### FINAL REPORT

A Feasibility Study for Development of A Self-Instructional Training Kit for Teachers of Adult Basic Education

March 1, 1971 - June 30, 1971

Grant No. OEG-0-70-4616-14(324) Appalachian Adult Basic Education Center

> The University of Tennessee Knoxville, Tennessee

Dr. John M. Peters Principal Investigator

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#### Introduction

This project was based on evidence of rapid development of adult basic education programs and concomitant training needs of its professional personnel which together place a strain on the resources of universities and other organizations charged with the responsibility of training adult educators. The nature of the part-time work of adult basic education teachers and competing demands on their time were observed as largely precluding serious commitments to educational programs designed to increase knowledge and skills necessary to the job of teaching adults. An alternate form of training was thought to be needed to supplement pre-service and in-service educational programs for ABE teachers now being provided by universities and state and local agencies.

# Objectives

This study was designed to:

- Determine the feasibility of developing and utilizing an individualized and self-instructional multi-media training package for teachers of adult basic education.
- Project a design for future development of training packages.

#### Rationale

The need for development of individualized and self-instructional training packages for ABE teachers was based on the following factors common to teacher training programs:

- An expanding number of adult basic education programs and teachers
- A small percentage of ABE teachers with extensive training in adult education
- A varied background of experiences and related educational needs among ABE teachers
- 4. A shortage of individualized training opportunities for ABE teachers
- A general lack of flexibility (time, location, and subject matter offerings) in existing training programs.
- 6. Limited time available to ABE teachers for additional training in adult education

Prior to the initiation of this project, the elements of an individualized and self-instructional package were available in the form of instructional technology (e.g., cassette players, filmstrips and manuals) and in the form of existing knowledge in the field of adult education. The task of this project was one of fitting these elements together into an effective and efficient form suitable for adult basic educational personnel.

# Procedure

The original project proposal called for funds to employ a graduate student on a half-time basis to work with the Director of the U-T Training Program in Adult Education, to accomplish the following:

Step 1. Evaluate existing teacher training packages according to their potential for training ABE personnel.

- Step 2. Explore alternate arrangements for combining media and content to produce a training package for ABE personnel.
- Step 3. Develop a prototype kit in one area of content relevant to teacher training needs. <sup>1</sup>
- Step 4. Try out prototype kit with aid of selected ABE teachers, and make appropriate revisions.
- Step 5. Determine cost/benefit ratios according to the expense and resultant advantages of an individualized self-instructional program as compared to other alternatives in teacher training.
- Step 6. Report findings based on work accomplished during the period of this project, and make recommendations for further development of training packages.

#### Personne1

A graduate student was employed to coordinate project activities under the general supervision of the Director of the University of Tennessee Training Program in Adult Education. The graduate student worked closely with personnel in the Graphic Arts Department and the Audio-Visual Aids Department of the University Division of Continuing Education and with selected faculty members in the College of Education who served as consultants to the project.

 $<sup>^{1}\</sup>mbox{Steps}$  3 and 4 in the project proposal were later combined to form Step 3.

## Project Results

The project results are summarized in terms of the procedural steps listed on page three.

Step one: Evaluation of Existing Teacher Training Packages.

This step entailed a review of literature, correspondence with professional adult educators, correspondence with other developers of teacher training packages, and a visit to a national convention. The search for existing teacher training programs focused primarily on multi-media and self-instructional approaches. The results of these activities revealed a very limited number of training activities that related directly to the present feasibility study. Those projects and activities that did relate are described in the following paragraphs.

Self-instructional programs, using a module or instructional package format, include a program developed by the Florida State Department of Education, the Nebraska Video In-Service Project and the Far West Laboratory (Appendix A). These projects were examined at the 1971 American Society for Curriculum Development (ASCD) convention in St. Louis. The Florida materials, developed for elementary and secondary teachers, aim at teaching skills or specific concepts fundamental to teaching. The Florida Teacher-Training Modules are designed around a performance-based Model. Each module uses a similar design including the statement of objectives (observable, measurable behavior of the user), the rationale, the materials to be included, the procedures and the evaluation (preassessment and post-assessment). In some of the modules, filmstrips, audio and video tape recordings, and additional tests supplement the package booklets. Examples of the modules developed include organizational topics and subject matter areas such as reading and mathematics.

The content of the Florida training modules does not appear
to be directly relevant to Adult Education Programs; however, the design
or format of the modules were thought to be useful in the development
of a series of in-service programs for the teacher of Adult Basic
Education.

One phase of the Nebraska Video-In-Sercice Project (VIP) is the development of a series of self-instructional packages, primarily in the form of booklets, which are used during in-service sessions by teachers working in groups of two or three. The project is concerned with helping teachers find new ways of making meaningful modifications in their class-room behavior. An essential component of the VIP design is teacher self-appraisal. Feedback is provided in the booklet materials, by fellow participants and by VIP resource staff members. The materials focus primarily on management skills and concepts for teachers and administrators, and center around a small group and/or individual participation within a "regular" in-service period or day.

Extensive work with Micro-teaching using video-tape recording in a self-instructional format has been developed by the Far West Laboratory (Borg, Langer and Kelly, 1970). Video-tape recording permits precise descriptive feedback of teaching behavior, so that adjustments may be prescribed, practiced, refined and internalized (Davis and Gregory, 1969). The minicourse or microteaching format focuses on practice and application, as well as self-evaluation.

<sup>&</sup>lt;sup>1</sup>These materials will be marketed by MacMillan during the next year.

The Far West Laboratory minicourses have been developed for elementary and secondary programs, and the video-tape materials and content are not directly relevant to ABE programs. Refer to Appendix A for a complete listing of the minicourses.

A training package specifically designed for training teachers in adult basic education was recently developed by the University of Texas, under a grant from the U. S. Office of Education. The Kit focuses on guidance and counseling for ABE teachers, and is presented in the form of cassette tapes, transparancies, and script books. Although the Texas Kit is of general use in the subject it covers, the format is not particularly suited to individual use by ABE teachers. Moreover, there is little provision for feedback and revision as a result of teacher useof the package. Finally, the expense of producing the package seems prohibitive for individual use.

A program developed by General Programmed Teaching, Palo Alto,
California, consists of a series of audio tapes, filmstrips and workbooks
that cover a wide range of classroom-related topics, such as developing
behavioral objectives, validation of instruction, learning theories, etc.
The format, although professionally done and well presented, is clearly
directed at the elementary school teacher. A copy of the format used
by General Programmed teaching is included as an appendix of the project
proposal.

A Survey of Commercially prepared self-instructional teacher training materials identified a limited number of programs. None of these materials was designed specifically for Adult Basic Education programs.

A series of twelve films and accompanying materials and "work-books" are available from the Ealing Corporation. The program, entitled "Starting Tomorrow" focuses on a series of activities to be used over a year-long program of in-service workshops for the elementary school teacher. The program materials and films are structured for self-directed, participant-centered workshops. The six workshops are centered around reading, social studies, science, sex education and art education. The use of a film approach offers an alternative mode of presentation. However, the content of this series was not deemed relevant for Adult Education programs.

A training kit published by Colonial Films, Inc. of Atlanta is designed for adult education. The kit focuses on the subject of recruitment and retention of adult students. The format is a combination filmstrip and phonograph record, with a supplementary phamplet. The kit can be reviewed in approximately 20 minutes. Objections to the kit include its lack of depth, absence of opportunities for feedback from the user, and the cost (\$25.00) of the kit.

Most publishers exhibiting at the ASCD Convention indicated that they had not yet produced self-instructional teacher training materials. However, there was a wide variety of multi-media programs in all curriculum areas for pre-school through adult learners. The companies producing these multi-media programs and materials rarely offer more than the usual visit from the company representatives as the training component. However, several company representatives indicated future plans for comprehensive teacher-training programs.

## Step 2: Alternate arrangements for combining media and content.

The survey of ABE teacher training programs and other self-instructional materials for use with pre- and in-service programs of elementary and secondary teachers indicated several design possibilities. However, none of the programs or design models was entirely acceptable, either because the content or the approach did not meet criteria adopted by this project. These criteria included:

- 1. A training package should focus on teaching skills and concepts that are fundamental to the adult education program. With a variety of training packages in the skill or curriculum areas, as well as in the planning and evaluation of instructional processes, the ABE teacher can select the materials according to his individual needs.
- 2. The training materials should be self-instructional.
  All necessary information, directions, practice experiences, etc. should be available for use by the teacher without "outside" help.
- 3. The package should include a variety of media, and provide for as many different learning experiences as possible.
- 4. The material must be presented in a format easily used by the teacher, and should utilize resources available to the individual (e.g., it is doubtful that the majority of ABE teachers have available a 16mm movie projector for personal use, therefore making a 16mm film component largely impractical.)

- 5. The central focus of the instruction should be application. The teacher should be able to use the acquired skills and information directly or by adaptation to meet the contingencies of the ABE learning setting.
- 6. The illustrations and general format should feature adults and not children. (Although many concepts, principles and techniques are applicable to instruction of both adults and children, too much emphasis on the latter may cause the ABE teacher to reject the information as inappropriate.)
- The cost of the training package should be as low as possible, and be within the reach of most ABE programs.
- 8. The content of the training package should be easily correlated with the content of pre-service and in-service group training activities (i.e., the package could be a component of a formal training program, or an extension of the same).
- The material should provide for feedback from the user to the developer or teacher-trainer.
- 10. The material should provide for self-evaluation by the user, in order for the user to determine specific points of need and progress in developing a new skill.
- 11. The format should be flexible enough to allow for inexpensive and quick revision of content.

- 12. The content should be based on a sound conceptual model and/or the results of research on the subject.
- 13. The format should reflect a logical conceptual framework, including appropriate sequencing of concepts, application of learning principles, etc.
- 14. The package should be in a form that can be extended to include as many different subjects as possible, while resulting in minimal deviation from its original form.

The above criteria were applied in evaluating existing training packages and in developing a prototype package. The application of the criteria is reflected in the following procedural steps.

## Step 3: Development of Prototype Kit.

The final format of the prototype Self-Instructional Teacher
Training Package (SITT-P) was chosen on the basis of the following:

- The criteria established for evaluating other training packages (see pages 9 and 10) were applied to the SITT-P developed in this project.
- 2. A reivew of other training packages revealed certain features that met the project's predetermined criteria and which appeared particularly applicable to the goals of the project. An attempt was made to capture the best features of several training packages, within the limitation of the project.
- 3. Time constraints of the project prohibited extensive exploration of alternative formats, and certain desired features (e.g., illustrations in color) were omitted due to budget limitations.

4. Suggestions from local ABE teachers relative to available media resources and time constraints influenced the choice of formats.

Various media approaches were considered singly and in combination, e.g., video tapes, audio-tape, slides, transparencies, filmstrips, booklet, charts, card packages etc. The audio-tape and booklet format were selected for this package of materials for several reasons. The content of the package was easily presented in an audio presentation, supplemented by visual (graphic) material. A simple, inexpensively produced format was also needed. The cassette tape recorder is the simplest to operate and most easily transported. The booklet format lent itself to a fixed sequential presentation of steps or stages.

Because all the materials (except the tape and recorder) are contained in the booklet there is less problem with lost or misplaced pages, etc.

The project staff rejected the use of filmstrips and slides because of their high production costs and relative inflexibility as self-instructional devices. Transparencies were less costly, but had the disadvantage of requiring the user to have an overhead projector. Filmstrips, slides and transparencies are common components of most teacher training packages, although they should be recognized primarily as tools for group instruction.

Phonograph records were rejected on the basis of their short life features, and their relative inconvenience when compared to cassette recordings.

Programmed books (when used alone) were rejected on the basis of their limited impact on the senses, and the difficulty of programming

 $<sup>\</sup>mathbf{1}_{\mathrm{Transparencies}}$  were added to the SITT-P developed in this project, primarily to extend its usefulness as a group instructional device.

certain subject areas (e.g., conseling principles and techniques).

However, when coupled with other media, such as audio tapes, programmed software could be a useful training tool.<sup>2</sup>

Other possibilities, such as video cassette tapes, were rejected either because their full features were unknown or because of their unusually high costs of development.

Regardless of the format used, a content area had to be chosen that would relate to the needs of the target audience and that would be readily developed into a SITT-P. The decision to focus on the area of reading, and specifically assessment and placement procedures, is based on the needs assessment. The resultant choice of a training package on the Cloze procedure resulted from the following project activities:

- A recognition of the importance of reading in the ABE curriculum.
- The observation that a relatively small percentage of teachers are trained in the area of reading.
- 3. A review of existing training packages (discussed earlier).
- 4. A review of present in-service and pre-service training approaches and content of same (ranging from graduate courses to week-end workshops).
- 5. A survey of local (Knox County, Knoxville and Chattanooga, Tennessee) teachers, investigating their specific instructional needs in the area of reading.
- An analysis of the alternate ways of placing student in materials.

<sup>&</sup>lt;sup>2</sup>A programmed format was not developed in the present project due to the length of time required to write an effective programmed text.

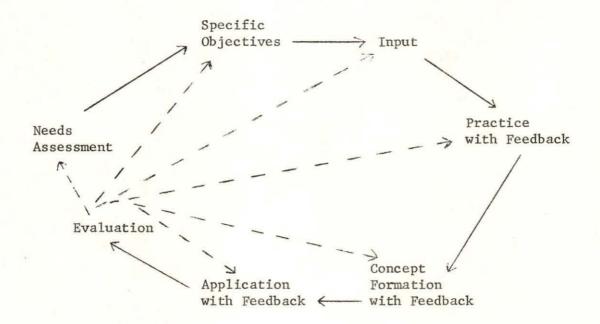
- 7. A determination of techniques which have research results supportive of their use in the ABE classroom.

  Recent studies validate the use of Cloze as a measure of the learner's comprehension of any given reading passage. (Bormouth 1967, 1969, Knight and Alcorn 1969, Taylor, 1953, Weaver and Kingston, 1963, and Miles 1970). The Cloze procedure is especially useful with adults (Knight and Alcorn, 1969). The Cloze procedure is also relatively straightforward and easy to prepare and administer. No specialized diagnostic training is needed. It is also possible to analyze the Cloze score in terms of various instructional levels and to make decisions concerning the placement of the adult learner in specific materials.
- 8. A determination of a reading placement technique that would lend itself to production in a package form consistent with the criteria listed on page 10.

A conceptual model was developed to guide the selection and arrangement of content and learning activities within the SITT-P. As a consequence, the SITT-P reflects the following phases of development.

- 1. Assessment of Needs
- 2. Specification of Objectives
- 3. Presentation of Information (Input)
- 4. Development of Practice with Feedback
- 5. Formation of Concepts
- 6. Application of Information
- 7. Evaluation

The following model focuses on the flow of these interrelated activities. An explanation of the model stages follows:



The <u>needs assessment</u> focuses on the teacher of Adult Basic

Education and the ABE program (the content and instruction techniques

used with the adult learner). Information obtained from research studies,

informal surveys and discussions with adult education personnel provides

needs assessment data. Once the training package is developed and used

with teachers in the field, their evaluation of the objectives and out
comes provides additional information.

The <u>objectives</u> provide a clear description of the expected outcomes for the teacher-trainee. The participant should know before he begins the package what competencies he will acquire as a result of the training package instructional activities. The objectives also provide a framework for evaluation of each of the succeeding stages.

The <u>input</u> stage is the presentation of fundamental concepts and skills. Consideration of the use of multi-media instructional approaches is crucial at this stage. Ideally, several modes of presentation are used (audio-tape, booklet, filmstrip, video-tape recordings), providing the teacher-trainee alternatives. Evaluation of the input focuses on the content as well as the presentation of the content, and the differing learning styles.

Practice with feedback provides opportunities for direct participation. The focus here is on doing - rather than on something done to or for the learner. Immediate feedback provides the necessary information for refinement of skills and concepts. Package activities in this stage are designed around direct or contrived experiences.

The feedback is part of the practice experience and its use is controlled directly by the teacher-trainee. In this way, there is no threat of external supervision or evaluation. The teacher is free to redo and practice activities to meet his own needs.

Concept formation follows input and practice and focuses on the conceptualization of fundamental information and processes by the teachertrainee. Feedback for this phase involves contact with training program personnel. A visit, phone call or letter reaffirms or clarifies basic concepts. At the conclusion of this stage, the teacher-trainee is ready to apply the newly acquired concepts and skills.

Application is the culminating activity and is based on direct involvement in the specific ABE program. The teacher-trainee uses the

tools or skills directly, or with modification, in the classroom.

Application alternatives are suggested, but the teacher is free to devise his own application. A report and sample of materials developed by the teacher is returned to the training program offices. Feedback is again given to the teacher-trainee.

Evaluation of the training package materials is conducted by participants and training staff. Suggestions for revision, modification as well as additions (sequals to the package etc.) are considered and implemented. Evaluation information is gained through informal interviews and rating forms.

A briefer explanation of the conceptual model is presented on page one of the SITT-P booklet, primarily for the teacher to follow as the content of the booklet untolds. The script of the SITT-P, (attached as Appendix B), reflects the application of the conceptual model to the package content and format.

#### Step 4: Try-out of Prototype Kit.

The prototype kit was tried, revised, field-tested, and revised again to result in its final form.

The initial try-out was with a group of twelve ABE teachers enrolled in an adult education seminar at The University of Tennessee. Revisions were made in the script and illustrations, and the kit was presented to a second group of six teachers. Revisions were fewer at this stage, consisting primarily of clarification of instructions and editorial changes. A third try-out with a group of 23 graduate students enrolled in a course on individualized instruction resulted in no significant changes in the format or content.

The field test on July 23, 1971 consisted of a try-out of the training package with thirty teachers enrolled in a U-T institute on teaching reading to adults. A pre-post test of cognitive skills (Appendix C) was developed to measure the SITT-P effectiveness in increasing the participants' knowledge of the Cloze procedure. The thirty participants were divided into groups of five, and the pre-test was administered to each group. After completion of the pre-test, each participant was given a SITT-P booklet, and shared a cassette recording with the other members of his small group. The post-test was administered immediately after the participants completed the SITT-P. Completion of the SITT-P took approximately 30 minutes, with the entire procedure (including testing and discussion) taking approximately one hour.

The test consisted of 14 true-false items, sampling the content of the training package. The results, summarized in Appendix D, shows a mean gain of 10.2b out of a possible 14.00. (This gain score is significant at the .001 level, using a t-test for differences between dependent means).

A comment sheet was given with the post-test, requiring the participants to react to the format and content of the kit. The major comments are summarized on the sheet attached as Appendix E. Changes made by the project staff are also noted on the comment sheet.

A discovery made by the project staff not identified by any users of the package was the lack of an effective self-evaluation procedure in the SITT-P. The project staff felt that the teacher should be able to determine whether she needs the SITT-P material before using it. Moreover, the teacher who chooses to study the materials should be able to determine the extent of her progress and whether or not she needs additional

study to develop her skills. The prototype SITT-P does not provide for a formal pre- post self-evaluation. However, by examining the early-stated objectives of the SITT-P, the teacher can make a rough determination of her need for the material. By completing the suggested applications at the end of the SITT-P booklet, the teacher should be able to identify her understanding of the cloze procedure, and solicit whatever additional help she needs.

As requested in the SITT-P booklet, each teacher was urged to take the booklet home, study the procedure, try the cloze technique with their ABE class and report the results and further comments to the U-T training program. Completion of this task will represent the end of the field test. To date, no teacher responses have been received, as most of the institute participants have yet to return to their ABE classes.

At the date of this writing, the project staff plans to send a number of SITT-P's to teachers in Tennessee for further field testing.

Such a test should closely parallel the actual use intended for the SITT-P, as teachers will study the package in their own environment and under less restricted time constraints (A fault of the field test at the U-T institute). A second try-out will be attempted in the Fall, with a comparison of gain scores between a group of teachers receiving instruction by the training package and a group of teachers receiving the same content via a lecture and use of transparencies.

Over 100 packages have been mailed to the granting agency, Morehead State University, for further field testing.

## Step 5: Cost-benefits of prototype package.

Only general estimates of costs and benefits of the SITT-P were

made by the project staff. However, an attempt was made to contrast
the cost of future packages in the form of the prototype to other training packages and to alternate forms of training in similar subject areas.
Such estimates were based on interviews with consultants in a position
to estimate production costs of selected materials, plus a tally of
costs attached to other packages reviewed and discussed in this report.

To estimate production costs it was necessary to establish standard content areas, and to allow the format alternatives to vary. Consistent with the recommendations presented later in this report, the following topics in reading may be developed in future training packages:

- 1. Developing a word recognition inventory
- 2. Developing an instructional inventory
- 3. Administering a silent reading inventory
- 4. Procedures for appraising and selecting reading materials
- 5. Techniques for teaching sight vocabulary
- 6. Techniques for teaching structural analysis skills
- 7. Using the language experience approach for new readers

The seven topics above are only representative of the several topics in reading that could be developed into SITT-P's. However, to develop such packages, at least the following costs would need to be considered:

- Salaries or consulting fees to specialists who write the script for each SITT-P
- 2. Costs of design and layout of each package
- 3. Materials costs

- 4. Printing and duplication costs
- Distribution costs

Based on the experience of the project staff in designing the prototype SITT-P, each of the above packages should be developed on a consultant basis, with one person charged with coordinating the development of the entire series. Consultants would be chosen on the basis of their expertise in diagnosis, materials, or certain other reading skill areas. They would be asked to develop one or more packages on a "flatfee" basis, in cooperation with the coordinator of the project. The consultant's responsibility would be to provide content and to suggest format; the coordinator would ensure that the technical features of each package are adequate (including consistency with other packages), and would coordinate field tests and other evaluation procedures.

Based on the findings of the feasibility study and the costs of developing the prototype SITT-P, the following budget should reflect the costs of producing and distributing seven additional SITT-P's. It is assumed that funding would be granted by the U. S. Office of Education or a foundation, and that a university would be the recipient of such funds. It is also assumed that for each SITT-P developed, 100 booklets and 10 tapes would be produced and distributed to 100 teachers, making a total of 700 teachers reached by the seven SITT-P's. Finally, it is assumed that the SITT-P's would be mailed to each teacher, with the teacher returning by mail the cassette tape after each use. The following budget may then be used as a basis of comparison with alternate forms of training and production.

<sup>&</sup>lt;sup>1</sup>The 10 tapes would be rotated among the booklet users (i.e., the booklets would be consummable, and the tapes reusable).

# (Budget)

I.	Personne1	
	Project Coordinator, 1/3 time @\$15,000/yr.	\$ 5,000
	Secretary, 1/3 time @\$4,800/yr.	1,600
	Content Consultants (5) @ avg. rate of \$500 per package, or \$700/consultant	3,500
	Graphic Art Consultants, 14 days @\$100	1,400
II.	Supplies, Materials, Printing	
	Tapes and booklets, 10 tapes @\$1.55, 100 booklets @\$ .55 for each of 7 packages	493
	Office Supplies	200
III.	Communications	
	Long distance phone calls	300
	Distribution costs of SITT-P to teachers and return to original source (postage) @\$ .90 per booklet and tape, 700 mailings	630
IV.	Travel	
	Project Coordinator	300
	Total Direct Costs	\$13,423
٧.	Indirect Costs	
	@ \$ .08 of Direct Costs	1,074
	Total	\$14,497

If the above budget is indicative of the cost of a project designed to produce seven SITT-P's, each package would cost approximately \$2,000 to develop. This rate could easily be lower, if one or two persons developed all the packages, and consultant costs were reduced accordingly.

It is apparent that the bulk of the above costs are in personnel expenses. This means that after the original outlay for development is made, the costs for subsequent packages are considerably reduced. Item II of the budget shows that additional booklets can be reproduced for an average of \$ .55 each, a figure which could be reduced on bulk orders. Sixty-minute cassette tapes may cost an average of \$1.55 each. If the number of booklets and tapes were limited to the number listed in the budget (100 booklets and 10 tapes), the cost per teacher use of each package (including distribution) would be approximately \$20.00. However, for each set of 100 booklets and 10 cassette tapes reproduced at the above prices, 100 additional sets could be produced at a cost of \$.60 each. With a distribution cost of \$.90 per teacher, the cost per additional teacher reached would be reduced to \$1.50. Therefore, it can be seen that for each additional copy of a package developed and distributed to a teacher, the total costs would increase but at a decreasing rate per teacher. To illustrate, consider a package being developed at the above-stated average cost of \$2,000 (based on 100 booklets and 10 tapes), with distribution and use of the package being made to 1000 teachers. The additional costs of 900 booklets and 90 tapes would amount to \$635.00 making a total cost of development and reproduction of \$2,635. With \$810 added for distribution, the average cost per teacher would be 3445 - 1000 = \$3.45 (compared to the original limited distribution cost of \$20.00). For 2000 teachers,

the cost per teacher would be reduced to  $$5,048 \div 2000 = $2.52$ . (If no costs were involved in distributing the kits, the cost would be approximately \$1.60 per teacher).

Comparison of SITT-P and ABE Workshops The following assumptions were made when comparing the costs of SITT-P's and short-term workshops:

- 1. The content of the SITT-P and the Workshop experience would be identical.
- One three-hour workshop could probably treat the content of two SITT-P's.\*
- A consultant would be hired to present the two techniques in a workshop.
- 4. The workshop would reach 100 teachers,\* and each teacher would be paid \$5 per hour for attending the workshop.
- 5. University personnel time and ABE state and local staff involvement in working with the SITT-P's would be roughly equivalent to time spent in preparing and conducting workshops.
- 6. Use of facilities in workshops cannot be estimated, due to the variety of facilities used (However, this is recognized as a "hidden" expense of workshops).

The following is a rough estimate of the costs involved in a single three-hour workshop under the above conditions:

<sup>\*</sup>These assumptions are considered liberal, in favor of the amount of content taught and number of teachers effectively reached in a workshop.

Consultant (Fee and Travel)	175.00
Teacher Stipends 3 hours @\$5, 100 teachers	1,500.00
Supplies, Materials, Printing	40.00
Communication Costs	10.00
Total =	\$1,725.00

Based on the above expenses, the total cost per teacher would be approximately \$17.25. This is compared to a cost of two SITT packages for 100 teachers of \$40.00 for the initial development and distribution costs. However, when the workshop expenses are compared with costs of SITT-P's when a large number of the latter are distributed, the cost comparison picture changes drastically.

To illustrate, if 1000 teachers are reached by two SITT-P's the cost per teacher would be just under \$7.00 (compare with workshop cost of \$17.00 per teacher), or a total cost of \$7,000. If 2000 booklets were distributed, the cost would be approximately \$5.00, with a total cost of \$10,000. If 1000 teachers were reached by 10 workshops, the total costs would be approximately \$17,000 (\$17.00 per teacher) and if 2000 teachers were reached by 20 workshops, the cost would be over \$34,000.

If teachers were paid (at workshop rates) to complete the SITT-P, the cost per teacher would be about even when 4000 SITT-P's were produced and distributed to teachers. Therefore, the comparative cost of a workshop and the SITT-P depends on the number of teachers reached in each case and whether or not teachers are paid for their time in learning the content.

Comparison of SITT-P with Graduate Education. It was most difficult to attach a cost to graduate education, and to make a valid comparison with self-instruction. However, statistics gathered at the University of Tennessee indicate that instructional costs will average approximately \$10.00 per contact hour in the classroom. If a SITT-P topic and comparable classroom instruction takes 1½ hours to cover, graduate education may be estimated to exceed the cost of a SITT-P by at least 4 to 1 (Based on graduate instructional costs of \$15, and a SITT-P cost of \$3.45 per teacher for 1000 teachers).

Comparison of SITT-P to other Training Packages. The following is a list of prices of commercial and non-commercial training programs described earlier described in this report. (The price of several programs were not available)

#### 1. General Programmed Teaching

One Set: filmstrip, workbook, cassette

tape, manual

\$ 55.00

25.00

Complete Program: 15 audio tapes, 12

filmstrips, 10 workbooks, 1 manual, 1

script book 650.00

#### 2. Colonial Films, Inc.

One Set: Phono record, filmstrip, phamplet

3. Florida State Department of Education

Individualized in-service packages, some including video tapes

3.00 per booklet (plus video tape rental, cost not available)

4. Nebraska Video In-Service Project (Booklets)

2.00 per booklet

5. Far West Laboratory Project, (MacMillan Minicourses) 11 reels of film, instructor's handbook, student materials. Total cost = 1,425.00 Rental (6wks)= 175.00

6. Texas Guidance Kit

Two sets of materials, including transparencies, script books, cassettes

500.001

7. Ealing Corporation

12 (½ hour) sound films, training guide 6 workshops, per workshop cost = Rental per workshop =

500.00 35.00

Benefits of SITT-P's were compared to other forms of teacher training. The following conclusions are based on try-outs of the prototype SITT-P, observations of current pre-service and in-service training programs, and a review of the limited research on the latter.

<sup>&</sup>lt;sup>1</sup>Estimated. This price means that each of the 10 major topics covered by the kit costs approximately \$50.00. Each topic would be equivalent to one SITT-P.

It was concluded that SITT-P's have the following features relative to other training experiences:

- 1. The SITT-P allows for greater individualization of instruction than does a workshop or college course attended by more than a dozen teachers. The format allows the teacher to choose her subject and to study it at her own time and in her own environment. Moreover, teachers are usually more active participants in the learning process.
- 2. The SITT-P is usually more specific in its directions and content than that normally presented in a workshop or course, given the same time periods. This benefit may be the result of the necessity that the writer of the SITT-P be specific in order to package his message in a highly consummable form.
- 3. The SITT-P can be used to extend the effect of workshops and course work. To illustrate, if the subject of diagnosis and placement is discussed in a workshop or graduate course, the SITT-P can be used as an example of one procedure to use, and as a tool for practical application.
- 4. Distribution of the SITT-P's to teachers reduces commuting problems and may relieve some of the frustration of training programs not being readily accessible to the teacher.
- 5. The SITT-P can be used as a component in a workshop or course. A portion of the time could easily be set aside for individual or group work on the subject. By adding transparencies, group work should be enhanced.

- 6. The SITT-P is capable of effecting change in knowledge and understanding of the topic covered (RE: Results of pre-post test administered at U-T institute).
- 7. The SITT-P may serve as a model for self-instructional methods which the teacher can use with her own students.
- 8. Workshops and course work have the advantage of providing on-the-spot feedback to the participant's inquiries, whereas the SITT-P provides delayed feedback. In the SITT-P, initiative must be taken by the teacher-user if uncertain points are to be clarified.
- Workshops and courses have the advantage of providing for interaction among teachers, a benefit desired by most teachers undergoing training.
- 10. A larger body of information can be presented in workshops and courses. When general information is needed, this feature is seen as an advantage over the SITT-P.
- 11. Sequence of topics and their relationships may not be as clearly presented by separate SITT-P's than is possible in workshops and courses.

# Step 6: Report of Findings and Recommendations.

Specific project findings have been reported in the preceeding pages. The following are conclusions and recommendations based on the results.

It may be concluded that the development of self-instructional teacher training packages (SITT-P's) offers considerable promise to pre-service and in-service education for ABE teachers. The prototype

SITT-P developed in the present feasibility study demonstrated its usefulness in at least one subject area, and resulted in a relatively economical approach to teacher training. SITT-P's seem to have the most promise in supplementing conventional workshops and college course work, and in filling the gap left by lack of continuous teacher contact with training institutions. SITT-P's do several things that conventional training programs fail to do, but should not be considered as replacements for such programs. Therefore, the addition of SITT-P's to the several alternative training approaches should add strength to the total training opportunities available to adult basic education teachers.

The following recommendations are offered to help direct future work in this area:

- 1. Additional funding should be alloted to the development of SITT-P's for adult basic education teachers. Such funding may come from the U. S. Office of Education, private foundations, or commercial publishers. The first two sources are preferred over commercial publishers, in the interest of keeping costs to the field as low as possible.
- 2. Development should begin in the area of reading, since the feasibility study has laid the foundation for future work in this important subject area. Such development may easily focus on the topics listed on page 19 of this report.
- 3. A funded project should follow the example presented on pages 20-21, which outlines the use of consultants and an over-all project coordinator. Such a project should

- have a strong evaluation component, so that future SITT-P's placed in the hands of teachers may be soundly based in appropriate content and format.
- 4. The present SITT-P format should initially be followed in future development of SITT-P's with two possible additions: (A) colorful illustrations to make the package more appealing to the user; and (B) a provision for teacher assessment of her own needs at the beginning and end of the package. Future packages should at least meet the criteria set forth on pages 9 and 10 of this report.

- 1. Current Programs and Materials -
  - 1. The Florida State Department of Education:

Individualized In-service Teacher Education: A Performance

Based Module. Tallahassee, Florida State Department of Education,

1971.

Teacher Training Module - Informal Reading Diagnosis

- 2. The Nebraska Video in-service Project A Title III. E.S.E.A.
  Project Educational Service Unit #6 -
  - P. O. Box 10 Milford, Nebraska 68405

Individualized Packaged Materials -

- 1. Planning for Change
- 2. Writing Behavioral Objectives
- 3. Student Contracting
- 4. Set Induction
- 5. Contracting In-service Programs
- 6. <u>Planning Learning Experiences Using</u>
  Systematic Procedures
- 7. Guide to Unipac Instruction
- 8. Action Research
- 9. Personalizing Objectives
- 10. Operationalizing Objectives
- 11. Classifying and Writing Behavioral Objectives
- 12. Appropriate Practice

 Teacher Education Program of the Far West Laboratory. 1 Garden Circle, Hotel Claremount, Berkely, Californis 94705.

Minicourses currently being developed and marketed by

MacMillen, Inc.

		Testing Dates*
Minicourse 1	Effective Questioning - Elementary	Commercially produced
Minicourse 2	Thought and Language: Skills for Teaching the Child with Minimal Language Development	Awaiting commer- cial production
Minicourse 3	Effective Questioning - Secondary	Awaiting commer- cial production
Minicourse 4	Interaction Analysis  Course goal: To train teachers to categorize their classroom behavior in the Flanders' system	OFT October 1971
Minicourse 5	Individualizing instruction in Mathematics	Commercially produced
Minicourse 8	Organizing the Primary Classroom for Inde- pendent Learning and Small Group Instruction	Awaiting commer- cial production
Minicourse 9	Thought Questions in the Intermediate Grades (4-8)  Course goals: To increase teacher effectiveness in asking questions which require the use of complex thinking skills.	OFT January 1971
Minicourse 1	Role Playing for Upper Elementary Grades  Course goal: To train teachers in the use of role-playing skills for wide range application in the classroom	MFT April 1971
Minicourse	Teaching Skills that Develop Independent Learning in the Secondary Classroom Course goal: To develop teacher skills that facilitate learner independence in a wide range of subject areas:	PFT November 1971

<sup>\*</sup> PFT = Preliminary Field Test: MFT = Main Field Test: OFT = Operational Field Test

Testing Dates

Minicourse 13	Expository Teaching (Lecturing) <u>Course goal</u> : To increase secondary teacher effectiveness in explaining and conveying information through the use of oral exposition.	OFT October 1971
Minicourse 14	A Discussion Approach to Controversial Issues <u>Course goal</u> : To develop teacher and pupil skills in discussion and critical appraisal of controversial social issues.	MFT March 1971
Minicourse 15	Teaching Skills that Develop Independent Learning in the Upper Elementary Years Course goal: To develop teacher skills that facilitate learner independence in a wide range of subject areas.	OFT October 1970
*Minicourse 16	Tutoring in Reading (Sample of Content & Activities reviewed) Course goal: To develop skills of volunteer tutors, paraprofessional aides, student teachers, and parents in a basic strategy and specific techniques to increase their effectiveness in tutoring in reading.	FFT October 1971
Minicourse 18	Teaching Reading as Decoding <u>Course goal</u> : To develop teacher skills in the use of instructional procedures that build student decoding skills.	MFT March 1971
Minicourse 20	Divergent Thinking  Course goal: To hlep the teacher to establish a classroom environment and to use teaching techniques that encourage divergent thinking.	MFT March 1971
Minicourse 21	Problem Solving <u>Course goal</u> : To help teachers in the intermediate grades to set up problem solving situations, and assist students in developing problem solving tactics.	PFT December 1971
Minicourse 22	Teaching Reading Comprehension <u>Course goal</u> : To develop teacher skill in the use of instructional procedures that improve student reading comprehension.	

# Appendix B. Script for SITT-P

# SELF INSTRUCTIONAL TEACHER TRAINING PACKAGE (SITT-P)

Series in Reading:

Using the Cloze Procedure

AUDIO-TAPE SCRIPT

Training Program in Adult Education University of Tennessee Knoxville, Tennessee

Developed by

Linda G. Roberts Russell L. French John M. Peters During the next few minutes, you will be introduced to a procedure that will help you with the selection of reading materials for students in your Adult Basic Education program.

In most adult programs, students' reading abilities vary.

It is possible in a single class to have a range varying from non-readers all the way up to high school or college proficiency levels. Many students will be reading at various levels within this range.

How then, does the teacher determine the student's reading level and select appropriate reading materials?

In many instances, standardized reading test scores, usually compiled in terms of grade level, are used as a starting point. So if a student tests at the third grade level, the teacher tries to identify material that is written at the third grade level, to use for instructional purposes. All too often, information concerning the reading level of material being considered is not given by the publisher. Even when material is designated as third grade level, it may not match or fit the abilities of a particular student.

In the day-to-day program, what can the teacher do to determine if reading material is right for the student?

What do we mean by right or appropriate? As the student reads any material, be it a textbook, a novel, a newspaper, a chart, or a filmstrip, it is possible to determine if this material will fit the student's <u>frustration</u>, <u>instructional</u>, or <u>independent</u> reading levels.

How do we differentiate among these levels? Turn to Figure 1 in the input section of your booklet at this time.

The three reading levels presented are based on the student's performance - that is, how well he understands a given sample of reading material and how accurately he reads this material orally.

Figure 1 outlines the three levels in terms of reading comprehension - that is, the extent to which the student understands - in a variety of ways - the material.

Independent reading level is the point at which the student has little or no difficulty. Generally he is able to comprehend at 90% accuracy at this level.

A student working at the instructional level, would have some difficulty with the material - but would benefit from specific instruction. Comprehension at this level ranges from 70 - 90% accuracy. Either the teacher, or the material itself should instruct the student, so that he can comprehend with increasing accuracy and hopefully reach the independent level.

Figure 1 - Three levels of Reading

Independent Level Comprehension is 90 per cent or higher.
-little or no difficulty
 with the material.

Instructional Level Comprehension is 70-90
percent. The material
is challenging but not
too difficult.

Frustration Level Comprehension is 68%
or below.
-a great deal of
difficulty with the
material, unable to
anticipate meaning
or grasp main idea.

A student working at frustration level, experiences great difficulty with the material. His comprehension of the material is below minimum level. Even with help or instruction, the student makes little or no progress when working at this level. If possible frustration level is to be avoided when selecting material.

Now back to our question: how can the teacher determine if the reading material is appropriate to the student when she is selecting materials for instruction or independent work?

There are several ways to determine the appropriateness of the material to the student. One way, is to ask the student how much difficulty he is having. Some students can give a very accurate assessment; others cannot. Some are ashamed or reluctant to admit that they are having difficulty. If students cannot or are reluctant to identify their difficulty, a second way, is to design questions that measure comprehension focusing on factual recall, main idea, inference, sequence, and so on. Designing effective assessment questions is not easy, and takes a considerable amount of time.

A third way of measuring the student's comprehension of the material is to use the <u>cloze procedure</u>. Cloze is spelled CLOZE.

What is cloze procedure? It is basically a process of selecting a passage, deleting words in the passage at

4

regular intervals, and having the reader reconstruct the passage - that is having him make it whole or complete.

The best way to explain cloze is to have you experience a cloze exercise. Turn to Figure 2, in your booklet at this time. Read the passage and fill in the missing words.

Your choices should be based on the meaning of the passage, the specific use of words in the passage, sentence structure, and your background knowledge.

Write your responses in the blanks provided. Complete this exercise now. (15 second pause)

How accurately have you been able to reconstruct this exerpt from the cloze exercise? In order of their occurance, the deleted words are: <a href="mailto:communication">communication</a>, <a href="mailto:period">period</a>, <a href="mailto:for">for</a>, and we.

A full cloze exercise is usually longer than the one you have experienced. But for this short sample, 2 of 4 answers correct would indicate that you had understood the material being read. We will discuss scoring procedures at another point in this tape.

You probably had little difficulty in understanding the passage and therefore you were able to supply the missing words rapidly, but what happens to the reader when the material is not easily understood or is totally incomprehensible? Not unexpectedly, it becomes more difficult for him to reconstruct the passage. Try to complete the brief cloze exercise found in Figure 3 at this time.

### Figure 2

#### Figure 3

The neurophysiological mechanism whereby the type of flexible receptor-effector dynamic relationship could operate is by no means wholly clear, but a number of factors predisposing to variability of reaction are evident.

#### PAUSE 25 SECONDS

How accurately were you able to reconstruct this exerpt?

Were you able to fill in words that seemed to make sense?

Or were you just not able to fill in some of the missing

words. Perhaps your ability to deal with complex

sentence structure helped. But were you able to under
stand the specialized concepts discussed? Background knowledge of biology might have helped also. Now compare your

answers with those I shall provide.

The deleted words were individual, principal, neural and any.

Now compare your reactions to the two exercises: all too often we forget what it is like to be unable to understand material one is asked to read. Even relatively "simple" material can be extremely frustrating for the adult who has little or no reading skill.

How do you prepare a cloze exercise? There are a number of steps, but they are straightforward and relatively uncomplicated. We shall discuss each step and give examples of the process involved: Figure 4 in your booklet outlines these steps.

Step 1 Identify the material which you will use for the cloze exercise. The cloze passages should be taken from material which students are being asked to read - if you want to determine the appropriateness of such material for them.

First must be mentioned the spontaneous impulse discharge of nerve cells, discussed above. This in conjunction with the of neural interaction operating on efferent neural impulses, (efferent interaction), would produce a certain amount of variability in reaction.

Figure 4

Preparing a cloze exercise
Identify the material
Select specific passages
Determine interval of
deletion
Retype the passage
Prepare the answer sheet

Or the material should be something which you plan to use with the students in the immediate future - if you wish to use the cloze procedure as a basis for placement in new reading materials.

Step 2 - select a sample or samples from the reading material. Select samples which are approximately 250 words in length. If the passages are considerably shorter or longer, the scoring procedures will no longer be applicable.

In addition, if there is a wide variety within a book or set of materials in terms of content, or level of complexity or format, you will need to prepare several cloze exercises in order to obtain an accurate measurement of the difficulty of the material for the student. Decide how many passages you will need to use to accurately evaluate the student in the given material.

Step 3 - decide how often to delete words in the sample package. In general, the interval of deletion is every 5th or every 10th word. For "easy" "non-technical" readings, which are written on a first through third grade level - delete every 5th word. For more difficult, more complicated and more technical material delete every 10th word. Look at the two samples in Figure 5. In which sample would you delete every 5th word? In which sample would you delete every 10th word?

PAUSE 15 SECONDS

#### Figure 5

The next morning Stormalong left Nantucket for the mainland. His duffel bag over his shoulder, he walked down the road.

Jack and Billy went to the store. They wanted to buy some trucks.

Jack went up to the man in the store. He asked, "Where are the trucks?"

For Sample A: delete every 10th word.

For Sample B: delete every 5th word.

Step 4 - Retype the passage leaving blank spaces for each deleted word.

Do not delete words in the first or last sentences. Begin counting every 5th or every 10th word after the first sentence. Look at Figure 6: The original passage appears first. Words to be deleted are circled.

This same passage is now given in the form of a cloze exercise on the lower portion of the page. Each of the blanks in the exercises is numbered in sequence for scoring convenience.

Step 5 - Prepare a listing of the deleted words from the cloze exercise. Using this list, you can easily compare students' responses with the correct answers.

Now we are ready to describe the steps in using cloze exercises. The several steps in this second process are outlined in Figure 7 in your booklet.

Utilization and Analysis - Step 1 - Administer the cloze exercise. Give directions for completing the cloze exercise to the student. In general, you should direct the student to read the cloze passage, and supply the missing words. You may also want to point out that it is highly unlikely that he will be able to supply every missing word and that he should not be concerned about this fact.

### Figure 6

Various kinds of domestic animals contribute immeasurably to man's comfort and convenience. Sheep hold a primary place among these animals. Wool, (which) is the warm soft, hairy coverings, of some animals, (may) be obtained from 11amas, alpacas, and goats as well (as) from sheep .....

Various kinds of domestic animals contribute immeasurably to man's comfort and convenience. Sheep hold a primary place among these animals. \_\_\_is the warm soft, hairy covering

be obtained from 11amas, alpacas, and goats, as well\_\_\_\_from sheep....

of some animals.

## Figure 7: Using the cloze exercises

- . Administer the cloze exercise.
- . Score the student's responses.
- . Determine the passage difficulty.
- . Place the student in reading materials.

Utilization and Analysis - <u>Step 2</u> - Score the student's responses. Only exact replacement are counted as correct, when the cloze exercise is used as a testing device. Research with the cloze procedure indicates that the reader's understanding of a given passage, correlates with his ability to supply the missing words. Comparisons have been made using the reader's score on a cloze exercise and his score on a series of multiple-choice questions about the same passage. Several research studies indicate that a score of 44% on the cloze exercise corresponds to a score of 75% on the multiple choice test. Arriving at the correct answer in a cloze exercise is more difficult than completing the multiple choice test.

Utilization and Analysis - <u>Step 3</u> - Determine the passage difficulty - based on the cloze score. It is possible to compare cloze scores with multiple choice scores and organize these scores according to the three levels of reading comprehension. Look at Figure 8 in your booklet.

Scores below 40% indicate frustration level. The range of cloze scores suggesting an instructional reading level is from 40-50%, scores above 50% indicate the independent level.

Utilization and Analysis - Step 4 - Place the student in the appropriate reading material. If the student will be working in material on his own, his cloze score on that passage should fall within the range of scores indicating independent reading level. (50% and above) if the student

Figure 8

Comparing cloze scores with other measures of reading comprehension.

Multiple-		
Cloze	Choice	
Score	Score	
0-39%	0-67%	
40-50%	68-85%	
51-60%	86-100%	
	Cloze Score 0-39% 40-50%	

will be receiving instruction, his cloze score should fall within the range of scores indicating instructional level. (40% to 50%).

If his cloze score falls below the instructional level range, (below 40%) you will need to consider placing the student in different materials.

This presentation has focused on the preparation and use of the cloze procedure in selecting appropriate reading materials for your Adult basic education student. Now you are ready to proceed to the practice phase of this self-instructional kit. Turn off the tape recorder and proceed to that phase at this time.

#### THE CLOZE PROCEDURE

In the blank space at the left of each statement, please indicate whether the Key statement is TRUE or FALSE. The Cloze procedure is an exercise to aid the student in developing the skills of structural analysis. A primary use of the Cloze technique is to determine what levels of reading materials are suitable for a particular student. F 3. The instructional reading level is the point at which the student has little or no difficulty with decoding the words and comprehending the printed material. F 4. The reading teacher should avoid choosing materials at the independent reading level because this is the point at which the student experiences extreme difficulty with reading materials. T 5. Cloze exercises should be constructed from the actual material the student is being asked to read currently or will be asked to read in the near future. If a student is scoring approximately 60% correct responses on a Cloze exercise, easier materials should be selected. For proper construction of a Cloze exercise, begin with the first word and delete every nth word. Reading selections for preparation of Cloze exercises should be approximately 250 words in length. Cloze exercises prepared from one sample per book or set of materials will adequately determine the appropriateness of these materials. T 10. The number of words deleted in a Cloze exercise should be determined by the complexity of the materials. When the Cloze exercise is used as a testing device, only exact word T 11. replacements are counted as correct. T 12. The steps involved in the preparation of a Cloze exercise are: Identify the material, select specific passages, determine interval of deletion, retype the passage, prepare the answer sheet. The steps involved in using the Cloze exercise are: Administer the Cloze T 13. exercise, score the student's responses, determine the passage difficulty,

If a student scores 45% on a Cloze exercise, this indicates a level at

and place the student in reading materials.

which he could benefit from specific instruction.

T 14.

Appendix D. Results of Pre-Post Test of Cognitive Skills - The Cloze Procedure

Teacher	PRE-TEST	POST-TEST	DIFFERENCE
1	0	12	12
	6	12	6
3	0	12	12
2 3 4	0	14	14
5	0	14	14
5	0	14	14
7	3	12	9
8	0	13	13
9	0	10	10
10	0	10	10
11	Ö	12	12
12	0	13	13
13	0	9	9
14	0	12	12
15	0	10	10
16	10	12	2
17	8	14	6
18	0	10	10
19	8	12	4
20	10	12	2
21	1	11	10
22	5	14	9
23	0	13	13
24	0	12	12
25	3	12	9
26	1	12	11
27	0	14	14
28	1	12	11
29	0	12	12
30	0	13	13
	$\overline{X} = 1.87$	$\bar{x} = 12.13$	$\overline{X} = 10.2b$

Questions on the SITT-P

Yes 29 No 1
Comments:
Need to know when to start tape
Were the written illustrations clear?
Yes 29 No 1
Comments:
Switching back and forth among booklet pages can be confusing
Do you think you can use the CLOZE Procedure after experiencing the SITT-P?
Yes 28 No 2
Comments:
Need to try out to know
Please list below any suggestions you have for improving the SITT-P:
A. Let teacher know when to begin tape *
B. Make clear the percentage requirements for placement at different levels
C. Give teacher opportunity to try out on students
Take the SITT-P home with you and try the exercises suggested on Page 25. Send us your results on the form provided on page 28.
Thank you
John M. Peters

This problem was made clear to the teacher on the second reading on page 6 on the

SITT-P booklet

\*\*\*This request is carried out in item 5. Most teachers receiving the SITT-P will be able to use it in their class, whereas institute participants were separated from their classes.

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