(Briggs and Gagné, 1979, p. 51)

describing the progressively simpler tasks or skills (levels of learning which must be accomplished prior to the performance objectives). The major verb in each objective, both performance and enabling, was written to communicate the kind of human capability or learning outcome one can expect to be learned. See Figure 3 below for an outline of each human capability and its corresponding capability verb:

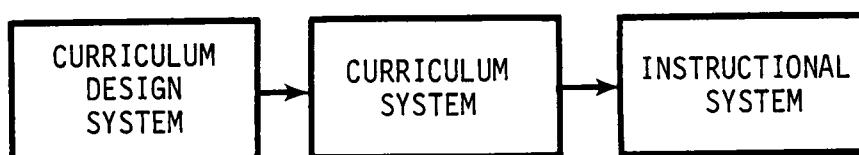
Capability	Capability Verb
Cognitive Strategy	Originates
Intellectual Skill	
Problem-solving	Generates
Rule	Demonstrates
Defined concept	Classifies
Concrete concept	Identifies
Discrimination	Discriminates
Verbal Information	States
Motor Skill	Executes
Attitude	Chooses

FIGURE 3. STANDARD VERBS TO DESCRIBE HUMAN CAPABILITIES.
(Briggs and Gagné, 1979, p. 125)

Evaluations and lesson plans were then based on the outlined objectives to accomplish the events of instruction. Materials were selected and adopted, adapted or developed to complete the instructional design.

Again at the system level, the teacher was prepared to use the materials developed for instruction. Preliminary review of the developed materials aided in the revision/refinement of the final product, and field testing helped accomplish this step in design. A study of the effectiveness of the whole system was then conducted, before it was installed/diffused to the teachers.

David Pratt (1978) viewed the systems approach for education as a guide to the study and design of curricula. In his words (p. 133), "A system is a complex of interacting and interdependent processes serving a common purpose . . . a unified whole." To Pratt, curriculum was a system for information processing and decision making. He said (p. 138), "Curriculum goals should be defined by needs assessment . . . with the effectiveness of a curriculum dependent on feedback from its subsystems (learners, instructors, and the environment)." The illustration below presents Pratt's flowchart model (1978, p. 134) for input and output of the curriculum system:



In his systems-model approach, Bela H. Banathy (1973) structured systems solutions in five steps:

- 1) Exploration stage--what problem needs to be solved.
- 2) Model building stage--plan of development, validation and installation.
- 3) Design and development--building of a working product.
- 4) Validation--testing and revising the working system.
- 5) Installation and implementation of the system. (pp. 74-75)

A schema for the above systems view follows in Figure 4:

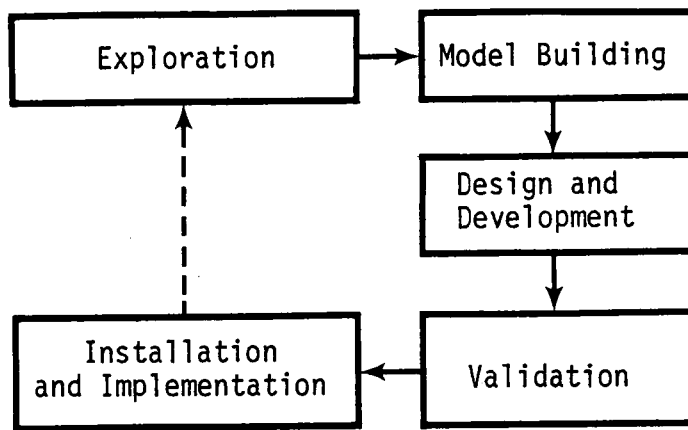


FIGURE 4. SCHEMA FOR THE SYSTEMS MODEL APPROACH.
(Banathy, 1973, p. 75)

Kaufman (1972) also saw the systems approach as a problem-solving process, with needs identified/defined and means implemented to eliminate those needs. The stages in Kaufman's system involved: Planning, design, implementation, control, evaluation and revision. The six steps in his educational management model may be described as seen below:

- 1) Identify the problem, based on documented needs.
- 2) Determine solution requirements and solution alternatives.
- 3) Select solution strategies from alternatives.

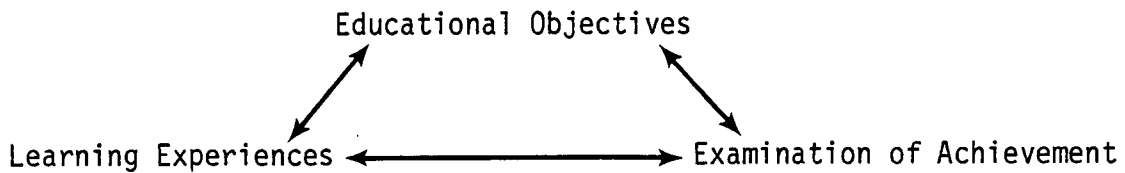
- 4) Implement selected strategies to achieve outcomes.
- 5) Determine performance effectiveness.
- 6) Revise any step as needed. (p. 5)

As Andrews and Goodson (1979) stated it, there appears to be four general purposes associated with the overall systems approach to curriculum development and instructional design:

- 1) Improving learning and instruction by means of the systematic problem solving and feedback characteristics of the systems approach.
- 2) Improving management of instructional design and development by means of the monitoring and control functions of the systems approach.
- 3) Improving evaluation processes by means of the designated components and sequence of events, including the feedback and revision events, inherent in systematic models of instructional design.
- 4) Testing learning or instructional theory by means of theory-based design within a systematic model of instructional design. (p. 12)

George Beauchamp (1961, p. 55) described curriculum theory as "a set of related statements that gives meaning to the school curriculum by pointing up the relationships among its elements and by directing its development, its use and its evaluations. . . ." He believed that any curriculum theory was useful if tested, modified or accepted in practice. He saw curriculum development as a content process which provided for broad, flexible units of work.

Another of the well known curriculum theorists, Ralph W. Tyler, described education as a process involving educational objectives, learning experiences and examination of achievement. Tyler's model (Lewy, 1977, p. 11) emphasized the possible interactions between components as a part of both curriculum development and evaluation. See the following page for a diagram of Tyler's model.



Both curriculum and instructional development are designed to support the learning of the student. However, curriculum development is a broader term which encompasses content and areas related to it. Instructional development focuses on direct teacher-student interactions to facilitate student learning. Instruction is the "meat" which covers the "bones" of curriculum process. Overall, curriculum and instructional development involve both shared and unique aspects.

Leslie J. Briggs (1970) further described the systems model as predesigned instruction. In his instructional model (p. 1), "Objectives are determined in advance with methods, media and materials designed to meet these objectives." Gagné's levels of learning directed the teaching sequence as well as entering or prerequisite competencies. Briggs' instructional design team consisted of "both education and industry represented in all phases of instructional development" (p. 181). See Figure 7, in Appendix A, for Briggs' model of instructional design.

Competency Based Education

Jerry M. Chance (1980) identified competency based instruction as an emerging pattern in education currently receiving a lot of attention--especially in vocational education. Within this approach, competence (the ability to perform at a standard level of performance)

is a goal for life education and relevant instruction for employment. As Burns and Klingstedt (1971, p. 6) said, "An educational system emphasizing competency would insure that each individual obtained what was necessary to function effectively in society." Competency based education uses the scientific method to solve the problem of student achievement toward a constant level of performance. Burns and Klingstedt also said that "in competency based instruction . . . there is not failure as the student keeps trying to reach a performance level of success" (p. 12). This, they said, reduced student anxiety and increased student autonomy.

In "Introduction to Performance Based Instruction in Vocational Education," the Alabama State Department of Education (1978, p. iii) stated that students will be trained to perform tasks actually done on-the-job when "student performance is measured against attainment of job relevant objectives, not in comparison with the performance of other students." The principles of competency based education were described as follows: Behavioral analysis, optimum instructional segments with planned (self or group) pacing, active participation, knowledge of results and self-correcting feedback. Competency based education was also stressed as a type of accountable education.

The "Wisconsin Model" (1975) listed the advantages of a competency based approach as shown in the list below:

- 1) Provides the basis for the articulation of . . . programs from the secondary level to the post-secondary level.
- 2) Determines vertical and horizontal career ladder development.
- 3) Allows for occupational mobility.
- 4) Provides job preparation for occupational placement at many levels of employment.
- 5) Utilizes the various educational taxonomies (cognitive, affective, and psychomotor).

- 6) Allows the student's progress to be determined by demonstrated competency rather than by time or course completion.
- 7) Has a beneficial impact on the total development of students, including that related to their general education.
- 8) Serves as a pattern for state food service secondary and post-secondary instruction in new programs and in the restructuring of existing programs.
- 9) Serves as a pattern to follow and improve upon for other disciplines in the educational field. (p. 7)

A series of nine booklets on competency based vocational education were developed and published by the Maryland Vocational Curriculum Production Project (1978, p. iii) following the systems outline:

- 1) conduct job analysis, 2) write course of study, 3) develop competency profile, 4) write performance objectives, 5) develop learning packages/instructional delivery system, 6) field test the system and 7) review and revise the completed cycle.

Vocational Education Curriculum Development

Finch and Crunkilton (1979) identified the curriculum development process as the three stage process found below:

- 1) Planning the curriculum--establish a decision-making process.
- 2) Establishing curriculum content--make curriculum content decisions.
- 3) Implementing the curriculum--develop materials and evaluate the curriculum. (p. 17)

The common theory they recognized for curriculum development was sound, systematic decision making. The first stage of their model stressed educational philosophy, goals and standards for decision making. The second stage examined the accumulated data as a basis for curriculum content, goals and objectives. Task analysis for occupational competency was employed as a fundamental strategy to determine curriculum content. Constraints of the educational and employment settings were

also identified. A curriculum framework document was then established to combine all relevant information in order to guide curriculum material development, implementation and evaluation.

Scott (1979) developed and tested a statewide curriculum management system for vocational programs in Georgia. As a basis for his model, he reviewed work of four other state curriculum coordinating units and visited several curriculum centers, including Florida and Maryland. In his model he identified five components for curriculum materials development: Management, development, reproduction, diffusion/dissemination and evaluation/revision.

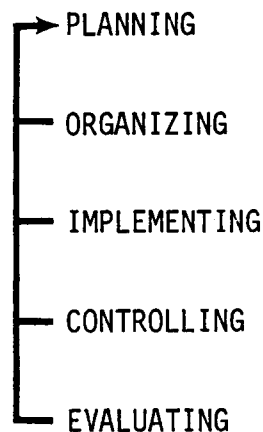
As a part of the management function, Scott (1979) said,

Operational policies were established; a curriculum coordinating committee appointed from local vocational educators, vocational teacher educators, state department staff and business and industry; and an executive council from the Office of Vocational Education established for decision making, needs assessment, etc. . . . (p. 4)

As a part of the development function, needs were defined and prioritized, curriculum materials developed from procurement and/or modification of materials from other sources and utility and effectiveness of the materials predicted. Both the reproduction and the diffusion/dissemination phases of his study involved quantity production of the materials and placement of them in the hands of the teachers. As a part of the evaluation/revision stage, all procedures in the curriculum management system itself and the focus of the materials were analyzed.

Within Scott's total curriculum plan (1979, p. 3) he said that research should "establish a philosophical basis, specify program

objectives, perform occupational analysis, verify tasks, specify student objectives and evaluation and select content/activities." A staff should be selected from "personnel with specific talents and expertise in research, needs assessment, statistical analysis, curriculum design, development and evaluation" (p. 4). In total, Scott's management system (1979, p. 6) encompassed the following steps:



The "Minnesota Model" (1979) was developed by the Minnesota Statewide Curriculum Articulation Center for the State Department of Education, Division of Vocational-Technical Education. This model identified a vocational area ready for curriculum articulation through the study of

Total numbers of students enrolled, numbers of students enrolled in various levels of instruction, employment outlook data, recommendations of instructors, vocational directors and state supervisors. (p. 1)

Tasks were first identified and organized from previously prepared "task lists of other states and organizations, memory and personal experience, and interviews with workers and employers" (p. 1).

Industry representatives were present at numerous meetings to ensure validity of the developed task lists.

Statewide task analysis then began as workers and their managers/supervisors in the vocational/occupational area under study described tasks/jobs they performed. Job titles were investigated through use of questionnaires and a group of interviewers. Results were tabulated and performance objectives written to serve as a basis for future instructional development in vocational education. See the total Minnesota Statewide Curriculum Articulation Model in Figure 8, Appendix A.

In the Curriculum Management Plan and Model for Alabama (1979), curriculum development was delegated for organization at the state level to prevent fragmented curricula. Following a five function plan--management, development, diffusion/dissemination, evaluation, reproduction--a twelve step process was developed for curriculum operation:

- 1) Identification of needs
- 2) Instructional material priorities determined
- 3) Establishment of curriculum standards and policies
- 4) State approval
- 5) Material review
- 6) Procurement of existing materials
- 7) Adapt existing or develop materials
- 8) Pilot or field test
- 9) Printing or production
- 10) Diffusion/dissemination
- 11) Local utilization by teachers and students
- 12) Evaluation. (p. 11)

Content and organization of learning experiences for this plan were designed only after detailed diagnosis of needs and formulation of objectives.

Florida's Vocational Curriculum System (1978) adopted the following long range policies to guide instruction and/or curriculum materials development:

- 1) Instructional and curricular material development would be based upon job-related performance objectives.
- 2) Major instructional or curricular material development projects would be coordinated and/or implemented by a DVE supported curriculum laboratory.
- 3) Instructional and curricular materials would be adapted, adopted, and/or designed, developed, and validated using systematic procedures.
- 4) Instructional and curricular materials would be systematically disseminated and diffused to vocational students and teachers.
- 5) Instructional and curricular materials would be designed, developed, and validated only after the systematic identification and prioritization of needs, and only after it was systematically established that materials did not already exist which could be adopted or adapted. (p. 5)

Overall, the centralized model for statewide curriculum development was employed to increase quality, validity and availability of instructional/curricular materials.

The V-TECS catalogs, developed by the Vocational-Technical Education Consortium of States, were a task analysis of industry to guide instruction in any identified occupational area. The methodology of this project included development of performance objectives, criterion-referenced measures, and performance guides for the area under investigation. A state-of-the-art study was conducted to "determine the extent to which on-the-job tasks have been identified and performance objectives developed for workers in the area under study" (p. 1). If this study revealed a need for major task analysis in the identified area, a more uniform approach to "development of curriculum materials is followed to prepare students for successful employment" (p. 2).

A stratified, systematic sample of occupational establishments was contacted by letter to determine the number of employees willing to participate in the study. Other educational institutions were contacted by telephone. Booklets containing the preliminary task and equipment lists were then sent to those who wished to participate.

From these preliminary task and equipment lists, an occupational data bank was formed as a basis for writing performance objectives. Writing team members "with expertise in writing objectives" or "with technical expertise in the occupational area" were then selected to write and evaluate performance objectives (p. 7).

A field review was then conducted to determine the instructional acceptability of the materials developed. Reviewers included "curriculum specialists, teacher educators, high school teachers, and state supervisory personnel of the domain being studied" (p. 7). Ratings, comments and suggestions of the reviewers were used to revise the catalog for final production.

Food Service Education

In competency based food service education, content is determined through identification of employment tasks needed for competence on-the-job. Based on the needs of the industry, vocational education can then focus on instruction for employment. Task analysis is employed to guide vocational educators in curriculum development for each occupational area under study. Within the area of food service, studies have identified the same or common tasks performed in numerous types of foods operations.

A study of tasks performed in food service was conducted in Iowa (1974) to identify tasks and the extent of their performance by personnel in industry. Five categories for full-time personnel (service, production, sanitation/safety, menu planning, procurement, supervision, and management) and four types of food service establishments (restaurants, hospitals/nursing homes, colleges/universities and schools) were analyzed using a preliminary task list compiled from other sources. A random sample of the above was taken, and data collected by personal interviews, telephone and correspondence. Of 525 task lists sent out, 371 (71%) were returned and 339 used to complete task lists performed by establishments involved (p. 23).

In "A Model for the Articulation of Secondary through Post-Secondary Food Service Training Programs," (Southwest Wisconsin Technical Institute, 1975) a three phase project was undertaken. In phase I, a review of literature was done as a basis for development of an instrument for use in identifying competencies necessary for food service. A Competency Identification Committee then reviewed the instrument for revision. Food service personnel within Wisconsin were then surveyed to determine industry's perceptions of student competency.

In phase II, a two-day orientation workshop was held for teachers and program coordinators to "discuss the significance of the project, become familiar with the results of the survey, gain a background in competency based curriculum development, and become familiar with the procedures for the two-week workshop to come" (p. 2). The development

of the overall model for statewide articulation of the food service curriculum was initiated at this workshop.

The third phase of the project included field testing of the model. The model was tested within existing and new food service programs, with at least one consultative visit per year by the project steering or advisory committee and consultants. Additional in-service education programs were planned to install and implement the program into the educational process. Other projects were formed as a result of this model.

The "Minnesota Model" (1979, p. 4) set up a task list working committee, "composed of secondary and post-secondary vocational food service instructors from across the state and coordinated by a curriculum specialist employed by the Statewide Curriculum Articulation Center." These individuals proceeded to identify tasks and occupational titles for articulation. Statewide task analysis was then conducted from a sample of workers and their employers/supervisors in commercial and institutional foods operations. A task analysis questionnaire was sent to the respondents to describe "the frequency of task performance and value of training for each task identified" (p. 4). Sixteen job titles for food service were investigated and eight areas of competence identified: Safety, sanitation, food preparation, baking, service and dining, large/small equipment, management and human relations/personal development.

Questionnaires were delivered to the respondents by interviewers, who helped instruct the workers in completion of the task questions.

Results were tabulated by computer and terminal performance objectives, written by instructors and verified by industry, based on the task analysis.

In the "Wisconsin Model" (1975, p. 3), the Competency Identification Committee surveyed employed food service personnel, "representing the Wisconsin Restaurant Association, hospitals in the State of Wisconsin, and 1971 and 1972 graduates of secondary and post-secondary food service programs in the State" to provide a basis for articulation. A survey instrument was mailed to 244 respondents with a 30.7% return rate. The respondents evaluated a total of 16 food service positions in the following areas of competence: General knowledge, food preparation, serving, work simplification and maintenance, and management and supervision. Again, business and industry served to identify and validate the competencies in the occupational area under study.

In the V-TECS catalog for Food Management, Production and Services Occupations a task analysis of industry was again used to identify jobs actually done on-the-job. A state-of-the-art study was conducted and a sample of employees contacted to evaluate the preliminary task lists compiled from other sources. Of the task booklets mailed, some 89% of them were returned with comments to help complete the final list of eight areas of competence and 88 tasks. Performance objectives were then written and a field test period allowed to test the acceptability of the materials.

Field Testing

Field testing involves the preliminary use and evaluation of curriculum materials on site (in the school) for purposes of revision/refinement.

It builds on pilot testing and deals with "effectiveness, efficiency, acceptability, practicality, and generalizability" (Crunkilton and Finch, 1979, p. 220). Field testing gathers additional information on the area under study, while it tests the instructional quality of the materials developed with students and teachers.

David M. Moore, Douglas Bedient and Gene W. Scholes (1978) identified implementation, validation and revision as three aspects of instructional design receiving little attention. In their words (p. 295), initial implementation for evaluation-validation

Provides the teacher with information regarding the success of planning, organization and implementation of any instructional unit. . . . identifies weaknesses in the program and tests for validity under actual classroom conditions. (p. 296)

They introduced a two-stage process for validation of instructional materials which involved several initial try-outs on individual students with subsequent try-outs on small groups. Developmental testing, to these three researchers, was "a slow and deliberate process, but highly valuable in . . . designing instruction" (p. 297).

Scott (1979, p. 9) in his curriculum management system model specified "the primary purpose for the field test . . . to determine if the product is useable and to what extent." He seemed to feel that no new vocational curriculum "should be disseminated or adopted without accurate information concerning its useability and effectiveness with the target population" (p. 9). Hence, field testing helped establish the degree of effectiveness of the product.

In his discussion of stages in curriculum development and evaluation, Arie Lewy (1977, P. 15) stated that "the calendar time needed

to complete a program (curriculum project) . . . is usually expressed in terms of months or years." The length of time involved depends on "the nature of the program, on the level of perfection aimed at by the development team, on the staffing and technical facilities available and on the intensity of the work" (p. 15). Lewy believed "involvement of pupils in the planning stages and evaluation of materials . . . cannot be overemphasized" (p. 17). He also saw the need for a large scale, in the school try-out, to ensure success of the curriculum.

Summary

In summary, curriculum and instructional development are areas which have long been identified for further research and innovation. In the broad sense, curriculum encompasses system management, learning theory and principles and instructional design. Instructional models then follow through to guide student learning toward a specific learning outcome. The common phases of a curriculum model seem to be as follows: identification of an area of priority for articulation, establishment of an advisory committee of educators and business and industry representatives, identification and validation of tasks actually performed on-the-job through task analysis within the industry, involvement of experts in curriculum and education in writing curriculum materials and field testing the materials for revision/reproduction of a quality final product. It may be noted that, in several food service research studies of the industry, the same or similar tasks were identified for competence on-the-job.

CHAPTER III

DESIGN AND PROCEDURE OF THE STUDY

This chapter deals with the development of both the model for curriculum development and the model for instructional design. It also deals with the collection of data from the sample group. The data used in this study were furnished by a sample of food service instructors within the State of Tennessee who volunteered to participate in the study.

Background Information

In 1979, a contract was awarded to the University of Tennessee, Knoxville, by the Tennessee State Department of Education. The purpose of this project was to develop and disseminate an articulated competency based curriculum for food service at the secondary and post-secondary levels. The project was conducted through the Department of Vocational-Technical Education, College of Education, under the direction of Dr. Jacquelyn H. McInnis, Associate Professor of Home Economics Education.

Model for Curriculum Development

Step One. The model used in the development of this curriculum, seen in Figure 5, was a combination of contract specifications and changes made by the project staff. The first step, after the contract was awarded, was a meeting between the contracting organization (Tennessee State Department of Education) and the contractor or project director.

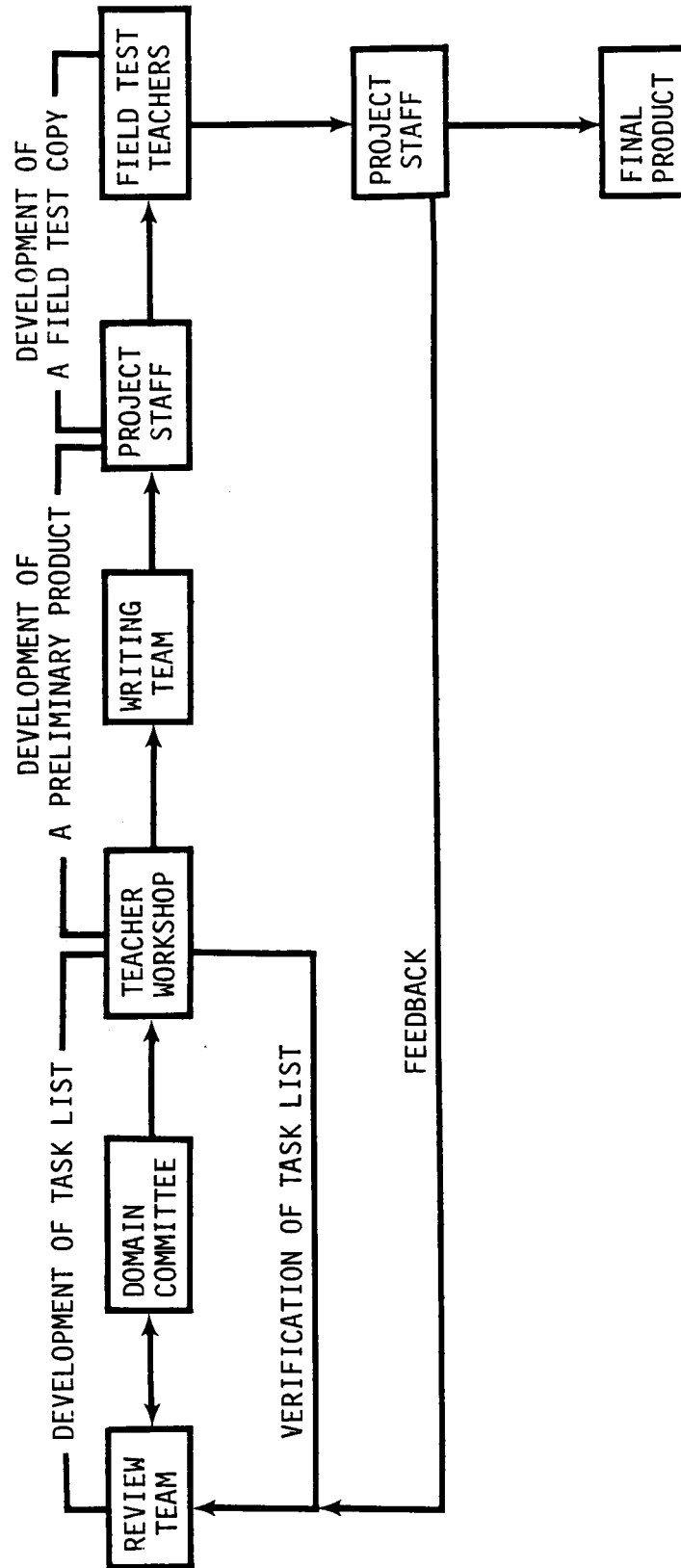


FIGURE 5. THE CURRICULUM DEVELOPMENT PROCESS
(A MODEL FOR)

The purpose of this meeting was to insure complete understanding of project goals and objectives, tasks, procedures and products and to obtain names of possible members to serve on what was to be called "the review team."

The review team was to be selected and appointed by the Assistant Commissioner for Vocational-Technical Education to monitor, review and approve the progress, reports and products of the project. The team was to consist of business and industry representatives, appropriate state staff and vocational educators and secondary and post-secondary teachers of food service. Eleven individuals, representing these categories as well as being from various parts of the State, were contacted and agreed to serve. The first meeting of the review team was held in Nashville, a centralized location. During this meeting the project was outlined and various phases of the project planned. The review team also discussed possible members to serve on what was to be called "the domain committee."

Step Two. Based upon the recommendations of the State Department, the review team and the project director; a domain committee was then selected and appointed for the next stage of the project. This committee consisted of five individuals whose background had prepared them for food service education. The task of this committee was to identify, develop and arrange according to job level, the job structure and competencies for the occupational area involved. The domain committee met together as a group twice, for a day each time with members working independently on assignments in between the group meetings. Each

individual was assigned a part of the extensive state-of-the-art study to be completed. The review of literature included an ERIC search as well as letters sent to the State Departments of Education, Regional Network Centers and Curriculum Consortiums to request research and/or teaching materials in the area of food service. All available curriculum guides were reviewed and evaluated as representative of work previously completed in the area of food service. Several of these guides were based upon job titles and tasks developed through research data of the food service industry.

The domain committee, upon completion of the state-of-the-art study, compiled the tasks and job titles used in these references to begin revision of relevant job structures and competencies for articulation. A job structure based upon three categories defining where the job occurs (institutional, service or front of house and production or back of house) and three levels of employment within each category (entry, skilled, and mid-management) was developed with nineteen job titles being identified and categorized. Competencies and tasks for each of these jobs were then tabulated from the composite data. At the completion of this assignment, the committee proposed the using of Minnesota's industry research study (Minnesota Statewide Curriculum Articulation Center, 1979) as a base of information--as it closely approximated the chart that had been structured based upon the literature. Permission was requested and received from Minnesota's Statewide Articulation Center to add to, delete from or use the areas of competence, competencies and tasks they had found to be actually done on-the-job.

Therefore, the domain committee began a comparison of Minnesota's master list of areas of competence, competencies and tasks with what had been developed from the literature. (See Definitions of Terms Used for further explanation.) This list contained eight areas of competence-- safety, sanitation, food preparation, baking, service and dining, management, large/small equipment and human relations/personal development --73 competencies and approximately 450 tasks outlined. These items were revised to conform to the needs of the State of Tennessee and to the available facilities and resources. After revision eight areas of competence remained as food preparation and baking were combined and a basic skills area added, with 54 competencies and 260 tasks designated for inclusion in the curriculum being developed.

Step Three. After the domain committee completed the job structure and master task list, the next step involved taking this work with recommendations to a larger group for verification. Decisions regarding the needs of the particular students for whom this curriculum was being developed also needed to be made.

A two-day teacher workshop was conducted at Fairfield Glade Resort by the project director and staff for approximately 25 food service instructors from across the State. Teachers of the program were viewed as a group of individuals with knowledge of student needs and abilities as well as curriculum resources/restraints, and the next step in the curriculum process called for such a group. The purpose of this workshop was to assess the findings of the state-of-the-art study, review the job structure and validate the competencies and tasks identified

by the domain committee. All food service teachers not previously connected with the project had the opportunity to attend the workshop, based upon a desire to get as many involved as possible. Workshop attendants were invited by the State Department and project director, and a representative sample of food service teachers from across the State of Tennessee attended.

On the first day of the workshop, attendants were introduced to the project director and staff and briefed on the competency based food service curriculum under development. The teachers were then grouped to discuss and evaluate the areas of competence, competencies and tasks identified and outlined by the domain committee. Overlapping and unimportant tasks were deleted and additional tasks added to the master task list through suggestions of the workshop attendants. Tasks were also assigned a level of instruction (basic, special or advanced) to indicate the appropriate time or level of mastery needed for student introduction to each topic. The task level classifications and their meaning were as follows:

- "Basic" - tasks which are basic to the food service industry and should be taught to all students.
- "Special" - tasks which are not essential for all students, but for those students who have a particular interest or talent in this area. Does not necessarily mean advanced students.
- "Advanced" - tasks which are for students who are advanced in their training or ability. Some of these require previous talents, others are managerial in nature.

These levels of classification were provided to guide teachers in selecting learning experiences, content and competencies for individual

students. Teachers were to select modules and tasks according to their students as well as the resources/constraints of their programs.

On the second day of the workshop, the teachers reviewed the total task list as a large group and made suggestions for the format of the learning modules/packages. Teacher suggestions were very helpful at later stages of the project for purposes of resource identification and in depth involvement of the teachers in the developmental process.

Step Four. The next step in the project involved a meeting of the review team for the purpose of validating the areas of competence, competencies and tasks identified by the domain committee and verified by the workshop attendants. From both vocational as well as business and industry viewpoints, the members of the review team again deleted and added tasks to the master task list. The review team also discussed the instructional process and product as applied to guidance of instruction toward a level of competence. Members described how they would evaluate prospective employees in the industry and how the developed curriculum should respond to their expressed needs. The plan for field testing was also discussed by review team members and the project staff.

Step Five. The next step in the curriculum process was the development of teacher and student modules. Modules were to be based on the job structure, competencies and tasks identified by the domain committee and verified by the workshop attendants and review team. A writing team of ten individuals was selected and appointed by the

contractor in consultation with the review team and State Department. The Writing team was chosen from a list of teachers who had indicated a desire to be included. The personnel appointed were classroom teachers with subject matter knowledge, background in curriculum development and who represented the geographical regions within the State.

The members of the writing team met together on the University of Tennessee campus for a week of instruction in curriculum materials development under the direction of the project director and staff. The job structure, competencies and tasks were again discussed, and product format decisions made to guide curriculum writing and evaluation. Writing team members were given instruction on the theories of Gagné and Briggs (1979) regarding human capabilities, levels of learning and writing of objectives. The development of a learning hierarchy, using designated action verbs consistent with the described levels of learning, was stressed. Writing assignments were then made by the project director to each writer for learning modules/packages to be developed. Each of the 54 competencies identified were further defined in a learning module as the product of the instructional process. These writers were instructed on the steps of the instructional process, began writing while on campus under supervision, and returned home to continue writing their modules.

The writing team met together again for two days, approximately one month later, to discuss problems and progress toward a final product. Instructions involving format changes, suggested by the writers themselves, were discussed and help in writing supplied by the project staff. The

curriculum developed by these writers was viewed as a preliminary product by the project staff, to be edited/revised for final approval by the State Department.

Step Six. The initial steps prior to field testing then began with the submission of completed preliminary learning modules/packages by members of the writing team. The project director and staff then proceeded to edit and/or revise the modules' content and format to meet project standards. All components of the instructional process were checked and the duplication process began. At intervals of time thereafter, field test copies were finalized and distributed to appropriate field test teachers. The total field testing period was six months in length.

The field test teachers were food service instructors (1980-81) within the State of Tennessee who volunteered to participate in the field testing aspect of the project. Project staff members held six meetings across the State to meet and discuss the project with prospective field test teachers. Other teachers were contacted by mail to inquire of their interest in participating in the evaluation of the modules. Seventy-eight teachers volunteered to field test the modules. Teachers could indicate preferences as to modules to be field tested.

Step Seven. Each module was then assigned for field testing by approximately six teachers. Each teacher involved in field testing of the curriculum materials received approximately four or five modules to field test. Both teachers and students were asked to evaluate and

return comments concerning the modules tested. See Table XI in Appendix B. Scores for pre- and post-tests were also returned by the teachers. See Table XII in Appendix B.

As field test results came in to the project staff, they were reviewed and each module revised/refined to the extent possible based upon the data collected. Follow-up letters were sent and phone calls made to teachers to remind them of the need to complete and return field test information. Several format changes were again made to match objectives and performance, reduce the size of each module and provide resource materials and instructional strategy suggestions.

Based upon field test comments and revisions made by the project staff, the 54 original modules were then regrouped to result in 52 final modules for dissemination. A plan for dissemination and diffusion was submitted by the contractor to the State Department. Statewide mini-workshops were suggested to teach instructors how to use the curriculum materials developed.

Model for Instructional Design

The instructional model used for writing the modules was developed during the state-of-the-art study and subsequent meetings of the writing team and project staff. Upon viewing and evaluating other curriculum materials, certain instructional process and product decisions were made. The project director and staff, with State Department and teacher suggestions, decided on learning module content and constraints.

The members of the writing team followed the step-by-step procedure portrayed in Figure 6 to facilitate curriculum writing

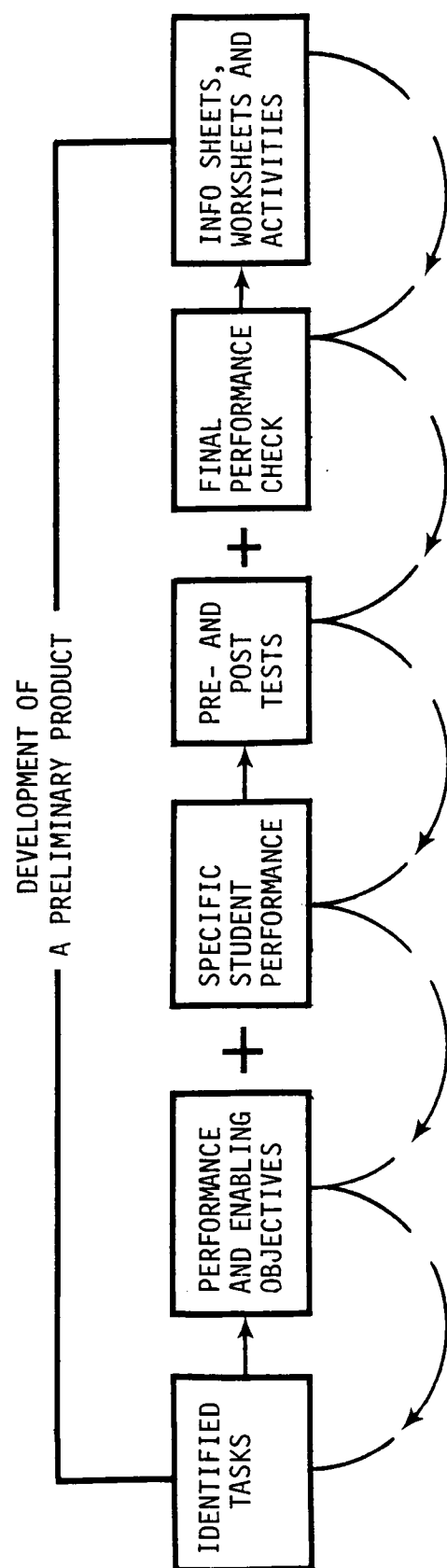


FIGURE 6. THE INSTRUCTIONAL PROCESS
(A MODEL FOR)

and evaluation. Upon completion of each step, a check was made to insure a complete match between the product and the competencies and tasks used to outline the instructional process.

Each module was developed by beginning with the competencies and tasks identified for that module. A set of performance and enabling objectives was then constructed, following the levels of learning and learning hierarchy described by Gagné and Briggs (1979). From this set of objectives, one or several specific student performance objectives were then developed to define the expected learning outcome of each module. Pre- and post-test evaluations for cognitive development and a final checkout performance sheet for skill development were designed to correspond with the previously stated objectives and specific student performance. Information sheets, worksheets and activities were also developed to further describe subject matter content. These items again corresponded with all previous steps in the instructional process.

The Instructional Product

Each module was written to be self-contained. However, the content was minimal, and teachers were encouraged to supplement instruction with additional readings, activities, etc.. An instructional teaching process or lesson plan was included for use with the individual student as well as suggestions for group instruction. Each module was written as a teacher's unit with the student module incorporated as a part of it. The student module was composed of pages marked with "S" at the bottom of each page. Pages that the student would use to write upon

were designated "consumable" so that teachers would duplicate them in quantity. Duplication of these student pages was left to the teachers using the materials.

Upon completion of the pre-test, students were to complete the body of the module including the worksheets and activities. The student was then ready to complete the post-test and final checkout performance sheet which described the level of competence reached by the student upon completion of the module. Students not meeting the final specified criteria for performance would need to have further learning experiences planned and provided by the teacher. Pre-requisite skills or modules (needed prior to beginning each subsequent module) were identified and incorporated into a course map to outline order of use for the entire group of modules. Teachers were again used to develop this course map.

A Student Profile Sheet was also developed as a master task list for the curriculum. It was recommended that one record be kept on file for each student to define tasks completed and the degree of mastery shown. This profile sheet could then be used to communicate to prospective employers the kinds of tasks the student is capable of completing.

While not important to the actual instructional process, other format decisions were made to complete product development. A consistent cover design for all modules was designed with a different, yet distinguishing title on each cover. All worksheet and evaluation keys were included only in the teacher's copy of the module. Readings,

audio-visuals aids and activities were included to help supplement and enrich the learning experience. An additional guide sheet for instruction was provided for student use, with vocabulary included to set the stage for informative instruction and the learning of skills to follow. Resource items were also included as additional aids to enhance student learning. (See Appendix C for a general outline of the teacher's module format.)

Population and Sample

The teachers used in this study were food service instructors (1980-81) within the State of Tennessee. They volunteered to field test and evaluate the modules developed in the project for purposes of revision/refinement toward a quality final product. A survey of the same field test teachers was conducted to evaluate the overall effectiveness of the curriculum and instructional processes and product used.

All food service teachers, at both the secondary and post-secondary level within the State, were contacted and asked to participate in the field testing and the follow-up survey. Of the 78 teachers volunteering to field test the modules, 59 returned comments and scores needed for revision/refinement of the preliminary materials. Of this same number of teachers, 56 participated in the follow-up study on the effectiveness of the processes and product used.

Instrumentation

The researcher constructed questionnaire (see Appendix C) was developed to answer questions set forth in reaching an assessment of

the processes and product used. A cover letter explaining the study and requesting the participant's assistance also accompanied the questionnaire.

After development, the questionnaire and cover letter were reviewed by a panel of experts for content and construct validity. Suggestions for change were followed, and revisions made. Because the sample data group was comprised of human subjects, a letter of approval (see Appendix C) was obtained from the Committee on Human Research Participation at the University of Tennessee at Knoxville.

Data were collected through the mail out questionnaire and cover letter. All questions to be answered were included in the body of the questionnaire to elicit descriptive data upon return to the researcher. A self-addressed, stamped envelope was enclosed to aid in the return of the questionnaires. Participants were asked to sign their name and address on the back of the questionnaire if they would like to have a copy of the results of the study. Ten respondents requested a copy of the results.

Questionnaires were mailed to the 78 field test food service teachers within the State of Tennessee. Of this total, 56 or 71.8 percent responded in time to be included in the study.

Treatment of Data

The use of a questionnaire was deemed the most reliable method for collecting the descriptive data necessary to reach an assessment of the processes and product used. The questionnaire was developed

and reviewed by five experts and teachers in the field to assure content and construct validity. Questions were posed to determine the effectiveness of the models used as a basis for future program development.

Following distribution and return of the questionnaire, data were compiled and tabulated. Frequency data were identified to be the most useful descriptive statistical treatment for results. The tabulated results may be found in Chapter IV.

CHAPTER IV

PRESENTATION AND DISCUSSION OF DATA

The presentation and discussion of data dealt with in this chapter was obtained from the mail out questionnaire given to the sample data group. This group consisted of seventy-eight secondary and post-secondary food service instructors (1980-81) within the State of Tennessee. These instructors volunteered to participate in the study.

Presentation of Data

The purpose of this study was to evaluate the processes and product of curriculum development and instructional design used in developing an articulated competency based food service curriculum for secondary and post-secondary levels within the State of Tennessee. Questions were proposed to arrive at an evaluation of the processes and product used; and thereafter, incorporated into a questionnaire to assess their summative effectiveness.

Upon completion of field testing, data were collected through a mail out questionnaire which required respondents to assess and comment on specific aspects of the curriculum and instructional processes and product used. The first page of the questionnaire also included several demographic statements to help describe food service instructors and classrooms within the State.

The opinion statements of the field test teachers in evaluating the curriculum and instructional processes and product used were

tallied by groups. The percent of positive and negative responses to each question was then computed from the total responding to each item. These percentages are shown in Tables I - IX.

Demographic or personal data statements were also collected to obtain such data as educational level, years of work and teaching experience, as well as acquaintance with competency based vocational education and individualized instruction. The responses to these items were again grouped and converted into percentages. See Table X in Appendix B.

Discussion of Findings

Opinion Statements. The percent of positive and negative responses to opinion statements asked of participants are shown in Tables I - IX. From examination of these tables, it may be seen that the summative response to the preliminary curriculum materials was positive. Further, more detailed discussion of these responses, in regard to the questions to be answered, may be found in the paragraphs that follow.

In reference to the question, "Who should participate in the identification and validation of tasks for the purpose of curriculum development?," the two questions in Table I were posed. Of the 56 participants responding, fifty-four or 96% felt business and industry representatives should be used to identify and verify tasks done on-the-job. Fifty-five or 98% also felt that instructors should be involved in the task of identification and verification of tasks.

TABLE I
RESPONSES TO QUESTIONS ON
IDENTIFICATION AND VALIDATION OF TASKS

Question	Positive		Negative	
	N*	%	N*	%
1. Representatives from business and industry were employed to identify and verify tasks done on the job. Do you feel this practice should be continued in curriculum development?	52	96	2	4
2. Do you feel that instructors should also be involved in the task of identification and verification of tasks?	55	98	1	2

*N = Number of respondents

In regards to the question, "Why and to what extent should teachers and business and industry be involved in deciding curriculum content?," the four questions in Table II were developed. These questions dealt with awareness of curriculum content and resources available as well as the level of task difficulty. Of the 54 participants responding, forty-two or 78% of the teachers identified the level of competence stated as being realistic for their students. Forty-six or 84% said they had adequate facilities, and thirty-seven or 67% had adequate available resources/references. Of the 54 responding to the question of each task identified by level (basic, special or advanced), fifty-two or 96% of the teachers found this description helpful.

The preceding responses would seem to indicate the teachers' knowledge of curriculum content and student ability. However, the inclusion of tasks, identified by level of difficulty, also involved representatives from business and industry who indicated, prior to curriculum writing, the level for topic introduction to students as related to work done on the job. Also, representatives from business and industry identified equipment and resources/references available to workers in food service establishments. Therefore, both teachers and business and industry representatives should be involved in deciding realistic curriculum content.

The two questions in Table III were posed to gather data concerning the question, "Who should be responsible for the writing and evaluation of curriculum materials?" Of the 44 participants responding, thirty-three or 61% felt that representatives from business and industry should

TABLE II
RESPONSES TO QUESTIONS ON
INVOLVEMENT IN DECIDING CURRICULUM CONTENT

Question	Positive		Negative	
	N*	%	N*	%
1. Was it helpful to have each task identified by level (basic, special or advanced)?	52	96	2	4
2. Was the level of competence stated in the specific student performance realistic for your students?	42	78	12	22
3. Did you have adequate classroom and laboratory facilities for application of the modules?	46	84	9	16
4. Did you have adequate available resources/references for use in application of the modules?	37	67	18	33

*N = Number of respondents

TABLE III
RESPONSES TO QUESTIONS ON
WRITING AND EVALUATION OF MODULES

Question	Positive		Negative	
	N*	%	N*	%
1. Should representatives from business and industry be responsible for evaluation of the developed materials?	33	61	21	39
2. Do you think it was good to use teachers to write and evaluate modules?	55	98	1	2

*N = Number of respondents

be at least partially responsible. Fifty-five or 98% of the teachers felt that instructors should be employed to write and evaluate curriculum materials. The reasons behind this response may be further explained by the following comments made by teachers:

- 1) Teachers work directly with students.
- 2) Teachers have a clearer, more realistic view of student needs and abilities.
- 3) Teachers will be the users of the curriculum.
- 4) Teachers are more aware of curriculum content and classroom activities.
- 5) Teachers are more aware of resources available.

In connection with the question, "Which aspects of the instructional process did teachers find useful to direct student learning?," the five questions in Table IV were introduced. Of the 53 participants responding, fifty or 94% of the teachers saw the listing of tasks as helpful to direct student learning. Forty-eight or 91% saw the specific student performance as helpful. Forty-five or 86% agreed that the objectives, arranged in a learning hierarchy, were helpful in understanding the intent of instruction. Forty-six or 87% of the teachers found the limited use of verbs in the learning hierarchy to be helpful. In response to the last question in Table IV, fifty-three or 98% felt that the information sheets, learning experiences, activities, etc. sequenced learning for continuity. In summary, the teachers found all five steps of the instructional process listed as useful to direct student learning.

Corresponding to the question, "Which aspects of the instructional process did the writing team find helpful to guide curriculum writing and evaluation?," two additional questions on the instructional process

TABLE IV
RESPONSES TO QUESTIONS ON
THE INSTRUCTIONAL PROCESS (TEACHERS)

Question	Positive		Negative	
	N*	%	N*	%
1. Did listing the tasks help to direct student learning?	50	94	3	6
2. Did knowing the specific student performance help to direct student learning?	48	91	5	9
3. Did the enabling and performance objectives, arranged in a learning hierarchy, help you understand the intent of instruction?	45	86	7	14
4. Were the verbs used in the learning hierarchy helpful in directing you and your students toward the expected learning outcome?	46	87	7	13
5. Did the information sheets, learning experiences, activities, etc. sequence learning for continuity?	53	98	1	2

*N = Number of respondents

were asked and reported in Table V. In answer to all sections of these questions, all ten writing team members responded yes. In short, all respondents agreed that identified tasks and the objectives, arranged in a learning hierarchy, were helpful to guide curriculum writing and evaluation.

In regards to the question, "What kinds of evaluations are necessary for competency based curriculum materials?," the three questions found in Table VI were posed. Of the 54 teachers responding, fifty-one or 95% felt pre- and post-tests for cognitive development were helpful to guide instruction toward an expected learning outcome. Forty-nine or 92% saw inclusion of performance activities for skill development as helpful. In total, fifty or 94% of the teachers agreed that both kinds of evaluation were necessary for the competency based modules developed.

Considering all aspects of the product used as well as the question, "Which qualities of the product did teachers find useful to organize instruction?," the six questions in Table VII were formulated. Of the 55 participants responding, fifty-five or 100% of the teachers liked the fact that the modules were self-contained. Out of 51 respondents, fifty or 98% thought it helpful to provide a teaching process for use with a group. Forty or 75% agreed that the modules were written in such a way that their students could complete them without much teacher assistance. Fifty-one or 95% said that their students could work at their own speed. Only thirty-seven or 66% of the teachers felt that the reading level and terminology used was appropriate for their students, and this may be more easily explained by the fact that thirty-three or 60% of those responding considered their students to be slow learners.

TABLE V
 RESPONSES TO QUESTIONS ON
 THE INSTRUCTIONAL PROCESS (WRITING TEAM)

Question	Positive		Negative	
	N*	%	N*	%
1. Did the identified and verified tasks aid in curriculum writing?	10	100	0	0
. . .toward a realistic level of competence?	10	100	0	0
2. Did the objectives, arranged in a learning hierarchy, . . .help direct instruction?	10	100	0	0
. . .help direct curriculum writing?	10	100	0	0
. . .help direct curriculum evaluation?	10	100	0	0

*N = Number of respondents

TABLE VI
RESPONSES TO QUESTIONS ON
KINDS OF EVALUATIONS

Question	Positive		Negative	
	N*	%	N*	%
1. Was inclusion of pre- and post-tests (cognitive development) helpful for instruction?	51	95	3	5
2. Was inclusion of performance activities (skill development) helpful for instruction?	49	92	4	8
3. Are both kinds of evaluations needed?	50	94	3	6

*N = Number of respondents

TABLE VII
RESPONSES TO QUESTIONS ON
PRODUCT ORGANIZATION FOR INSTRUCTION

Question	Positive		Negative	
	N*	%	N*	%
1. Did you like the fact that the modules were self-contained?	56	100	0	0
2. Was it helpful to provide a teaching process for use with a group?	50	96	1	2
3. Were the modules written in such a way that students could complete them without much teacher assistance?	40	75	13	25
4. Could students work at their own pace?	51	95	3	5
5. Was the reading level and terminology used in the modules appropriate for your students?	37	66	19	34
6. Are most of your students considered slow learners?	33	60	23	40

*N = Number of respondents

In reference to the question, "Who, where and within what time frame should curriculum materials be field tested," the seven questions in Table VIII were proposed. Of the 48 responding, forty-six or 96% of the teachers felt it helpful to participate in field testing. Fifty-four or 98% felt the field test manual was helpful to provide adequate instructions for field testing. Only twenty-three or 43% preferred to field test the entire curriculum stating the lack of time to prepare and complete materials sent. Fifty-five or 98% of the teachers saw instructors as essential for field testing. Representatives from business and industry, craft committee members and state specialists were also suggested as individuals useful for field testing.

To continue with responses to questions in Table VIII, fifty-five or 98% of the teachers felt curriculum materials should be field tested in the actual school situation. Only twenty-three or 42% felt that they had adequate time to field test the modules they were assigned. Thirty-five or 66% of the respondents felt the time frame for field testing prohibited the ideal use of the materials. Of the time frames stated in the questionnaire, twenty-four or 50% identified one school year as a reasonable time frame, while ten or 21% felt two school years or one school semester sufficient.

To gather information concerning the question, "How did the students respond to the curriculum materials developed?," the two-part question in Table IX was asked. Student comments as well as pre- and post-test scores from field testing were also tabulated. Of the

TABLE VIII
RESPONSES TO QUESTIONS ON
FIELD TESTING

Question	Positive		Negative	
	N*	%	N*	%
1. Did you feel it helpful for you to participate in field testing?	46	96	2	4
2. Did the field test manual provide adequate instruction for field testing?	54	98	1	2
3. Would you have preferred field testing the entire curriculum rather than a portion of it?	23	43	30	57
4. Do you see instructors as being essential for field testing?	55	98	1	2
5. Do you feel that curriculum materials should be field tested in the actual school situation?	55	98	1	2
6. Did you have adequate time to field test the modules you were assigned?	23	42	32	58
7. Did the time frame for field testing prohibit the ideal use of the materials?	35	66	18	34

*N = Number of respondents

TABLE IX
RESPONSES TO QUESTIONS ON
STUDENT RESPONSE TO MODULES

Question	Positive		Negative	
	N*	%	N*	%
1. Did your students enjoy the modules?	37	70	16	30
2. Did they learn?	48	96	2	4

*N = Number of respondents

53 teachers responding, thirty-seven or 70% felt that their students enjoyed the modules. Forty-eight or 96% also felt that their students learned through use of the product developed. Looking at student pre- and post-test scores for each module field tested (see Table XI in appendix B), students showed a positive gain in 49 out of 54 modules. Only Modules #4, 26, 33, 41, and 54 showed a decline in test scores for students completing each module. Also, on student evaluation sheets returned during field testing, several students made the following comments:

- 1) The post-tests were a lot harder than the pre-tests.
- 2) Some modules were easier to follow than others.
- 3) Some words were too hard to understand.
- 4) Some modules were more interesting than others.
- 5) Some modules had too much reading and writing.
- 6) Some modules were too long.
- 7) Some information had been covered in class beforehand.
- 8) More illustrations were needed in some modules.
- 9) Some modules were fun.
- 10) The modules helped me learn things I didn't know about food service.

In reference to the last question to be answered, "How did the teachers respond to the curriculum materials developed?," three questions were developed for inclusion in the questionnaire (see Appendix C). Of the 52 participants responding, thirty-one or 60% thought the modules developed were more complete as compared to other learning packages the teachers had seen or used in food service. Eighteen or 34% felt the modules were equitable in comparison, while 6% felt them not as complete or were undecided. Of 55 teachers responding, fifty-two or 95% planned to use the curriculum materials developed. For a summary of positive and negative teacher comments concerning the modules, see the list on the following page.

- Positive comments:
- 1) Materials were individualized but also adaptable for group learning.
 - 2) Materials had complete, step-by-step information organized in a concise manner.
 - 3) Materials were neat, attractive and easily adaptable to the classroom situation.
 - 4) Materials were self-contained and easy to follow.
 - 5) Materials had separate teacher materials and clear objectives, with many work-sheets and activities.

- Negative comments:
- 1) Pre- and post-tests needed improvement.
 - 2) Reading level was too high for some students.
 - 3) Some modules contained too much reading, not enough activity.
 - 4) Some modules were too long and complicated, especially for slow learners.
 - 5) There were too many materials to duplicate and grade, with limited resources available.

Demographic Statements. A summary of the findings from demographic statements is included in Table X, Appendix B. Only those items which describe the teachers and classrooms are presented below.

The sample data group of 56 food service instructors (1980-81) within the State of Tennessee represented in this study may be described as follows:

- 1) Thirty-nine or 70% have completed a bachelor's degree, with fifteen or 27% having also completed a master's degree or more.
- 2) Forty-one or 91% have home economics certification.
- 3) Forty-one or 75% have less than ten years teaching experience.
- 4) Forty-one or 73% have less than five years of work experience in the area of food service.
- 5) Fifty-one or 91% judged themselves as having less than extensive experience with competency based vocational education prior to use of these modules.
- 6) Fifty-one or 91% judged themselves as having less than extensive experience with student modules prior to use of these modules.

- 7) Sixteen or 29% participated in the teacher workshop for the purpose of task validation.

The sample data group of 56 food service classrooms containing approximately 25 students per classroom represented in this study may be described as follows:

- 1) Fifty-four or 96% of the programs were at the secondary level.
- 2) The size of the school community ranged from rural to large city, with 39% of the programs found in small cities (10,000 - 99,999) 27% of the programs found in towns (2,500 - 9,999) and 27% in large cities (100,000 and over).
- 3) The percentage of first year students per teacher ranged from 51 - 75%, while second year students ranged from 26 - 50% and advanced students less than 25%.

In summary, the majority of students enrolled in food service in the State of Tennessee in 1980-81 were first year students in a secondary level program in a small city of population 10,000 to 99,999. The instructors had at least a bachelor's degree with home economics certification, less than ten years teaching and/or work experience in food service and less than extensive experience with either competency based instruction or student modules. The majority of instructors also failed to participate in the teacher workshop phase of the curriculum development process.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

Both curriculum development and instructional design have experienced rapid growth during the past few decades. This rapid growth has brought about responsive, relevant change in many areas such as, vocational/occupational education.

The purpose of this study was to evaluate the processes and product of curriculum development and instructional design used in developing an articulated competency based food service curriculum for secondary and post-secondary levels within the State of Tennessee. Questions were proposed to arrive at an evaluation of the processes and product used; and thereafter, incorporated into a questionnaire to assess their summative effectiveness.

This study was limited to 78 secondary and post-secondary food service instructors (1980-81) within the State who volunteered to participate in the study. A researcher constructed, mail out questionnaire was developed to elicit descriptive data upon interpretation and completion by field test teachers.

Opinion statements from the questionnaire were tallied by groups and the percent of positive and negative responses to each question tabulated. See Tables I - IX, pp. 50-62. Demographic or personal data statements were also collected to describe food service instructors and classrooms within the State. These items were again grouped

according to response and converted into percentages. See Table X in Appendix B, pp. 81-82.

Information was obtained concerning the effectiveness of both the process and product of curriculum development and instructional design.

Conclusions

Close analysis of the descriptive data obtained in this investigation from 56 participants resulted in the following conclusions:

1. Field test teachers felt that business and industry representatives should be used to identify and validate tasks; however, not for the writing and evaluation of curriculum materials. They also felt that instructors of the programs should be involved in the task of identification and validation of tasks.
2. Teachers felt instructors should be involved in deciding curriculum content because they have subject matter knowledge as well as awareness of student needs and abilities. They also believed that business and industry representatives should be partially involved in deciding curriculum content because they can identify tasks and facilities and resources actually found on the job.
3. Teachers viewed instructors as qualified to write and evaluate curriculum materials because they work directly with students, have a clearer view of student needs and abilities, will be users of the curriculum and are more aware of curriculum content and resources available.

4. Teachers found the listing of tasks and objectives, arranged in a learning hierarchy, useful in directing student learning. They also felt the information sheets, learning experiences, activities, etc. sequenced learning for continuity.
5. Writing team members totally agreed that the identification of tasks and objectives, arranged in a learning hierarchy, were helpful to guide curriculum writing and evaluation.
6. Teachers agreed that both cognitive and skill development evaluations should be included in competency based curriculum materials.
7. Teachers viewed the individualized, self-paced, self-contained modules as useful to organize instruction. They liked the inclusion of group teaching process as well as the use of a reading level or terminology appropriate for most of their students. However, some teachers did comment on the fact that slow learners required much teacher assistance to complete some modules as written.
8. Teachers felt it helpful to participate in field testing, with only a field test manual provided for adequate instruction on use of materials. They also preferred to field test a portion of the curriculum as the time frame for field testing prohibited ideal use of the modules. Teachers saw instructors as essential for field testing in the actual school situation within the time frame of at least one school year. They also suggested that inclusion of business and industry representatives,

craft committee members and state specialists would be useful in field testing.

9. Field test students stated that they enjoyed and learned from the modules. However, they also commented on the fact that some modules were too long, too complicated and contained too much reading and writing.
10. Field test teachers saw the preliminary curriculum materials as more complete as compared with other learning packages in food service. They also stated that they plan to use the modules as written, with some modifications or as reference information. Teachers responded with many positive and negative comments that were helpful for revision/refinement of modules for delivery of a quality final product.

Implications

Three additional factors emerging as a result of this study appear to have implications for future curriculum development in other occupational areas:

1. According to the responses of the teachers, the majority of students in Tennessee food service classrooms were first year students.
2. Sixty-two percent of the teachers viewed their students as slow learners, needing much teacher assistance to complete individualized student modules.

3. Ninety percent of the teachers judged themselves as having little or no experience with either competency based vocational education or use of student modules.

Recommendations

Based on data from this study, it may be recommended that, with regard to future curriculum development in other occupational areas:

1. The curriculum model used in this study be employed for systematic, planned process and delivery of a quality final product.
2. Curriculum development for occupational classrooms involve all prospective users of the final product, not excluding business and industry.
3. Curriculum development for occupational classrooms include teachers in the field to write and evaluate materials developed.
4. Occupational curriculum materials be field tested by teachers in the actual school situation within the length of at least one school year.
5. The instructional model used in this study be employed to guide instruction toward an expected learning outcome.
6. The format of the instructional product used in this study be used and/or adapted for use in other occupational areas.
7. Individualized students modules be written for the average first year occupational student with emphasis on the needs of slow learners.

8. Increased experience with competency based vocational education and use of student modules be provided for teachers through pre-service and/or in-service education.

It is further recommended that future research be conducted to investigate differences in curriculum development and instructional design needed in other vocational/occupational areas.

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APPENDICES

APPENDIX A

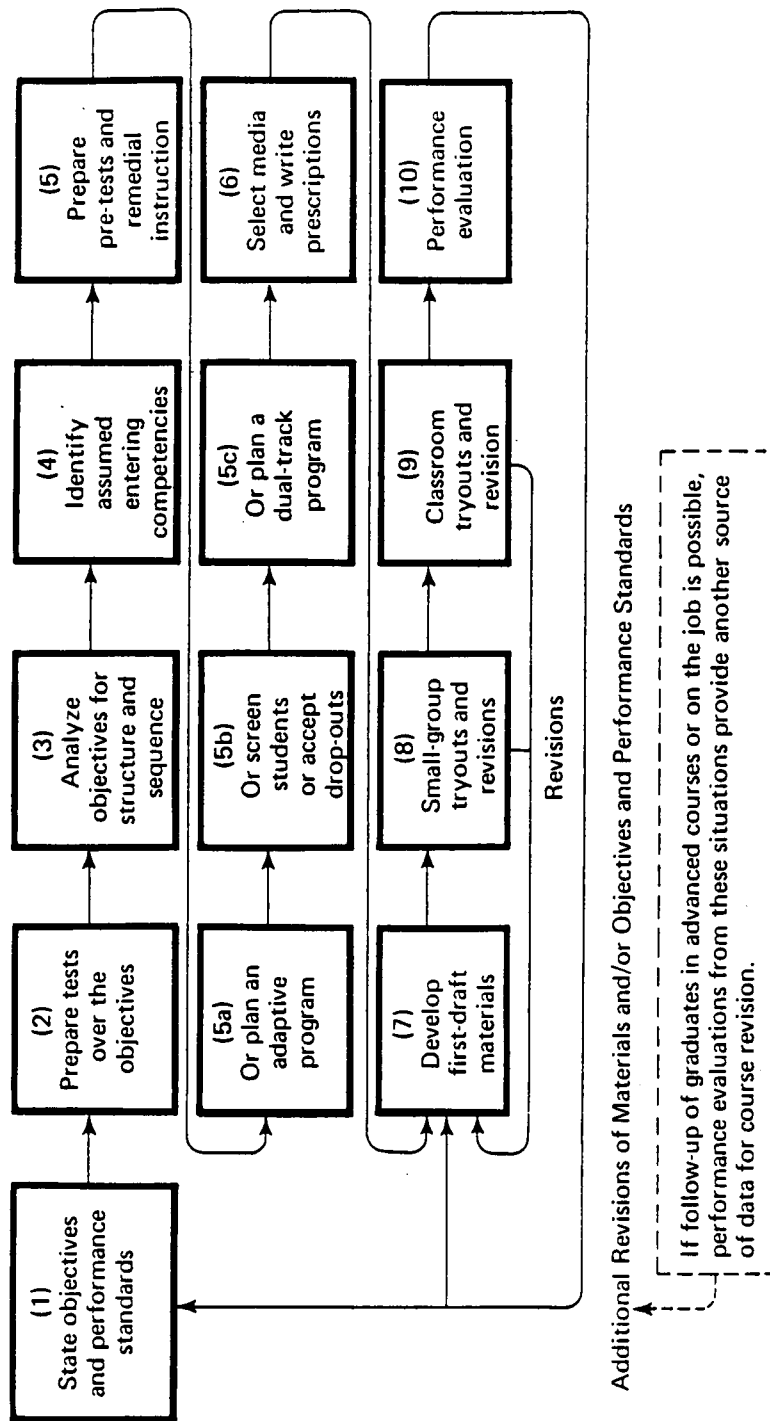


FIGURE 7. A MODEL FOR THE DESIGN OF INSTRUCTION
(Briggs, 1971, p. 7)

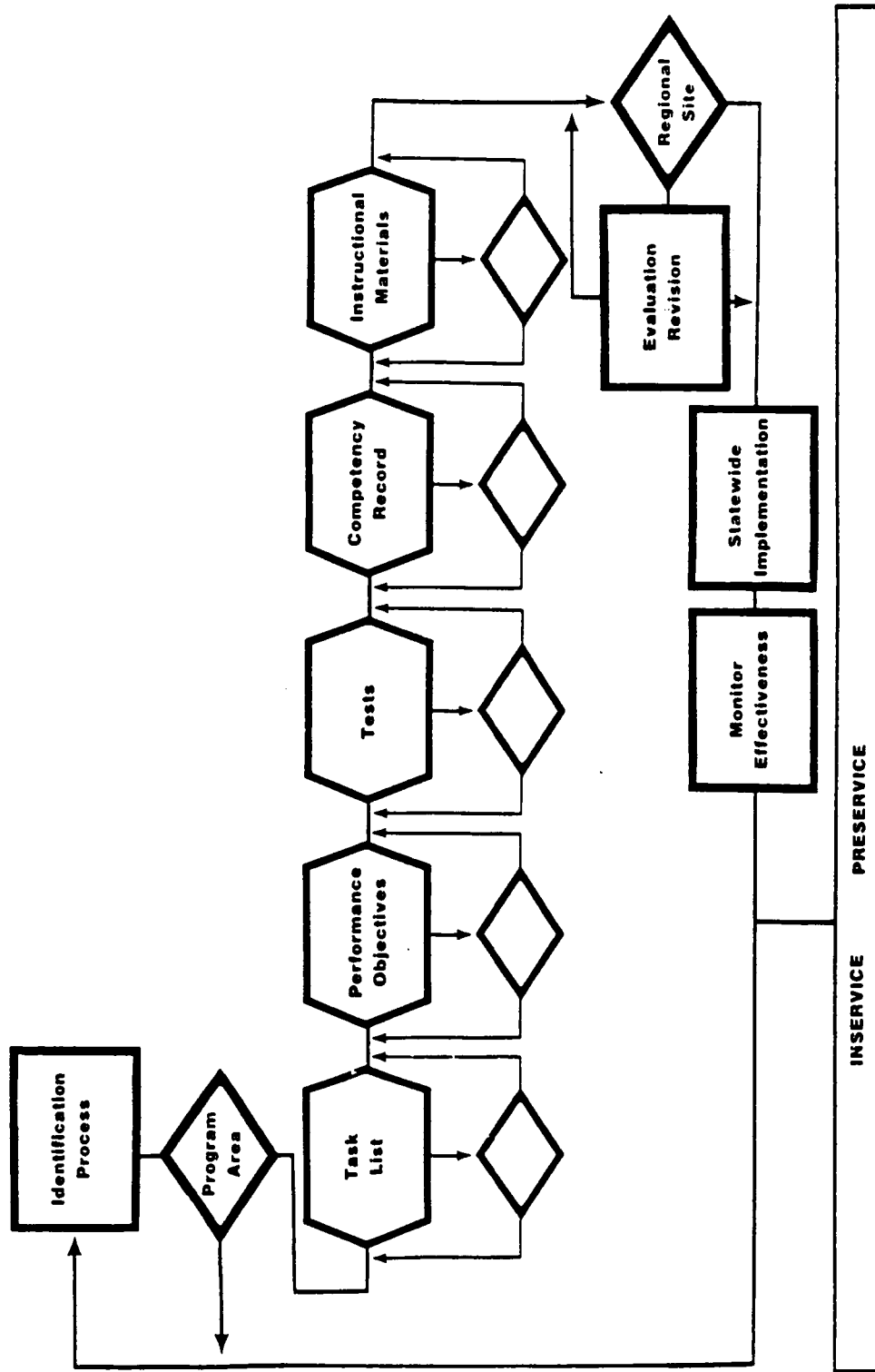


FIGURE 8. MINNESOTA STATEWIDE CURRICULUM ARTICULATION MODEL
(Statewide Curriculum Articulation Center, 1979. p. 4)

APPENDIX B

TABLE X
RESPONSES TO DEMOGRAPHIC
STATEMENTS BY THE TOTAL SAMPLE
GROUP

Question	Number of Teachers	Percent (%)
1. Educational level:		
Less than BS	2	3
BS	39	70
MS	9	16
Other (more than MS)	6	11
2. Type of certification:		
Home Ec	51	91
T & I	5	9
3. Years of teaching experience:		
1 - 5	23	42
6 - 10	18	33
11- 15	2	3
Over 15	12	22
4. Years of work experience in food service:		
1 - 5	41	73
6 - 10	7	13
11- 15	3	5
Over 15	5	9
5. Level of instruction:		
Secondary	54	96
Post-Secondary	2	4
6. Size of school community:		
Rural-farm	4	7
Village (under 2,500)	0	0
Town (2,500 - 9,999)	15	27
Small city (10,000-99,999)	21	39
Large city (100,000 and over)	15	27
7. Percent first year students:		
0 - 25%	5	10
26 - 50%	11	22
51 - 75%	24	48
Over 75%	10	20

TABLE X (Continued)

Question	Number of Teachers	Percent (%)
Percent second year students:		
0 - 25%	14	29
26 - 50%	32	67
51 - 75%	1	2
Over 75%	1	2
Percent advanced students:		
0 - 25%	44	92
26 - 50%	3	6
51 - 75%	1	2
Over 75%	0	0
8. Number of modules field tested with results returned:		
1 - 2	8	17
3 - 4	17	38
5 - 6	19	41
7 - 8	2	4
9. Prior experience with competency based vocational education:		
Practically none	10	18
Limited exposure	20	36
Some, but not extensive	21	37
Extensive exposure	5	9
10. Prior experience with student modules:		
Practically none	16	29
Limited exposure	16	29
Some, but not extensive	19	35
Extensive exposure	4	7
11. Participation in teacher work-shop:		
Yes	16	29
No	40	71

TABLE XI
NUMBER OF TEACHERS AND STUDENTS
RETURNING COMMENTS FOR
EACH MODULE FIELD TESTED

Module Number and Name	Number of Teachers	Number of Students
1 - Safe Environment	8	140
2 - Fire Safety	3	52
3 - First Aid	2	34
4 - Food Handling	3	40
5 - Cleaning and Sanitation	2	28
6 - Housekeeping	5	67
7 - Hand Cutlery	6	80
8 - Beverages	5	68
9 - Vegetables	2	11
10 - Fruits	4	30
11 - Salads	5	71
12 - Salad Dressings	6	60
13 - Sandwiches	3	33
14 - Appetizers	4	69
15 - Garnishes	2	10
16 - Specialty Desserts	4	44
17 - Breakfast Items	4	37
18 - Grain Products	4	51
19 - Stock	4	37
20 - Soups	3	51
21 - Sauces	2	12
22 - Meats	1	10
23 - Cakes	4	60
24 - Specialty Cakes	2	7
25 - Icings and Toppings	2	28
26 - Quickbreads	5	79
27 - Cookies	5	66
28 - Pies	4	39
29 - Yeast-Raised Products	7	74
30 - Cream Puff and Puff Pastry Products	3	58
31 - Arrange Dining Area	4	60
32 - Serve Guests	5	78
33 - Perform Sidework	3	33
34 - Table Cleaning/Clearing Duties	3	39
35 - Tray Service	4	36
36 - Food and Beverage Cost Control	3	84

TABLE XI (Continued)

Module Number and Name	Number of Teachers	Number of Students
37 - Labor Cost	4	32
38 - Plan Finances	2	9
39 - Plan Menus	3	48
40 - Personnel Management	4	28
41 - Train and Motivate Employees	2	31
42 - Job Awareness	2	15
43 - Utensils/Tools	4	44
44 - Large/Small Equipment	4	43
45 - Self Development	3	21
46 - Communication Skills	4	24
47 - Maturity	6	53
48 - Personal Grooming	6	63
49 - Job Procurement	5	89
50 - Basic Math	5	39
51 - Work Simplification	4	64
52 - Read and Convert Recipes	4	30
53 - Weights and Measurements	3	11
53 - Orientation to Food Service	4	77

*Note: More comments were returned for modules classified as "basic" in comparison with "special" or "advanced."

TABLE XII
NUMBER AND PERCENT CHANGE
IN STUDENT PRE- AND POST-TEST SCORES
FOR EACH MODULE FIELD TESTED

Module Number and Name	Positive		No Change		Negative	
	N*	%	N*	%	N*	%
1 - Safe Environment	92	66	4	3	44	31
2 - Fire Safety	33	63	2	4	17	33
3 - First Aid	31	91	1	3	2	6
4 - Food Handling	16	40	6	15	18	45
5 - Cleaning and Sanitation	22	79	2	7	4	14
6 - Housekeeping	53	79	1	2	13	19
7 - Hand Cutlery	67	83	6	8	7	9
8 - Beverages	60	88	3	4	5	8
9 - Vegetables	11	100	0	0	0	0
10 - Fruits	25	83	5	17	0	0
11 - Salads	48	68	1	1	22	31
12 - Salad Dressings	54	90	1	2	5	8
13 - Sandwiches	26	79	4	12	3	9
14 - Appetizers	55	80	1	1	13	19
15 - Garnishes	9	90	0	0	1	10
16 - Speciality Desserts	41	93	2	5	1	2
17 - Breakfast Items	22	60	2	5	13	25
18 - Grain Products	32	63	6	12	13	25
19 - Stock	21	58	8	21	8	21
20 - Soups	39	78	0	0	12	22
21 - Sauces	12	100	0	0	0	0
22 - Meats	10	100	0	0	0	0
23 - Cakes	47	78	5	9	8	13
24 - Specialty Cakes	5	71	0	0	2	29
25 - Icings and Toppings	19	68	0	0	9	32
26 - Quickbreads	29	37	1	1	49	62
27 - Cookies	42	64	0	0	24	36
28 - Pies	32	82	1	3	6	15
29 - Yeast-Raised Products	57	77	0	0	17	23
30 - Cream Puff and Puff Pastry Products	44	76	1	2	13	22
31 - Arrange Dining Area	50	83	0	0	10	17
32 - Serve Guests	49	63	10	13	19	24
33 - Perform Sidework	11	33	4	12	18	65
34 - Table Cleaning/Clearing Duties	35	90	0	0	4	10
35 - Tray Service	17	47	6	17	13	36
36 - Food and Beverage Cost Control	64	76	3	4	17	20

TABLE XII (Continued)

Module Number and Name	Positive		Gain		No Change		Negative Loss	
	N*	%	N*	%	N*	%	N*	%
37 - Labor Cost	23	72	0	0	9	28		
38 - Plan Finances	9	100	0	0	0	0		
39 - Plan Menus	31	65	0	0	17	35		
40 - Personnel Management	22	79	2	7	4	14		
41 - Train and Motivate Employees	10	32	2	6	19	62		
42 - Job Awareness	15	100	0	0	0	0		
43 - Utensils/Tools	36	82	0	0	8	18		
44 - Large/Small Equipment	27	63	2	5	14	32		
45 - Self Development	18	86	2	10	1	14		
46 - Communication Skills	22	92	1	4	1	4		
47 - Maturity	27	51	8	15	21	34		
48 - Personal Grooming	37	59	9	14	17	27		
49 - Job Procurement	63	71	5	6	21	23		
50 - Basic Math	31	79	0	0	8	21		
51 - Work Simplification	54	84	5	8	5	8		
52 - Read and Convert Recipes	19	63	0	0	11	37		
53 - Weights and Measurements	11	100	0	0	0	0		
54 - Orientation to Food Service	23	30	12	16	42	54		

*N = Number of students

APPENDIX C

FORMAT FOR TEACHER MODULE

*I. Cover Page

- A. Module name
- B. Competency area
- C. Competency statement
- D. Tasks . . . Level
- E. Specific Student Performance
- F. Pre-requisite modules

II. Learning Hierarchy

- A. Specific Student Performance
- B. Performance objectives
- C. Enabling objectives

III. Process Sheet(s)

- A. Individual
- B. Group
- C. Alternatives - Enrichment
 - 1. Readings
 - 2. Audio-visual aids
 - 3. Activities

IV. Pre-test, optional

*V. Student Guide Sheet

- A. Directions to students
- B. Steps to complete module
- C. Vocabulary

*VI. Information Sheet(s)

*VII. Worksheet(s) and/or activities

VIII. Post-test

IX. Final Checkout Performance Evaluation

X. Worksheet and Evaluation Key

XI. Resource Item(s)

*Student module format

THE UNIVERSITY OF TENNESSEE, KNOXVILLE
KNOXVILLE 37916

OFFICE OF THE VICE CHANCELLOR FOR
GRADUATE STUDIES AND RESEARCH

404 ANDY HOLT TOWER

AREA 613
TELEPHONE: 974-3466

Dr. L. Evans Roth
Vice Chancellor for Graduate
Studies and Research
404 Andy Holt Tower
The University of Tennessee
CAMPUS

Dear Dr. Roth:

Cheryl Ann Smith, College of Home Economics, submitted a project entitled "The Development of a Model for Curriculum Development and Instructional Design in Food Service," CRP #1225. The departmental human subjects committee has reviewed and approved this project. In their judgment, this project comes within that section of their approved guidelines which permits the Chairperson of the Committee on Research Participation to give approval to the project on behalf of the Committee.

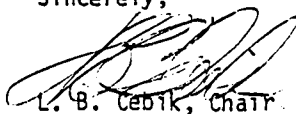
After reviewing this project, I certify that it does conform to Committee and Departmental guidelines. Therefore, acting on behalf of the Committee, I have approved this project.

The responsibility of the project director includes the following:

1. Prior approval from the Committee must be obtained before any changes in protocol are instituted.
2. Signed consent statements from each experimental subject must be kept for the duration of the project and for at least three years thereafter.
3. The Committee must be informed of any physical or psychological effects on subjects for re-evaluation of the protocol approval.
4. A statement must be submitted (Form D) at 12-month intervals attesting to the current status of the project (protocol is still in effect, project is terminated, etc.)

The Committee wishes the project director success in her research endeavors.

Sincerely,



L. B. Cebik, Chair
Committee on Research Participation

/meg

cc: Cheryl Ann Smith
Jacquelyn McInnis



VOCATIONAL
TECHNICAL
EDUCATION

THE UNIVERSITY OF TENNESSEE

DEPARTMENTAL OFFICE: 110 HENSON HALL - COLLEGE OF EDUCATION - KNOXVILLE, TENNESSEE 37916 (615) 974-2574

Dear Field Test Teacher:

We acknowledge and appreciate your help in field testing the food service curriculum materials. All comments and scores received have been extremely helpful in making the modules what you, as teachers, need and want to guide instruction in food service. Final drafts of the modules are now complete, and it is planned that an in-service session will be held during August for dissemination.

A follow-up study involving the food service teachers is being conducted. This survey will provide information with respect to how the modules were developed. It is hoped that the information obtained from this study will serve to structure future curriculum development in both food service and other occupational programs within our State. The data that you provide will be the basis for Cheryl's research study for her Master's degree and thesis completion.

Again, the most important ingredient to this follow-up study is you. We need your help to supply us with your opinions concerning the food service modules you field tested. Would you please take just a few minutes (no more than 30 minutes should be needed) to complete the enclosed survey form. You can be sure that your responses will be strictly confidential. Remember, this is a study of your individual opinions of the process that was used, and all food service teachers are being asked to respond. Return of the enclosed questionnaire will constitute informed consent.

Although we are well aware that this is an extremely busy time of year for you, would you please help us by completing the enclosed questionnaire and returning it as soon as possible. We will be most happy to send you a copy of the summary report if you will just write your name and address on the back of the questionnaire.

Thank you for your cooperation.

Sincerely,

Jacquelyn H. McInnis
Project Director

Sincerely,

Cheryl A. Smith
Research Assistant

P.S. An addressed, stamped envelope is enclosed for your convenience.

CURRICULUM EVALUATION INSTRUMENT

This instrument has been designed to identify your opinions concerning certain aspects of the food service curriculum project. THIS IS NOT A TEST. There are no right or wrong answers. All information will be held in confidence and will be reported only in collective statistical form.

I. Demographic StatementsInstructions:

Place a check or number in the appropriate blank below.

1. Educational level: ☐ Less than BS
 ☐ BS
 ☐ MS
 ☐ Other Please specify _____
2. Type of certification: ☐ Home Ec
 ☐ T & I
 ☐ Other Please specify _____
3. Years of total teaching experience (in number): _____
4. Years of work experience in food service area: _____
5. Level of instruction: ☐ Secondary
 ☐ Post-Secondary
6. Size of school community: ☐ Rural-farm
 ☐ Village (under 2,500)
 ☐ Town (2,500 - 9,999)
 ☐ Small city (10,000 - 99,999)
 ☐ Large city (100,000 and over)
7. % first year students: _____ % second year students: _____
 % advanced students: _____
8. Number of modules you field-tested with results returned: _____
9. Which of the following best describes the experience you had in competency based vocational education prior to field testing these modules?
 ☐ practically none
 ☐ limited exposure
 ☐ some, but not extensive
 ☐ extensive exposure

10. Which of the following best describes the experience you had with student modules in your classroom prior to field testing these modules?
- ☐ practically none
☐ limited exposure
☐ some, but not extensive
☐ extensive exposure
11. Did you participate in the teacher workshop for formulating the competencies and tasks that was held in Fairfield Glades?
- ☐ yes
☐ no

II. Opinion Statements

Instructions:

Place a check in the appropriate blank below.

12. Representatives from business and industry were employed to identify and verify tasks done on the job. Do you feel this practice should be continued in curriculum development?
- ☐ yes
☐ no
COMMENTS:
13. Do you feel that instructors should also be involved in the task of identification and verification of tasks?
- ☐ yes
☐ no
COMMENTS:
-
14. Was it helpful to have each task identified by level (basic, special, or advanced)?
- ☐ yes
☐ no
COMMENTS:
15. Was the level of competence stated in the specific student performance realistic for your students?
- ☐ yes
☐ no
COMMENTS:
16. Did you have adequate classroom and laboratory facilities for application of the modules?
- ☐ yes
☐ no
COMMENTS:
17. Did you have adequate available resources/references for use in application of the modules?
- ☐ yes
☐ no
COMMENTS:
-

18. Should representatives from business and industry be responsible for evaluation of the developed materials?

_____ yes COMMENTS:
 _____ no

19. Do you think it was good to use teachers to write modules?

_____ yes COMMENTS:
 _____ no

If so, why? _____

If not, who else do you feel should write them? _____

- 20. Did listing the tasks help to direct student learning?

_____ yes COMMENTS:
 _____ no

21. Did knowing the specific student performance help to direct student learning?

_____ yes COMMENTS:
 _____ no

22. Did the enabling and performance objectives, arranged in a learning hierarchy, help you understand the intent of instruction?

_____ yes COMMENTS:
 _____ no

23. Were the verbs used in the learning hierarchy helpful in directing you and your students toward the expected learning outcome?

_____ yes COMMENTS:
 _____ no

24. Did the information sheets, learning experiences, activities, etc. sequence learning for continuity?

_____ yes COMMENTS:
 _____ no

- 25. Was inclusion of pre- and post-tests (cognitive development) helpful for instruction?

_____ yes COMMENTS:
 _____ no

26. Was inclusion of performance activities (skill development) helpful for instruction?

_____ yes COMMENTS:
 _____ no

27. Are both kinds of evaluation needed?

☐ yes
☐ no

COMMENTS:

28. Did you like the fact that the modules were self-contained?

☐ yes
☐ no

COMMENTS:

29. Was it helpful to provide a teaching process for use with a group?

☐ yes
☐ no

COMMENTS:

30. Were the modules written in such a way that students could complete them without much teacher assistance?

☐ yes
☐ no

COMMENTS:

31. Could students work at their own pace?

☐ yes
☐ no

COMMENTS:

32. Was the reading level and terminology used in the modules appropriate for your students?

☐ yes
☐ no

COMMENTS:

33. Are most of your students considered slow learners?

☐ yes
☐ no

COMMENTS:

34. Did you feel it helpful for you to participate in field testing?

☐ yes
☐ no

COMMENTS:

35. Did the field test manual provide adequate instructions for field testing?

☐ yes
☐ no

COMMENTS:

36. Would you have preferred field testing the entire curriculum rather than a portion of it?

☐ yes
☐ no

COMMENTS:

37. Do you see instructors as being essential for field testing?

☐ yes
☐ no

COMMENTS:

Who else, if anyone should help field test curriculum materials?

38. Do you feel that curriculum materials should be field tested in the actual school situation?
 _____ yes COMMENTS:
 _____ no
39. Did you have adequate time to field test the modules you were assigned?
 _____ yes COMMENTS:
 _____ no
40. Did the time frame for field testing prohibit the ideal use of the materials?
 _____ yes COMMENTS:
 _____ no
41. What would have been a reasonable time frame for field testing the curriculum materials?
 _____ 1 school year COMMENTS:
 _____ 2 school years
 _____ 1 school semester
 _____ at any time
 _____ other Please specify

-
42. Did your students enjoy these modules?
 _____ yes COMMENTS:
 _____ no
- Did they learn?
 _____ yes
 _____ no
43. How did these modules compare with other learning packages you have seen or used in food service?
 _____ not as complete COMMENTS:
 _____ equitable
 _____ more complete
 _____ undecided
44. Do you plan to use these curriculum materials?
 _____ yes COMMENTS:
 _____ no
45. What did you like best, least about the curriculum materials, as a whole?

If you were a member of the writing team for the modules, please answer the additional questions below.

46. Did the identified and verified tasks aid in curriculum writing?

☐ yes

COMMENTS:

☐ no

. . . toward a realistic level of competence?

☐ yes

COMMENTS:

☐ no

47. Did the objectives, arranged in a learning hierarchy,

. . . help direct instruction?

☐ yes

COMMENTS:

☐ no

. . . help direct curriculum writing?

☐ yes

COMMENTS:

☐ no

. . . help direct curriculum evaluation?

☐ yes

COMMENTS:

☐ no

VITA

Cheryl Ann Smith, daughter of Mr. and Mrs. J. W. Smith, was born in Knox County, Knoxville, Tennessee, on October 13, 1956. She was graduated as the salutatorian of her class from Karns High School in Knoxville, in 1974, and received her Bachelor of Science degree in Home Economics Education from the University of Tennessee at Knoxville, in December 1977. She then went to work for Fort Sanders Presbyterian Hospital, also in Knoxville, as a dietetic trainee.

In the Fall of 1979 she accepted a one-year Home Economics Education graduate teaching assistantship and began her Master of Science degree at the University of Tennessee at Knoxville, again in Home Economics Education. Paralleling the time of her assistantship, she participated in the Nutrition Education Curriculum Project for grades K - 6. In the Summer of 1980, she began work as a research assistant on the Food Service Curriculum Project for the Tennessee State Department of Education. During the time of this project, she continued work on her master's degree, which she received in August of 1981.

In the Summer of 1981, she also accepted a Home Economics teaching position in the Clayton County schools, Jonesboro, Georgia. She completed her dietetic training at Fort Sanders Presbyterian Hospital in August of 1981.