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**An instructional design for adult literacy tutor training using
computer-assisted interactive media**

Parish, Mary Jo, Ed.D.

Illinois State University, 1992

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300 N. Zeeb Rd.
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AN INSTRUCTIONAL DESIGN FOR ADULT LITERACY
TUTOR TRAINING USING COMPUTER
ASSISTED INTERACTIVE MEDIA

MARY JO PARISH

A Dissertation Submitted in Partial
Fulfillment of the Requirements
for the Degree of

DOCTOR OF EDUCATION

Department of Curriculum and Instruction

ILLINOIS STATE UNIVERSITY

1992

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Mary Jo Parish

297 Pages

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This study involved three principal tasks. An instructional problem in adult literacy tutor training programs was analyzed. An instructional design intended to resolve the instructional problem through computer assisted interactive media [CAIM] technology was developed. A comprehensive and systematic CAIM training program was created and field tested.

The analysis process established that adult literacy tutors may not perform in ways they should because they may not have received comprehensive and systematic training. Further, the analysis established that conventional tutor training instructional designs and practices may not meet the needs of the volunteer tutor population in the areas of content, learning preference, and personal convenience. The potential for comprehensive and systematic training, using computer assisted interactive media as the instructional delivery system, was investigated.

Using a generic conception of instructional design

and the Rhodes' (1992, Biehler & Rhodes, 1992) instructional design methodology, a process appropriate to the development of CAIM training for adult literacy tutors was completed. This process involved the examination of the instructional problem and problematic elements related to design context, content, setting, and clientele. Alternative resolutions to the problematic elements were examined and optimum resolutions chosen. These resolutions established CAIM as the most appropriate instructional delivery system for comprehensive and systematic tutor training. Development of a prototype CAIM training program followed the design process.

Five experts in the field of adult basic education and/or reading instruction field tested the prototype program. These subjects reacted positively to the training program, indicated specific areas for revision, and indicated that CAIM was a viable instructional delivery system for tutor training. Suggested revisions were examined. Those deemed appropriate were subsequently made to the prototype training program. Future research and development, through expanded field testing and subsequent revision, was recommended.

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encouragement, and tolerance; and, my mother, Amelia Scirati's encouragement and domestic assistance, all helped me to finish this dissertation in fifteen "short" months.

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CHAPTER I

ADULT ILLITERACY AND ADULT LITERACY TUTOR TRAINING

Adult illiteracy in the United States of America is a multi-faceted condition with economic, political, social, psychological, and educational ramifications. In recent years key political figures and the media have called the country's attention to adult illiteracy. For example, on September 7, 1983, Ronald Reagan said,

In this decade, America faces serious challenges on many fronts: to our national security, our economic prosperity, and our ability to compete in the international marketplace. If we're to renew our economy, protect our freedom, we must sharpen the skills of every American mind and enlarge the potential of every individual American life.

Unfortunately, the hidden problem of adult illiteracy holds back too many of our citizens, and as a nation, we too, pay a price.

More recently, Barbara Bush has written, "If America is going to stay strong and remain competitive in a world that daily becomes even more complex - both politically

and technologically - we need to be a nation of readers" (Bush, 1989, p. 12).

Kitz (1988) reports on four events that have contributed to more widespread recognition of adult illiteracy:

1. Formation of the Coalition for Literacy, an 11-member organization that is working with the American Association of Advertising Agencies to implement a nationwide media campaign.
2. Announcement by President Reagan, in September of 1983, of the Adult Literacy Initiative which is being carried out by the U.S. Department of Education.
3. Formation of the Business Council for Effective Literacy, which is dedicated to helping generate greater corporate awareness of the functional illiteracy problem and encourage corporate support of programs and planning in the field.
4. Support of local adult literacy programs by B. Dalton Booksellers through funds made available from the Dayton Hudson Company (Imel, 1986, cited in Kitz, 1988, p.44).

Statistical reports on the scope of adult illiteracy are numerous, varied, and, at times, conflicting. In 1971,

the National Reading Center commissioned a study to measure the ability of U.S. adults to read and answer questions about classified newspaper advertisements, a telephone directory, and a "composite standard" application form. The study concluded that 15 percent of adults had serious reading deficiencies (Harris et al., 1971).

In 1974, the Adult Performance Level [APL] study was released by the U.S. Office of Education (Northcutt, 1974). This study estimated that 23 million adults ages 18 and over did not have the literacy skills to complete everyday tasks such as reading job notices, completing job application forms, reading road signs, etc.. This same study estimated that 39 million U.S. adults were "marginally competent."

The U.S. Bureau of the Census reported that data from the 1980 Census revealed 0.9 million Americans aged 14 and over to be illiterate. The data gathering technique of self-report on grade level completion was used to arrive at this figure (Irwin, 1986). Later in 1982, the U.S. Bureau of the Census conducted a survey called the English Language Proficiency Study. This survey reported that between 17 and 21 million U.S. adults were illiterate (Costa, 1988).

However, the 1985 National Assessment of Educational Progress [NAEP] could be interpreted differently. This study assessed the literacy skills of young adults in the

U.S. by attempting to determine their ability to "process" printed and written information such as tables, graphs, maps, and text. The study indicated 80 percent of the sample population (n = 3,600, aged 21-25) could read as well or better than the average eighth grader, and that 60 percent could read at or above the eleventh grade level (Kirsch and Jungleblut, 1986).

The figures reported above, though imprecise due to the difficulty of data collection and the numerous definitions of "literacy" used in the studies, reveal that in a nation where education is free and available to all, many adult still cannot read. Adults who cannot read do not and cannot perform in ways they should as individuals, members of families, members of groups or organizations, employees, and/or members of our society. The personal performance problem for an illiterate individual has become a serious performance problem for the country.

Educational Problem

Numerous adult literacy education programs have been established to help resolve the problem of adult illiteracy. Nationally significant organizations involved in providing direct services to illiterate adults are:

ACTION/VISTA [Volunteers in Service to America]
Literacy Corps

Adult Literacy Initiative/FELT [Federal Employees
Literacy Training]

Assault on Illiteracy Program

Gannett Foundation/Literacy Challenge

Give the Gift of Literacy/American Booksellers
Association, Inc.

Laubach Literacy Action

Literacy Volunteers of America, Inc.

Project Literacy U.S. [PLUS]

Project SAVE [State Adult Volunteers in Education]

Reading Is Fundamental, Inc. [RIF]

Women of the Evangelical Lutheran Church of America
[WELCA]

World Education, Inc. [WEI]

All of these programs except RIF, PLUS, and Give the Gift of Literacy use volunteer tutors to provide the literacy instruction (Costa, 1988). In the state of Illinois alone, Rake (1990) reported "A network of 250 adult literacy volunteer programs" (p. i). The practice of using volunteer tutors almost exclusively is the norm for literacy education.

However, demographic research has shown that while volunteer tutors come from all walks of life (Bowren, Dwyer, Klass, and Liu, 1990), they share only two commonalities: the ability to read and the willingness to volunteer their time. Though necessary, these two characteristics are insufficient preconditions for

undertaking literacy instruction. Therefore, even conventional wisdom suggests that volunteer tutors must be trained before they can be assigned the task of teaching someone else to read.

Bowren et al. (1990) undertook a comprehensive research project that examined adult literacy education in the state of Illinois during fiscal year 1988 (July 1, 1987 - June 30, 1988). In this report they wrote:

How the volunteer tutors are trained is critical to an educational program. The television tutor recruitment slogan, "The only degree you need is a degree of caring," can certainly be subject to scrutiny.

Those who have varied levels of expertise in the learning strategies for children need orientation to the differing needs of adults. Tutors who have a professional education background would probably not require the intensity of training as would those from backgrounds such as business, engineering, the trades, etc.. However, all tutors need orientation and continuous training of some kind (p. 27).

The representative sample for the Illinois study included 4,025 tutors. Data on tutor training was

available for only 19% of the volunteers.

Of those for whom the data were available, 47% (n=364) had one training session. Two sessions were offered to 19% (n=147) of the tutors; 11% (n=85) had three sessions; 9% (n=71) had four sessions; 10% (n=78) had five sessions; 2% (n=18) of the tutors had six sessions; and an additional 1% (n=7) participated in between 7 and 10 training sessions (p. 27).

A final telling comment from the Bowren et al. (1990) report states "Even though the need is recognized, there has been little agreement regarding the kind and the amount of training required" (p. 27).

The Illinois Literacy Council has published a set of guidelines for training volunteer tutors of adult literacy. These guidelines serve as eligibility criteria for grant funding from the Illinois State Board of Education for adult literacy projects (Appendix B). The following statement introduces the guidelines:

The ultimate success of the Illinois Literacy Volunteer effort rests with the effectiveness of volunteer training. Training must be of high quality, systematic and ongoing. . .

The Methods and Training Subcommittee recommends initial volunteer training be a MINIMUM OF TWELVE (12) HOURS in length.

Continuing professional development opportunities for volunteer tutors should OCCUR MONTHLY and be at least THREE (3) hours in length [emphasis in original] (p. 1).

The guidelines go on to state that the Methods and Training Subcommittee recommends eight topics to be essential for volunteer training; (1) an introduction that gives an overview of the national, state, and local problem of illiteracy, and the local program addressing the problem, (2) the rights and responsibilities of the adult literacy volunteer tutor, (3) an overview of adult learning theory, (4) the language acquisition process and the reading process for adults, (5) formal and informal diagnostic assessment techniques, (6) instructional techniques for various levels of illiteracy, (7) an overview of commercially available or tutor-made materials, resources, and support services, and (8) how to set goals and organize lessons. However, the committee does not publish the research base from which these criteria were derived, nor does it categorize the required information as suitable for preservice or inservice tutors.

An examination of the literature on adult literacy programs does provide some information on how various literacy programs have conducted the training of volunteer tutors. Though the amount of time spent in training

workshops varied from 12 hours (Sizemore, 1984; and Darling, Puckett, and Paull, 1983) to 10 hours (Lane, 1984) or eight hours (Edwards and Bell, 1985), certain content elements were typically covered. Following is a list of topics found in the descriptive literature. These topics fall into six categories:

1.0) Introductory Information

- 1.1) Introduction to teaching materials used in program (Sizemore, 1984; Darling et al., 1983; Edwards and Bell, 1985; and James, 1982)
- 1.2) Overview of the local organization for literacy education (Sizemore, 1984; and Darling et al., 1983)
- 1.3) Responsibilities of new tutors (Sizemore, 1984; and Darling et al., 1983)
- 1.4) Overview of the local problem of illiteracy (Sizemore, 1984)

2.0) Clientele

- 2.1) Needs of adult learners (Darling et al., 1983; and James, 1982)
- 2.2) Testing and placement (Darling et al., 1983)
- 2.3) Student motivation (Darling et al., 1983)

3.0) Content

- 3.1) Manuscript Writing (Sizemore, 1984; and Edwards and Bell, 1985)

3.2) Phonics (Sizemore, 1984; and Edwards and Bell, 1985)

3.3) History of written language (Edwards and Bell, 1985)

4.0) Technique

4.1) Instructional techniques (Darling et al., 1983; and Edwards and Bell, 1985)

4.2) Writing Assignments (Sizemore, 1984)

4.3) Pacing a lesson (Darling et al., 1983)

4.4) The lesson plan (Edwards and Bell, 1985)

4.5) Talks given by experienced tutors ("sharing")
(Darling et al., 1983; and James, 1982)

5.0) Interpersonal Skills

5.1) Establishing rapport with students (Darling et al., 1983)

5.2) Nonverbal communication (Darling et al., 1983)

5.3) Enhancing student self-concept (Darling et al., 1983)

5.4) Talks given by experienced tutors ("sharing")
(Darling et al., 1983; and James, 1982)

6.0) Program Management

6.1) Instruction in program record keeping
(Sizemore, 1984; Darling et al., 1983; Edwards and Bell, 1985; and James, 1982)

6.2) Cooperation and referral with/to other agencies
(James, 1982)

Clearly different groups believe many topics are important in tutor training, but it is not clear how or on what basis they came to their conclusions.

In summary, a sizable segment of the population of the United States of America is functionally illiterate. Such widespread illiteracy causes many social and economic problems for our country and its citizens. Many organizations offer literacy education. Volunteer tutors provide the direct instruction to those who seek literacy education. Therefore, the training of volunteer tutors is necessary; however, there is no concensus on the content or extent of the training needed.

Instructional Problem

The manner in which the adult literacy problem has been addressed in this country has given rise to a significant instructional problem related to volunteer tutor training. Ilsley (1985) points out "major gaps" in the literature on the subject of adult illiteracy instruction and use of volunteer tutors:

1. "There is no detectable cchesiveness or direction to the research base" (on adult literacy instruction or use of volunteer tutoring).
2. "Most [of the] literature is descriptive and

program or case specific" (rather than prescriptive).

3. "Recent advances in the field have not been subjected to analysis."

4. "There is no evidence that the literature builds on itself. . . . Many of the concerns expressed in the 1960's are reiterated today with first-time exuberance."

5. "The literature reflects little change in types of volunteer programs over the past 25 years."

6. "The literature reflects differences of opinion regarding program philosophical bases and managerial schemes and the professionalization of volunteers" (p. vii).

What the literature does reveal is the list of topics noted above and the following instructional activities that are part of various adult literacy tutor training workshops; (1) A demonstration lesson with small group practice Sizemore, 1984; and Darling et al., 1983), (2) a tour of the facility (Darling et al., 1983), and (3) a meeting between tutor and student (Darling et al., 1983).

None of the programs reported the use of instructional media during tutor training workshops. Although Literacy Volunteers of America has a comprehensive video tape tutor

training program, reports of its use did not appear in the descriptive literature. Instead, literacy programs typically conduct tutor training in a classroom-like environment using the lecture-demonstration format. However, Bowren et al. (1990) have reported volunteer tutors typically have greatly varying levels of literacy education information and skills. Additionally, volunteers have limited available time for training. Therefore, the lecture-demonstration format may not be suitable for training a volunteer clientele.

Problem for Study

A flexible delivery system is required if tutor training is to meet the individual needs of tutors and adequately prepare each tutor for the demands of adult literacy instruction. A possible alternative to conventional tutor training is training based upon recent advancements in instructional technology. At present, there is no systematic instructional design for training volunteer tutors of adult literacy which incorporates interactive media. Therefore, this study addressed the problem of providing individual literacy tutors the information and skills they need through a readily available, individualized, self-paced, time-flexible computer assisted interactive media format.

Positive results for use of instructional media as

instructional delivery systems are well documented in research-based literature. Kemp and Smellie (1989) list some "practical outcomes . . . when carefully designed, high quality instructional media are used either as an integral part of classroom instruction and training or as the principal means of direct instruction" (p. 3). Among the practical outcomes often realized are the following:

1. The content of a topic can be more carefully selected and organized.
2. The delivery of instruction can be more standardized.
3. The length of time required for instruction can be reduced.
4. The instruction can be provided when and where desired or necessary. (pp. 3-4).

At this time, the most highly developed and flexible form of instructional media is computer assisted interactive media [CAIM]. Doss and Rhodes (1989-90) describe CAIM "as a 'problem-centered, information management' instructional system, suitable for individuals or small groups" (p. 326). Additionally, Kemp and Smellie (1989) state that ". . . the dynamic (nature of) learning with interactive media can result in highly effective instruction" (p. 49). Kemp and Smellie (1989) also report the following advantages of computer assisted

interactive media: "1. Involve students actively in learning 2. Apply many principles of learning 3. Are adaptable to needs of learner and to individual pacing 4. Allow conventional media forms to be adapted and incorporated 5. Can be used effectively with sophisticated equipment" (p. 51).

Rhodes and Doss (1989-90) provide this technological description of a CAIM instructional workstation:

. . . a personal microcomputer controls custom and commercial programs on video tape, visual databases on video disc, textual data bases on CD-ROM, video camera to record performances and presentations, printer for hard copy, custom software to control video equipment, productivity software, (word processing, graphics, decision-making, telecommunications) and educational software including both commercial and custom computer assisted instructional and computer based training programs (p. 326).

In summary, conventional training approaches do not resolve all of the performance problems associated with training volunteer adult literacy tutors (i.e., varying levels of information and skills, and limited time). Use of instructional technology in the form of CAIM has shown

research-documented success and may provide some resolutions to the performance problems connected with conventional training. This study examined CAIM as an instructional delivery system for training volunteer adult literacy tutors and incorporated findings into the instructional design of a systematic training program.

Objectives of the Study

There were four objectives of this study:

- 1) Identify the information and skills appropriate to include in a training program for adult literacy tutors.
- 2) Design an instructional delivery system, using computer assisted interactive media, appropriate for preparing tutors in the identified information and skills.
- 3) Produce a prototype computer assisted interactive media program for training tutors in selected content areas.
- 4) Fieldtest the prototype computer assisted interactive media program to identify any needed reformulation of the design.

Research Questions

The objectives for the study were met by answering the following major research questions:

- 1.0) What information should be included in a training

program for adult literacy tutors?

2.0) What skills should be incorporated into a training program for adult literacy tutors?

3.0) What are the significant features of a high quality interactive multimedia instructional delivery system used to train tutors?

4.0) How can an instructional delivery system incorporating multimedia be designed to train a demographically diverse group of tutors?

These questions related to information were raised:

1.1) What is the research-base for decisions to include specific topics in a tutor training program?

1.2) What information, in order of priority, should be included in a tutor training program?

These questions related to skills were raised:

2.1) What is the research-base for decisions to include specific skills in a tutor training program?

2.2) What skills, in order of priority, should be included in a tutor training program?

These questions were raised related to significant features of interactive multimedia instructional delivery systems:

3.1) What is the research-base that identifies the significant features of interactive multimedia

instructional delivery systems?

3.2) What specific features are significant to the design of a computer assisted multimedia training program for tutors?

These questions were raised related to the design of instructional delivery systems:

4.1) What is the research-base for choosing computer assisted interactive media as the instructional delivery system for a tutor training program?

4.2) What are the characteristics of the instructional delivery system using computer assisted interactive media most appropriate for a tutor training program?

4.3) How can the identified characteristics of the instructional delivery system using computer assisted interactive media for tutor training best be incorporated into an instructional design?

Methodology

The research questions listed above were answered by following a three-step process; (1) examination of the relevant professional literature, (2) application of instructional design methodology to the design of a delivery system using computer assisted instructional media, and (3) development, field-testing, and revision of a computer assisted interactive media program to illustrate

the delivery system design.

In the first step, a comprehensive review of the literature was conducted to seek information and research that was applied to the instructional design process. Four categories of literature were reviewed: adult illiteracy in the United States, training of literacy tutors, reading instruction methods for adult education, and computer assisted interactive media as an instructional delivery system.

Relevant literature was obtained from texts; periodicals; and reports on adult education, reading, instructional technology, and instructional design. An ERIC search, as well as use of periodical indexes and annotated bibliographies helped locate the needed materials.

The second step of this study, the application of the instructional design process to the design of a delivery system using CAIM, followed the methodology of Rhodes (1992, Biehler & Rhodes 1992). Rhodes has named his conception of design "generic." He reports that generic design is problem/solution-oriented. Generic design utilizes the principles of design that are employed by other professions, such as engineering and architecture. In such cases the designer identifies, defines, and resolves a series of problems. "When instructional design is viewed in this way, the designer is not limited to any

specific psychological, sociological, methodological, or pedagogical constructs, but is free to use and apply all appropriate constructs suitable to the context within which the instructional problem has been identified" (Tennis, 1991).

Rhodes (1992, Biehler & Rhodes, 1992) reports that the generic design conception as applied to instructional design has five steps: Preparation, Formulation, Execution, Review, and Revision. The methodology requires a thorough examination of such elements as intent, settings, content, devices, instructor performance, and student performance.

Additionally, Rhodes' methodology suggests preparation for the design requires identification of the design context, reasons for undertaking the design, significant features in the design context, significant performance tasks in the design context, performance problems in the design context, types of performance problems, education/training problem to be resolved, the type of education/training problem, the instructional problem to be resolved, and the type of instructional problem to be resolved.

Formulation of the design for this study required the identification of the problematic elements in the instructional problem, definition of the instructional design problem to be resolved, definition of the CAIM substantive design problems, definition of the CAIM

procedural design problems, and identification of various ways to resolve the instructional design problem. Then, when these elements had been identified, alternative resolutions to the instructional design problem were devised and assessed. Finally, the most suitable resolution to the design problem was selected.

The third step in this study was the development of a CAIM program which illustrated the instructional delivery system design formulated in the second phase of the study. This development of an example of a systematic CAIM training program followed the procedure of Byers and Rhodes (1989), Gentry (1990), and Rhodes (1991a and 1991b).

As part of this decision process, selection of media will take place. In this case, selection of the training videotapes for conversion was a simple choice. To date, only Literacy Volunteers of America, Inc. has produced a comprehensive series of training videotapes possessing suitable quality for this design. Careful selection provided the segments of the tapes that enhanced the instruction of the training program design.

Determination of the program sequence, of the sections to make "interactive," and of the text for the computer monitor screens utilized media research findings. Bosco & Wagner's (1988) work on learner preference; Hannafin, Phillips, & Tripp's (1986) findings on factual information, practice exercises, and orienting information; and

Laurillard's work on learner control of sequence were considered. Additionally, Ho, Savenye, & Haas' (1986) findings on final review; and Tennyson, Christensen, & Park's (1984) and Hannafin & Colamaio's (1986) separate findings on the incorporation of advice into the program were useful.

The final technical steps of the design formulation process included framecoding the video tape (i.e., electronically numbering each frame on the video tape) using software from BCD Associates. Then, the program text screens and framecode numbers were entered into the computer (i.e., "authoring" the program) by using standard word processing software and the authoring system "P C Pilot."

This production method created a prototype of a CAIM training program for adult literacy tutors. It was subsequently fieldtested in the Peoria, Illinois area. Five practicing adult educators and/or reading specialists were involved in the fieldtest. The results of the fieldtest facilitated the revision of the computer assisted interactive media training program.

In summary, the total instructional design process provided the insights and information necessary to design and develop a CAIM program for training adult literacy tutors. As part of the design process, the interactive video training program was fieldtested. Revisions, based

upon fieldtest data, were made.

Definitions

literacy: the ability to read and write at a level sufficient to facilitate full participation in society.

volunteer: an individual that donates time and services without the expectation of monetary gain.

tutor: an individual that provides instruction to a single individual or a small group.

systems approach: the utilization of a step-by-step plan or guide to accomplish some task. Such a plan usually has the appearance of a flow chart with both linear and branching features.

reading: a four-step process: perception of the word, comprehension of its meaning, reaction to the meaning in terms of what one knows, and integration of the idea into one's background of experience (Gray, 1960).

instructional design (n.): "an underlying plan for instructional activity" (Gentry, 1990, p. 284).

instructional design (v.): "a means of determining what is to be included in the instructional process" (Gentry, 1990, p. 284)

computer assisted interactive media (CAIM): a means of instruction utilizing a microcomputer,

computer monitor, television monitor and two-channel video cassette recorder and/or laser disc player. Other peripherals (e.g., video camera or CD-ROM) can be added as needed (based on Gentry, 1990, p. 283).

Limitations of the Study

One limitation of the study was the availability of high-quality instructional media for adult literacy tutor training. Actual production of materials was not possible for this study, due to cost and lack of production facilities. Therefore, existing materials were used for the full motion visual portions of the training program. A second limitation of the study was the absence of experts in the field of multimedia instruction for adult literacy tutor training to review and provide input for the design.

Significance of the Study

An instructional design and a CAIM instructional delivery system for adult literacy tutor training was developed during this study in the hope that tutors will be able to consistently and effectively perform in ways that will help to reduce or eradicate the educational performance problem of adult illiteracy. The major significance of this study is that no such multimedia program presently exists. This final design and prototype of systematic tutor training provides any organization attempting to teach reading (of the English language) to

native speakers with a model to consult.

Plan of Dissertation

Chapter 1: Introduction

Chapter 2: Literature Review

Chapter 3: Instructional Design: Preparation

Chapter 4: Instructional Design: Formulation

Chapter 5: Fieldtest and Design Revisions

Chapter 6: Summary, Conclusions, and Recommendations

CHAPTER II
REVIEW OF LITERATURE

The volume of professional literature on reading is enormous. More has probably been written on the topic of reading than any other single area of study in the field of education. The intense interest in and study devoted to reading perhaps stems from the lack of success experienced by elementary educators while teaching reading to children.

When the search process is narrowed to adult reading education, however, the volume of literature greatly diminishes. This may stem from the lack of attention to adult literacy, until recently, and the basic assumption that reading instruction for adults is the same as that for children. The literature on adult literacy education appears to fall into eight generalized categories:

1. The history of literacy and/or education for adult literacy, international and national
2. Approaches and methodologies for reading instruction for adults, either research-based or anecdotal
3. Preferences and generalized characteristics of adult non-readers as learners, research-based or anecdotal
4. Initial development and administration of adult literacy education programs in the United States, or other

developed nations, including the training of literacy tutors.

5. Calls for research on adult literacy learners

6. Initial development and maintenance of adult literacy education in underdeveloped nations

7. Assessment and statistical analysis of literacy/illiteracy in selected populations

8. Literacy/illiteracy in the workplace

This literature review will examine the history of adult literacy education, the approaches and methodologies for teaching reading to adults, the preferences and characteristics of adult non-readers as learners, and the training of literacy tutors. Additionally, research specific to the instructional design of computer assisted interactive media will be examined.

History of Literacy Education

When educational historians write about the history of literacy education and adult literacy education in America, the underlying themes usually have political or sociological tones. Some authors write about the religious influences of Protestant doctrine and find ample evidence that the road to salvation was paved by literacy education (Fingeret, 1989). Others document varying political agendas (e.g., democratization, military preparedness, or resistance to demagoguery) as the driving forces behind

literacy education (Smith, 1934; Caliver, 1951; Ginzberg & Bray, 1953; Resnick & Resnick, 1977; Kaestle, 1991). Some social theorists see controlled opportunity for literacy education as a tool to repress certain disenfranchised groups (Freire, 1970; Goody & Watt, 1968; Hunter & Harman, 1979; Lankshear, 1985). Some see literacy education as an attempt to homogenize such groups (Graff, 1979; Fingeret, 1991). Others view it as a means to "empower" such groups to find their own place in society (Freire, 1970; Fingeret, 1989). Additionally, Levine (1982) noted the association of disease metaphors to the illiteracy problem. In the 1950's, common rhetoric suggested illiteracy be "eradicated" by the "administration" of specific "prescribed" methodologies or "treatments". Most recently, educational historians recognize that literacy education is viewed politically because nationwide literacy is seen as a necessary element for industrial and economic strength and competitiveness.

In summary, the political, social, psychological, and economic ramifications of widespread adult illiteracy have stimulated many theories and prescriptive designs. The body of literature on the history of literacy education can serve as a basis to aid recognition of the extreme complexity of the problem. However, this literature is devoid of information applicable to a systematic adult literacy tutor training program. Such information may be

more easily found in the literature on approaches and methodologies of reading instruction for adults.

Approaches to Reading Instruction for Adults

Bowren and Zintz (1977) have delineated five approaches for reading instruction:

1. The Phonics Approach
2. The Phonemic Approach
3. The Basal Approach
4. The Programmed Instruction Approach
5. The Language Experience Approach

These approaches were originally developed for teaching reading to children, but they are now represented in adult basic education and literacy programs. Additionally, numerous publishers have developed materials for teaching adults that employ the first four approaches.

The first two approaches are closely related. Phonics is a "synthesis approach to decoding (which) involves learning individual sounds of letters first, and then attempting to blend these together into words" (Bowren & Zintz, 1977, p. 97). The Phonemic Approach, linguistic in nature, attempts to be logical in its progression. It has a strong basis in phonics, but takes the process past letters and words and attempts to present word families that can be read like "Can Dan fan Nan?" and "The fat cat sat on a mat." (Bowren & Zintz, 1977, p. 98).

The Basal Approach is essentially a "Dick and Jane" series of primers, books, and workbooks. These sets of instructional materials have very structured and controlled vocabularies. Stories and activities are synthetically composed of pre-taught words recognized from pre-taught phonetic or phonemic skills or as "sight words" that are rotely memorized. Over the years, basal systems have become very sophisticated and often attempt to reflect strategies based upon the latest research done with children. Basal systems are usually sold in sets that included teacher manuals and resource guides. By following the directions in a teacher's manual, almost anyone can present a reasonably coherent lesson.

The Programmed Instructional Approaches, popular in the 1960's (Cranney, 1987), usually consisted of a workbook or "teaching-machine" format. A question was presented and the students were required to respond by writing an answer. Subsequently, students could then compare their response to the correct answer on the next page or under a lid on the teaching machine. These instructional materials were based upon the positive and immediate reinforcement research of behavioral psychologists. When computer-based reading instruction was first introduced, pages from programmed instructional workbooks were turned into computer screens. Many adult basic education programs dust off these materials and still use them for independent practice of

selected reading skills (Cranney, 1987).

The Language Experience Approach involves a holistic view of language usage and reading. During a Language Experience lesson, a learner dictates a story to the instructor and that story becomes the basis of the reading lesson (Jones, 1986). A basic assumption of Language Experience is that comprehension is already a part of the written passage because learners will dictate something interesting, meaningful, and well understood by them. The words in the dictated story are then repeated and practiced until they have become part of the learners' sight vocabularies. Fingeret (1984) has classified this approach as "top-down." It draws its instructional value from the inherent meaning in the reading passage, as opposed to the "bottom-up" Phonic/Phonemic Approaches that begin with bits and pieces of words and written phrases long before any meaning is prescribed to a written passage.

Following will be a critical examination of the application of the five approaches to an adult population. The reaction of adults to Phonics is not always favorable. More than likely, it was the approach that caused their initial failures at learning to read (Rogers, 1984). Adults seek meaning and relevancy (Darkenwald, 1975; Boyet & Dausat, 1980; Fischer, 1980; Padak & Padak, 1987; Lewis, 1988; Scales & Burley, 1988; Marter, 1989; Meyer, Estes, Harris & Daniels, 1991), and they quickly become impatient

with the "laborious synthesis approach to decoding (sounds and words)" (Bowren & Zintz, 1977, p. 97).

Olsen (1965) points out that adults have already "internalized the word order of our language. . . (so) a letter or word approach makes adults feel like children and . . . antagonizes them" (p. 458). Also, Bowren & Zintz (1977) point out three considerations: English is not a consistent phonetically-encoded language (e.g., said, paid); stringing isolated sounds together does not always lead to the pronunciation of a word (e.g., c-o-u-g-h/ cough); and, just calling out words in a row does not always provide the learner with meaning to aid comprehension (e.g., Dan can fan a pan.). Further illustration of inconsistent phonetic encoding is seen in Smith's (1971) example noting the sounds of h and o in the words hot, hoot, hook, hour, honest, house, hope, honey, and hoist.

Because the Phonemic Approach is closely tied to the Phonics Approach, the same criticisms apply.

These systems still fail to put meaning at the center of the reading process. . . There are serious limitations in such approaches, since they tend to deemphasize comprehension and provide the reader with nonsensical stories. . . Adults will soon tire of this kind of material, even though the construction is logical and

regular" (Bowren & Zintz, 1977, p. 98).

However, research done by Keefe & Meyer (1980) and Malicky & Norman (1982) has shown that adults, at the start of literacy education, will attempt to use a Phonic/Phonemic Approach to decode words. To such learners, labored sounding-out of words means reading. It takes a great deal of directed reading instruction before they see it as a meaning-making process and not just "word calling."

Additionally, Colvin & Root (1989) and Bowren (1992) recognize that the Phonics/Phonemic Approaches do play a necessary role in a total reading instruction program which also stresses meaning, word patterns, context clues, and sight words. Colvin & Root (1989) and Bowren (1992) view phonics/phonemics as a few of the many strategies to be practiced by an adult literacy learner during a lesson. Phonics should not be the sole basis for learning to read, but rather a tool to be used along with other strategies while unlocking the meaning of printed information.

The Basal Approach, when applied to materials for adult learners, still has many visual similarities to books for children. The print is usually large with only a few sentences accompanying a large picture on each page. "The format . . . becomes a stumbling block. Even though the material has been specifically written for adults, it looks

like children's stories, and unhappily reminds adult learners of unsuccessful childhood experiences" (Bowren & Zintz, 1977, p. 98). Additionally, Milligan (1982) has reported, in a moving account, the embarrassment a specific adult experienced when given a child's book to read. However, the controlled vocabulary and accompanying skills workbooks of a basal series insure success for both new readers and inexperienced or inadequately trained instructors. Basal series are easy to teach, so adult basic education and literacy programs rely on them heavily.

Programmed Instructional Approaches cannot be used to provide initial or total reading instruction to new adult readers. These individuals cannot be left alone with a workbook or computer and be expected to learn how to read, at least not with the software available today. However, these systems can provide excellent drill and practice in a non-threatening, self-paced format to which many adults respond positively.

The fifth approach, Language Experience, is not systematic or sequential. It does not automatically provide the learner with a spiraling curriculum of basic reading and language skills. It does not have supplementary workbooks and materials with accompanying teachers' guides containing all the correct answers. However, the Language Experience Approach requires the instructor and learner to participate actively in the

learning process, to value each learner's past experiences, and to use language in a form that is familiar to that learner. Additionally, learner motivation should be high because the dictated story originates from an interest that the learner already possesses.

One reading strategy, word recognition through context clues, is easily introduced and taught with the Language Experience Approach. Using context clues to help decode unknown words is a strategy employed by experienced readers, especially when they try to guess the meaning of an unknown word. In this process, the reader examines other known words from the sentence or group of sentences to see what clues they hold for the meaning or pronunciation of the unknown word. When new readers are introduced to the context clue strategy, they are often surprised to find that they are allowed to guess a word (Milligan, 1982).

With the Language Experience Approach this context clue strategy is greatly facilitated. The learner has dictated the story, its words all have meaning for the learner, and its sentence construction makes sense and is natural for the learner. Therefore, when an unknown word is encountered, the learner's background allows him or her to make an educated guess. For example, when a learner has dictated a recipe for barbecue sauce to the instructor, the learner will be able to recognize words because he or she

has used the words orally. Thus, they will make sense even if he or she has not seen the words in print. As Stauffer (1980) and Padak & Padak (1987) point out, this strategy provides new readers with confidence in their abilities to face unknown reading situations.

In summary, five approaches can be employed to teach adults how to read, each with positive and negative aspects. Understanding these approaches is necessary before examining existing instructional methodologies for teaching reading to adults.

Methodologies of Reading Instruction for Adults

Anderson (1990) has reported that there are "four major national literacy initiatives today. . . Laubach Literacy Action, Literacy Volunteers of America, the government's Adult Basic Education effort, and the military's remedial training for its recruits" (p. 42). The first two, Laubach Literacy Action [LLA] and Literacy Volunteer's of America [LVA], use volunteer tutors for the direct instruction.

Laubach

The methodology used by LLA was devised in the 1930's by Frank C. Laubach, a Christian missionary, who attempted to teach reading to Moro tribesmen in the Philippines. At that time he developed certain elemental strategies that are still part of the Laubach Way to Reading today.

Laubach found that as learners progressed, they, in turn, could instruct other learners. His motto, one that still is part of the organization's philosophy, was "Each One Teach One" (Isley, 1985). Later, he developed Basal Approach primers and skill workbooks which have been published by New Readers Press and used to teach literacy in 312 different languages (Isley, 1985).

The Laubach method, with its very strong Phonic/Phonemic Approach, has been described by Meyer and Keefe (1988):

Laubach's philosophy is essentially a 'bottom up' model of reading. Students (and their tutors) are taught that reading is a series of sequential steps beginning with the letters of the alphabet which stand for specific sounds. These letters and sounds (presented with picture clues) are put together to form words. Vocabulary words are then 'practiced' in short sentences and paragraphs emphasizing phonetic regularities. Reading, then is essentially viewed as a process of 'cracking the code' (phonics mastery) and learning specific skills. The Laubach program includes highly controlled vocabulary with 132 words introduced in Skill Book 1 progressing to 399 words in Skill Book 4. The first skill book introduces 46 separate

skills which include associating 'the short vowel sound with each vowel letter' recognizing 'the numerals from 0 to 100, and 1,000,' and finding 'missing letters in words.' Skill Book 4 includes 199 separately identified skills presented in 23 lessons. These skills range from 'new beginning consonant blends' to 'reading orally with expression' (p. 8).

Today, literacy programs and adult basic education courses still use Laubach materials extensively. Isley (1985) reports, "Currently 50,000 volunteers serve 60,000 students through the (LLA) system . . . Program locations include churches, correctional facilities, hospitals, homes, and public schools" (p. 11). However, Meyer & Keefe (1988) cite research on the Laubach Way to Reading by Wurzbacher & Yeannakes (1982) and Pasch & Oakley (1985) and make this statement:

When research is available, the Laubach system appears to be ineffective. . . We suspect Laubach materials may be popular for reasons which have little to do with reading. The mechanistic and repetitive approach is easy to follow and time consuming. It is highly structured and provides a 'security blanket' for volunteer tutors. Laubach materials keep both tutors and their

students busy and occupied for 79 long and separate lessons (p. 10).

Literacy Volunteers of America

The methodology used by Literacy Volunteers of America (LVA) was established by Ruth Colvin and Dr. Jane Root. Anderson (1990) and Isley (1985) report LVA began with Ruth Colvin as a grassroots community service organization in 1962. Colvin originally used Laubach materials, but soon became dissatisfied and began to develop additional instructional strategies with the help of reading education professionals from Syracuse University.

As it exists today, LVA has an instructional methodology strongly influenced by Language Experience, but emphasizes a variety of approaches. For example, LVA has an 18-hour pre-service tutor training program that provides

. . .how-to information on the use of five teaching strategies: the language experience approach, phonics, word patterns, sight words, and context clues. Included also are motivational strategies, tips for selecting and developing materials, ideas for lesson planning, and a list of the 300 most commonly used words in the English language (Isley, 1985, p. 12).

Tutors also learn how to administer and interpret the READ [Reading Evaluation Adult Diagnosis] test (Colvin &

Root, 1982). The READ test was designed as an assessment tool for low-level readers. Once a learner has been tested, tutors can use the results to plan lessons based on the learner's identified weaknesses and strengths (Isley, 1985).

However, the READ test has been criticized because it measures "bottom-up" skills while LVA approaches reading with "top-down" methodology (Fingeret, 1984). Therefore, Fingeret has endorsed only diagnostic and prescriptive use of the READ test, not its use as a measure of reading achievement because it does not evaluate the approach most frequently taught in the LVA Method.

Isley (1985) notes that local literacy programs staffed by volunteers "have found it advantageous to 'take the best' from both LVA & LLA because it means having a greater number of program strategies, materials, and sources of assistance" (p. 12). The Bowren, et al., (1990) study reaches the same conclusion. In a sample population of 23 literacy programs in the state of Illinois, 13 of the 23 programs employed an "eclectic" instructional methodology (n=2161 students), six programs employed LLA (n=913 students) and four programs LVA (n=644 students).

Asking programs to use these categories to describe their teaching method in terms of only one of the orientations (eclectic, LLA, or LVA) created some problems; since some programs used

parts of all three, some were moving from one approach to another, and some simply were not comfortable describing themselves in any of these categories. Data were collected by asking projects which method was the one which was predominantly used in their instructional program (Bowren, et al., 1990, pp. 44-45).

Bowren, et al., (1990) evaluated the various methodologies for reading gains. Students were pre-tested, given three months of tutoring, and post-tested. "Overall, the students in the eclectic programs showed a gain of about 1.2 grade levels. Literacy Volunteers of America students averaged about 1.4 grade levels of gain, while those in Laubach programs averaged .6 grade levels" (p. 47). Bowren, et al., have cautioned that variables outside of the scope of their study may have affected the reading gains, but they concluded "the approach which is a 'top down,' or meaning-making emphasis, appears to be the most productive. . . adults learn to read more easily when they are working with meaningful text rather with isolated skills" (p. 54).

Adult Basic Education

Although "night schools" have existed for decades, Adult Basic Education [ABE] was established nationally by the Adult Education Act in 1966. This legislation had

three revisions through 14 legislative updates and today provides funding to states for instruction in reading, grammar, mathematics, and "coping skills" for adults who test at or below the eighth grade level on a standardized achievement test (Isley, 1985, p. 13).

Today, ABE programs exist within the public school, community college, and correctional facility systems. ABE programs are commonly attached to high school equivalency programs, but may be named Pre-GED, or Basic Skills courses. Although the letter of the law states the majority of the instruction should be directed to adults with the lowest levels of reading ability, Cunningham (1983) has reported high school equivalency programs receive the greatest attention.

No one methodology for literacy education is consistently employed by ABE programs, but a combination of Phonetic/Phonemic Approach and the Basal Approach is most typical. For example, Keefe & Meyer (1985) surveyed 148 adult educators and found that 99% viewed the reading process as phonetic mastery of sound units and whole words. This word-calling emphasis is criticized by Keefe & Meyer (1980), Padak & Padak (1987), Meyer & Keefe (1988), and Davidson & Wheat (1989) who believe reading is a search for meaning with comprehension as the ultimate goal.

It is not enough to simply have well meaning volunteers who know how to read and write attempt

to teach those who do not know how to read and write. Training programs must focus on pedagogical strategies based on top-down or meaning oriented models for instruction (Davidson & Wheat, 1989, p. 344).

In Adult Basic Education programs, professional, not lay volunteers provide instruction. Although, tutors may be used as support staff, those tutors usually function under the direction of a paid instructor in small group or learning laboratory settings. Because the direct instruction has been supervised or provided by professional educators, the generalizability of research on reading instruction in ABE for this study is questionable. The focus of this study is the untrained, non-professional tutor attempting to provide reading instruction.

The Military

Literacy instruction in the military began with the preparation of massive numbers of men to fight in World War II (Bowman, 1984). Teachers, not tutors, provided instruction which was strongly job related and objective driven. The ultimate objective was the ability to read specific texts or manuals. Since then, individuals have been able to earn a GED diploma while in the service by attending classes that resembled "night schools." In the early 1980's, the all-volunteer Army generally accepted

only high school graduates. By 1989, 95% of new recruits were graduates; however, despite recruits with higher literacy skills, remedial literacy programs were increasing (Educational Writers Association, 1989). The Navy's response to this phenomenon has been to reduce the reading level of its manuals to ninth grade (Hamel, 1982).

The literature on military literacy training reveals strong reliance upon contextual literacy skills, those developed through training in job related skills (Educational Writers Association, 1989). Such training programs use systematic diagnostic testing and remediation with specific goals in mind (Sticht, 1982b; Sticht, 1989). Computer assisted instruction [CAI] in basic reading skills has also been implemented in the Coast Guard (Glidden, 1984) to supplement more traditional individualized and group instruction. In typical military fashion, acronyms are used to name the various literacy programs. Examples are BEEP (Basic Educational Enrichment Program-Coast Guard), FLIT (Functional Literacy Program-Army), FLING (Functional Literacy for the National Guard-Army National Guard), JORP (Job-Oriented Reading Program-Army), JSEP (Job Skills Educational Program-Army), and ART (Academic Remedial Training-Navy).

Again, as with ABE, the military employs professional educators. Therefore, the generalizability of research on reading instruction in the military is questionable for

this study. Also, military instructional methodology for reading has an on-the-job training or vocational focus (Sticht, 1982a; Bowren, 1984; Harman, 1984; Sticht & Mikulecky, 1984) that may make it too specific to be applied to a civilian population seeking basic literacy.

Preferences and Generalized Characteristics of Adult Non-Readers as Learners

The literature also presents preferences and generalized characteristics of adult non-readers as learners. Some of this literature refers to adult learning theory and research, and some is anecdotal in nature. Most of this information appears in articles, lists, or handbooks intended for the training of Adult Basic Education [ABE] professionals or literacy tutors. This type of literature tends to turn adult learning theory into briefly stated "tips for teachers" like the following:

1. Teachers need to respect the past experiences of adult learners who respond well when these experiences are incorporated into the learning process (Biggs, 1980; Boraks & Schumacher, 1981; Jones, 1986; Thistlethwaite, 1986; Goudreau, 1987; Marter, 1989; Ross, 1989; Fingeret, 1991).

2. Adult learners respond best when they see the relevance of their learning to their needs or jobs (Sticht, 1972, 1975, 1977, 1978; Darkenwald, 1975; Boyet & Dauzat, 1980; Fischer, 1980; Harman, 1984; Padak & Padak, 1987; Mark, 1989; Meyer, Estes, Harris & Daniels, 1991).

3. Adult learners tend to respond best when the instruction requires their active involvement. They become impatient with passive learning (Rogers, 1984; Fingeret & Jurmo, 1989; Mark, 1989).

4. Adult learners benefit from "empowerment" in their own instruction. They need to help in the goal setting, planning their instruction, and taking responsibility for their own learning (Freire, 1970; Rogers, 1984; Boraks & McLendon, 1986; Thistlethwaite, 1986; Goudreau, 1987; Padak & Padak, 1987; Palmieri, 1988; Davidson & Wheat, 1989; Galbraith, 1989; Handel & Goldsmith, 1989; Mark, 1989; Meyer, et. al., 1991).

5. Because adult learners grow impatient with instruction that appears to be "childlike," initial or intermediate level instruction must be presented in an adult format (Bowren & Zintz, 1977; Milligan, 1982).

6. Adult learners must not be put into situations where they are called upon to exhibit their "inabilities" publicly. Great care must be taken to preserve the dignity of the adult learner, and to provide non-threatening learning situations (Heathington, 1987).

7. Adult learners may initially require a great deal of emotional support and sincere praise for their efforts. Typically, their self-esteem has suffered from a lifetime of illiteracy and must be nurtured (Knox, 1986; Outman, 1984; Goudreau, 1987; Palmieri, 1988; Mark, 1989;

Anderson, 1990; Meyer, et. al., 1991)

When consideration is given to these "tips," most authors suggest small group or one-on-one instruction using self-paced and individualized materials and content to insure success for adult literacy learners. Employing the same methods which failed previously should be avoided.

Education sometimes seems to be a field in which its proponents illogically reason that, if a treatment has not worked, surely more of the treatment will eventually work. . . . If a decade of phonics instruction, sight word training, drill on linguistically selected word families, and practice with language experience stories has failed to produce a literate adult, the tutor need not hesitate to try alternate strategies or to contrive strategies which seem to fit his or her knowledge of the individual student (Rogers, 1984, p. 24).

Jordon (1978); Weisel, White & Travis (1978); Travis (1979), and Meyer (1985) have suspected that many adult non-readers actually have specific learning disabilities that underlie their inability to learn to read with traditional approaches or methodologies. Meyer (1985) cautions

The existence of a specific language disability may, in part, explain why these adults were

unable to learn to read while attending elementary and secondary school. Special, highly structured instructional strategies are required to assist these special needs learners. Neither Laubach Literacy International nor Literacy Volunteers of America equips tutors adequately to detect learning disabilities. Unfortunately, a volunteer tutor may do more harm than good in these instances; a learning disabled adult may have his/her expectations raised only to face failure again (p. 707).

In most situations, the adult is a voluntary participant in the literacy program, so any real or imagined offense or embarrassment may affect his or her attendance. The personal problems of adult learners may also affect attendance patterns. Hayes & Darkenwald (1988) and Hayes (1988) have reported five factors that are "barriers to participation in adult basic education for the low-literate population" (Hayes, 1988, p. 1):

Factor One: Low Self-Confidence. . .feelings of low self-esteem in general, and specifically in regard to academic ability. . .Factor Two: Social Disapproval. . .the existence of a social environment in which education is not perceived as helpful or important. . .Factor Three:

Situational Barriers . . . (e.g.,) cost, lack of transportation, and family problems. . . Factor Four: Negative Attitude to Classes. . . a dislike of schoolwork or classes, or of an aspect of participation in classes, such as going to a school building. . . Factor Five: Low Personal Priority. . . other activities take precedence over education (p. 3).

In Hayes' study (1988), Factor One elicited the following comments:

"I thought starting classes would be difficult with lots of questions and forms to fill out."

"I was afraid I wasn't smart enough to do the work."

"I felt I was too old to learn."

"I didn't want to admit that I needed help with reading."

"I didn't want to answer questions in class."

"I thought it would take too long for me to finish school" (p. 4).

Factor Two elicited the following comments:

"I felt that my friends or people I work with wouldn't like it if I returned to school."

"I felt my family wouldn't like it if I returned to school."

"I felt returning to school wouldn't help me."

"I thought 'book learning' wasn't important."

"I didn't think I needed to read better."

"I didn't know anyone who was going to the adult education classes" (p. 4).

Factor Three elicited the following comments:

"I couldn't pay for childcare or transportation."

"I didn't have any transportation to school."

"I had family problems."

"I was worried because classes were held in a bad neighborhood" (p. 4).

Factor Four elicited the following comments:

"I didn't like the other students who go to the classes."

"I didn't want to take classes in a school building."

"I heard that the adult school classes were not very good."

"I tried to start classes but they were already full."

"I don't like doing schoolwork" (p. 4).

Factor Five elicited the following comments:

"It was more important to get a job than to go to school."

"I didn't have time to go to school."

"I didn't know anyone who was going to the adult education classes."

"I don't like doing schoolwork."

"I thought 'book learning' wasn't important" (p. 4).

Additionally, Hayes (1988) cautions adult educators to recognize that "low-literate adults typically experience a combination of barriers, rather than one or two in isolation, thus compounding the difficulty of eliminating such obstacles" (p. 1).

In Read With Me by Anderson (1990), a number of tutors revealed their disappointment when homework they had assigned was not completed. If tutors are informed during training of the inappropriateness of "middle class" assumptions and expectations directed toward this population, such disappointment might be avoided.

Training of Literacy Tutors

Chapter I details the typical curricular and instructional topics and activities in the literature on the training of literacy tutors. While these topics and activities appear to be the norm for tutor training programs, certain organizations have set standards for such training. One organization, the Methods and Training Subcommittee of the Illinois Literacy Council, which sets the guidelines for tutor training in the state of Illinois is discussed in Chapter I (p. 8-9).

Another is Laubach's volunteer tutor training, which was described by Merrill (1988):

Tutors attend a weekend workshop before being allowed to work with clients. Degree requirements, such as a high school diploma, are not needed. In the workshop, the trainees learn how to use the Laubach materials and to keep accurate records. Each affiliate program is autonomous, recruiting and training its own tutors (p. 26).

Unwin (1989) reports that the Laubach training workshop takes 12 hours.

Literacy Volunteers of America also publishes a set of materials for volunteer tutor training workshops. These materials may be used in conjunction with six training videotapes and Colvin and Root's (1987) TUTOR: Techniques Used in the Teaching of Reading. LVA suggests approximately 18 hours of training. Unwin (1989) has described LVA's training process:

Volunteers are instructed through the use of six videotapes, combined with onsite meetings and small tutor clusters. The six training segments are (a) an introduction, (b) the language experience approach (c) sight words and context clues, (d) phonics and word patterns, (e) assessment and goal setting, and (f) goal analysis and lesson planning. Each segment consists of the videotape demonstration and

lecture, text readings and activities. Cluster groups come together to discuss readings and activities (p. 123).

Besides packaged volunteer tutor training programs, the literature contains various research-based and anecdotal publications that provide additional topics for training programs. James (1982) proposes "each instructor should be acquainted with the unique characteristics of the adult learner as well as the special traits of the undereducated and/or disadvantaged adult" (p. 92). He has proposed that "humanistic skills" training (p. 98) be part of any initial or inservice training program for adult educators.

Successful training of adult literacy and basic education instructors encompasses these elements:

- * Warm, enthusiastic, caring instructors are essential to a successful program.
- * Both humanistic and technical skills need to be emphasized.
- * A student-directed philosophy is imperative to meet the unique needs of adult learners.
- * Training personnel to work with learners in the ways cited is vital.
- * Some framework, or model, for providing necessary skills is necessary.

- * It is necessary to use effective, available training programs and materials. . . .(p. 98).

In the same spirit, Galbraith (1989) writes "the attributes of caring and respect appear as central characteristics necessary to the success of the facilitator of adult learners as well as to the total process of helping adults learn" (p. 10).

Meyer, Keefe & Bauer (1986) have suggested that tutors be trained in these four steps of basic reading theory:

1. Tutors must be aware that the reader's thoughts and language are constantly interacting with the thoughts and language of the writer. Interpreting meaning is the goal of reading.
2. Tutors need to know the role of sampling, predicting, and confirming to help their students read purposefully.
3. The third step of the model is to emphasize that if one chooses material that the disabled reader knows something about, the possibility for comprehension is vastly improved.
4. Tutors need to be made aware of the processes good readers use to gain meaning (pp. 545-547).

Boraks & McLendon (1986) and Kawulich (1989) report that tutors need more information on alternative reading methods. When faced with learners experiencing problems

with Phonic/Phonemic and/or Basal Approaches, tutors have no other strategies available to supplement their instruction.

Finally, moving past content and methodologies to instructional considerations, Pugh (1983) does an excellent job of summing up comprehensive tutor training when he calls for training that includes Unsworth's (1982) terms: "muddling, modelling, and meddling." Pugh (1983) defines "muddling" as the "private interpretation" (p. 130) of events and practices as one progresses through a situation. "Modelling" involves observation of experienced tutors; and "meddling" is the "receiving of explicit instructions" (p. 130) through some type of lecture or presentation.

Instructional considerations are also part of Grabowski's (1976) identification of eight different models for inservice training of adult educators:

1. Laboratory approach
2. Classroom experience
3. Teaching demonstration
4. Self-directed learning
5. Team-structured
6. Inquiry-based learning
7. Independent study
8. Self-learning-related models (p. 14).

It is significant that bits and pieces of each of these models can be incorporated in a systematic computer

assisted interactive media training program for adult literacy tutors.

The laboratory approach presents a large variety of "real world" situations with which the learner can experiment. CAIM can be designed to provide video simulations of actual situations with sufficient variety to meet the learner's specific needs.

Classroom experience and teacher demonstration are familiar to many in the student teacher/cooperating teacher model. CAIM can simulate this experience by allowing the learner to observe student behavior and/or teacher activity on videotape and practice responding appropriately. It is even possible to include a videotape recorder at the CAIM workstation, so that learner's responses can be taped, viewed, and self-critiqued.

Self-directed learning is an inherent part of CAIM. The learner can be given many opportunities to make choices on content and sequence of instruction through the programming of the CAIM. Additionally, because the learner has so much control with CAIM, the program and the learner become a team. The program provides the information while the learner chooses the process and procedure for the presentation of the information. Because the locus of control rests with the learner, CAIM can be manipulated to be inquiry-based and utilize self-learning-related models, as well as facilitate independent study.

Research on Interactive Media

Professional literature on the use of computer assisted interactive media as an instructional delivery system for education and training falls into five categories:

1. Media comparison studies
2. Media attribute studies
3. Research resulting in instructional design concerns and implications for use of interactive media
4. Reports describing typical or innovative usage
5. Technical concerns related to hardware/software use and design.

Media comparison studies are typically conducted whenever a new medium is introduced. In these studies, research is conducted where the new medium is compared to older media or traditional classroom presentations and instructional effectiveness is evaluated. The elements of learner preference and cost effectiveness are usually mentioned in these studies.

Four early studies on interactive video compared it to traditional classroom teaching (Bunderson, Olsen & Baillio, 1981; Boen, 1983; and Henderson, Landesman & Kachuck, 1985). Results showed learning gains were higher with the interactive video presentations, students reported more positive attitudes to the media, and less time was needed to master the material. Thordilkson (1982) compared

interactive video to paper/pencil materials and reported superior test results with the interactive video. Additionally, Bosco and Wagner (1988) conducted a well-designed media comparison study with General Motors employees which showed interactive media instruction provided higher achievement than video and instructor-based instruction; and, adults expressed a preference for the interactive media instruction.

Media attribute studies are concerned with specific attributes contained in various media (e.g., motion, sound, color) and how these attributes affect learning. The attribute most associated with CAIM is interactivity. Whereas television and film are considered passive media with the learner sitting and watching, CAIM is considered active because the learner makes choices and can control various aspects of information presentation. Schaffer & Hannafin (1986) experimented with progressive interactivity in four treatments. They reported "recall was significantly affected by the amount and type of interactivity provided. The fully interactive version yielded the greatest recall" (p. 89).

Selected findings from the literature on CAIM research provided valuable information for the instructional design and production of a CAIM literacy tutor training program. For example, Laurillard (1984) reported on a study involving learner control options within an

interactive video program. Given various control options, students tended to exercise them. While doing so, they did not follow the sequence the designer assumed was logical for the presentation of information. Instead, they tended to follow random paths through the program to seek the information they required.

The overwhelming conclusion from this study is that students can make full use of most aspects of control, and moreover make use of it in such a variety of ways that it becomes clear that program control must seriously constrain the individual preferences of students. To justify the use of program control, the designers must demonstrate that they know best what the student needs at each stage, i.e., that program control gives improved learning outcomes. Given the continual failure of educational research to ever find an evaluation instrument sensitive enough to produce significant differences of this kind, it must be preferable to give students the benefit of the doubt. We should acknowledge that the unpredictability and variation in their learning behavior could be derived from perfectly legitimate and effective learning strategies, and that these should be considered in the design (p. 14).

The learner responses in this study may reflect a characteristic need for control on the part of the adult learner.

Hannafin, Phillips & Tripp (1986) experimented with the addition of an "orienting activity" preceding interactive video instruction. An example of an orienting activity is "In this section, pay attention to information concerning the dominating influences that affect art in the 14th century" (p. 135). They reported that subjects given the orienting activities were able to learn successfully the required information in less time than the control group, but both groups scored equally on a posttest. During the program they also experimented with practice questions which positively influenced the learning of factual content.

Research done by Ho, Savenye & Haas (1986) and Romiszowski (1989) concluded that posttest scores improve when students are provided with a final review of information following an instructional video segment. Tennyson, Christensen & Park (1984) found the addition of advice on how to maximize learning from interactive media instructional segments improved student test performance; and Hannafin & Colamaio (1986) reported that when learners were given such advice, they tended to take it.

Clearly, interactive media are viable alternative delivery systems for instruction. Designers of interactive

media should consider learner control options, practice opportunities, review segments, orienting activities, and advice on study techniques during the design process.

Descriptive reports from the United States military, private industry, and medical educators reveal both typical and innovative use of CAIM. Ketner (1982); Kimberlin (1982); Schroeder (1982); Manning, Balson, Ebner & Brooks (1983); Daynes (1984); and Ebner, Danaher, Mahoney, Lippert & Balson (1984) have reported on interactive video use in training the armed forces. Such diverse topics as weapons systems maintenance, paramedical training, nurses' training, leadership skills education, and counselling skills education have been delivered by CAIM.

In private industry, CAIM has presented information to potential customers (Bunderson, 1983; Fedewa, 1983; Olsen & DiFazio, 1983), and has delivered employee training (Daynes, 1984; Gibson, 1984; Magel, 1985; and Bosco & Wagner, 1986). Smith (1987) cites CAIM's capability to "decentralize training, insure that all personnel receive the same training, and reduce training costs" (p. 4) as primary factors in CAIM's adoption by private industry.

In the medical community, Hon (1982, 1983) reports on successful use of interactive video to teach cardiopulmonary resuscitation. Additionally, Jones (1985) reports on American Medical Association accredited continuing education and science education applications of

interactive video.

The final category of CAIM literature, technical concerns related to hardware/software use, is of limited value to this study because the target audience for this type of literature is engineers, systems analysts, and/or electronic technicians. As stated in Chapter I, Doss & Rhodes (1989-90) and Byers & Rhodes (1989) offer the information on the technical aspects of CAIM production required by this study.

Summary

This chapter has briefly examined the history of literacy education. Also, the five basic approaches and four major initiatives of literacy education have been examined in detail. Following that, the preferences and characteristics of adult literacy learners were generalized into seven "tips" and documented by research in the fields of adult learning and adult reading theory and practice. Additionally, tutor training guidelines and standards were examined. Finally, research specific to the use of interactive media as a training delivery system was reported. All of this information will be considered in Chapter III - Instructional Design: Preparation, and in Chapter IV - Instructional Design: Formulation.

CHAPTER III

INSTRUCTIONAL DESIGN: PREPARATION

Conceptions and Approaches for Design

The initial steps of the instructional design process require a decision as to which conception of instructional design best fits the problem for this study and which approach to the design of computer assisted interactive media [CAIM] best operationalizes that conception of design. Rhodes (1990b) described three conceptions of instructional design: conventional, marketing, and generic. Examination of the literature also revealed many prescriptive and descriptive models for the design of computer assisted interactive media [CAIM]. They can be categorized into four approaches: Systems, Media Production/Presentation, Cognitive Theory, and Instruction-Based. In the following section, these approaches to CAIM design will be described in relation to the general conception of instructional design they represent.

Conventional Design/Systems and Cognitive Theory Approaches

According to Rhodes (1990b), conventional design has a technical orientation and employs a systems approach. It relies heavily upon applied psychology. This conception of

design is illustrated by the work of Gagne, Briggs & Wager (1988) and Kemp (1985). The conventional design process is generally linear with a series of steps to be followed in the creation of the instructional design. The Gagne, Briggs & Wager conventional design model has been described by Gentry (1990) in the following way:

It has four key components: (1) a series of rational steps for designing instruction, (2) a taxonomy of learning outcomes often referred to in terms of human capabilities, (3) a compilation of nine 'events of instruction' typically involved in bringing about desired outcomes, and (4) a recommended way to sequence instructional activity related to desired outcomes (p. 45).

Kemp's (1985) model requires the designer to examine four "planning elements" -- students, objectives, methods, and evaluation, while proceeding through a ten step process:

1. Assess learning needs for designing an instructional program; state goals, constraints, and priorities that must be recognized.
2. Select topics or job tasks to be treated and indicate general purposes to be served.
3. Examine characteristics of learners or trainees which should receive attention during planning.

4. Identify subject content and analyze task components relating to stated goals and purposes.
5. State learning objectives to be accomplished in terms of subject content and task components.
6. Design teaching/learning activities to accomplish the stated objectives.
7. Select resources to support instructional activities.
8. Specify support services required for developing and implementing activities and acquiring or producing materials.
9. Prepare to evaluate learning and outcomes of the program.
10. Determine preparation of learners or trainees to study the topic by pretesting them (p. 11)

Both of these representative models of the conventional conception of design are comprehensive and are relatively easy to follow. An examination of articles and books on CAIM design has revealed many models that have a conventional, step-by-step conception. Such systematic approaches are direct descendants of the systems approach that is used to design and engineer computer hardware and software. These models are often presented in a computer flowchart format. Andrews & Goodson (1980), Andriole (1983), Roblyer & Hall (1985), and Palmer (1988) have

published systems approach models for CAIM. Of these publications, Andriole (1983) offers a representative example. Andriole's flowchart leads the designer through six phases: "system targeting, system modeling, software design, hardware selection, system packaging, and system transfer" (p. 6). Each phase requires the designer to complete specific tasks. The flowchart depicting this process is not strictly linear, but does have branching capabilities after hardware selection and system transfer.

The cognitive theory approach to instructional design of CAIM attempts to incorporate recent research and theory from the field of psychology related to cognition and the function of the human brain. This type of approach requires designers to examine what is known or assumed about the way people think and process information, so that the presentation of an instructional segment best stimulates a learner's cognitive processes. The work of Jonassen (1985), McMeen & Templeton (1985), Deshler & Gay (1986), and Wager & Gagne (1988) are examples of this approach. The Deshler & Gay model, a typical cognitive theory approach, asks the designer to examine specific learning processes (e.g., "Analyze, process, aggregate, and summarize visual data." (p. 14), or "Experience vicarious symbolic action and reflect on its personal meaning" (p. 15)). It also asks the designer to categorize the learning mode (e.g., instrumental, social/communicative,

emancipatory/self-reflective (p. 16)); review the tradition (e.g., Cognitive, Developmental, Gestalt, etc. (p. 16)), its primary theorists and concepts, then, review the related videodisc utility (e.g., simulation, rule extrapolation, value comparison (p. 16)).

Marketing Design/Media Production & Presentation Approach

The conception of marketing design has a consumer orientation. Decisions during the design process are made on the basis of market research, audience analysis, and predictable ways of eliciting consumer satisfaction (Rhodes, 1990b). This conception is employed when the design of the instruction must be advertised and sold. Many forms of adult education employ this conception to attract students and aid retention. Additionally, a large portion of the training and development industry is based upon this conception (Odiorne & Rummler, 1989). Typically, the one procedure that is representative of the merchandizing conception is a needs assessment, finding out what potential participants or administrators perceive as personal or group needs. These perceptions or wishes are then translated into the goals and objectives for the instruction. A representative example is Lenz's (1980) five step model for the design of continuing education programs. Gentry (1990) has summarized Lenz's steps:

. . . (1) develop a profile of the prospective

audience and assess its needs and interests; (2) choose the program content in response to these identified needs and interests; (3) develop a marketing campaign; (4) plan means of delivery; and (5) develop means to gather and analyze participant feedback (p. 56).

The marketing conception of design is popular within a specific population of CAIM designers. Just as the systems approach to instructional design seems natural to the technologically-based designers of CAIM, the media presentation/production approach seems natural to those who produce and market instructional media. Whereas the systems approach presents instructional design in the form of a flowchart, the media presentation/ production approach is often represented as a list of things to do. Johnston, Widerquist, Birdsell & Miller (1985); Davidove (1986); Merrill (1988); Strohmer (1988); and Tarrant, Kelly & Walkley (1988) are examples of those who have used this checklist format. It is not uncommon for terms such as audience analysis and storyboarding to appear in these models for instructional design.

Of the recently published instructional design models using the media production/presentation approach, Tarrant, Kelly & Walkley's work is a quintessential example. This model has 80 steps. The design begins by analyzing the

problem which originally prompted the project and by conducting client interviews. It then proceeds through such steps as "make macro- media selections and match design assumptions to media capabilities" (p. 15), to "design motion visual sequences" (p. 16). The final steps are "verify digital program and transfer to master tape" (p. 18) and "create proof disc" (p. 18).

Generic Design/Instruction-Based Approaches

According to Rhodes (1990b), the generic conception of design is problem/solution oriented. It utilizes the principles of design that are employed by other professions, such as engineering and architecture. In such cases, the designer identifies, defines, and resolves a series of problems with the intent of improving performance.

Such a design model is found in a publication by The Society of Automotive Engineers (1968) entitled Fatigue Design Handbook. Following is a summarized design procedure:

1. Introductory Phase: Prior to design process, the Product Group identifies a problem in the field or a need in the marketplace, then produces functional specifications to solve problem or fulfill need.
2. Designers start with the finished product in mind. The "functional objective" describes what the end product should be able to accomplish.

3. Designers identify various ways to achieve desired goals.

4. They evaluate each alternative individually; considering schedule restraints, cost restraints, fabrication requirements, and utilizing elements which makes the manufacturer's product attractive in a competitive environment.

5. They identify the apparent optimum approach, keeping in mind that, when the design process is underway, optimum factors may change. Other options are kept viable in the event of this occurrence.

6. Concept Phase: Actual design is begun. Designers focus on the optimum.

7. The design is completed and product is fabricated.

8. Prove Design Phase: Testing and evaluation are conducted. Product is redesigned to correct problems as needed.

9. Preproduction Phase: Engineers retest after each redesign. The extent of testing is determined by extent of redesign.

10. Production Phase: The final design is produced for sale (pp. 10-22).

A group of CAIM design models reflect the generic conception. These models are typically published by educators who experiment with CAIM as an alternative instructional delivery system. These models tend to follow

the process educators employ when planning lessons. No one model typifies this approach. Whereas some models have five to ten steps (Harper-Marinick & Gerlach, 1986; Hooper & Hannafin, 1988; Byers & Rhodes, 1989) others offer the opportunity to examine many elements of instruction as part of the design process (Iuppa, 1984; Rhodes 1989).

The Rhodes (1989) model appears to provide the most comprehensive guide to the instructional design process. Whereas most models require the designer to examine the content and method or "what" and "how" of the intended instruction, Rhodes also has the designer examine the "who, where, and why" of the potential design. The "who," or people involved with the instructional design, according to Rhodes, are not only the potential students and instructors, but also potential administrators or organizational managers of the instruction.

The "where" is the context for the intended design. Examination of the "where" involves consideration of the organization within which the instruction will take place, as well as the actual classroom or site. Such considerations also involve the organization's resources, and culture. Inquiring into the "why" requires the designer to examine the performance problems fueling the request for instructional change. These additional considerations result in a CAIM design that solves problems for the organization supporting the instruction.

Design Conception and Approach Selection

Consideration of the three design conceptions and four design approaches has resulted in the choice of generic instructional design as the conception appropriate for this study and the instruction-based approach as the optimum way to operationalize this conception. Because adult literacy tutor training is a complex instructional process with many critical elements and performance problems, a comprehensive design model with an instructional orientation and problem-solving focus is needed. This choice is further justified by Gentry's (1990) work on a training program for family/divorce mediators utilizing a computer assisted interactive video delivery system. Gentry's design utilized a generic conception and followed Rhodes (1989) design model. She reported the Rhodes' methodology to be "useful" because it "focused upon human performance and instructional problems," required comprehensive information searches, and was very detailed (p. 201).

Since that time, further work by Rhodes and his colleague Biehler on generic instructional design has occurred. This design process has been published in outline form by Biehler & Rhodes (1992) to facilitate its use by designers. As stated in Chapter I, Rhodes reports the generic design conception as applied to instructional design has five steps: Preparation, Formulation, Execution, Review, and Revision. The methodology contains a thorough

examination of the elements of intent, principles, participants, content, devices, instructor performance, and student performance. This process then provides "a comprehensive picture of educational development" (Rhodes, 1990b, p. 5) not just goals, objectives, and learner outcomes.

The Rhodes (1992) outline, Generic Instructional Design: A Method (See Appendix A), contains "Design Supplement-Computer Aided Interactive Technology", and has expanded sections on formulation, execution, review, and revision. Therefore, it will serve as the instruction-based design model for this study.

Preparation for Design

Review of Completed Preparatory Tasks

In Chapters I and II, certain preparatory tasks required by the Rhodes methodology have been completed.

These tasks are:

1. Identify reasons for undertaking design.
2. Identify the significant performance tasks in the design context.
3. Identify the educational performance problem and its type.
4. Identify the instructional performance problem and its type.

To review, the problem of adult illiteracy in the United States is the educational performance problem for

this study. This problem has been examined in detail in Chapters I and II. In those chapters, the history of adult literacy education, the statistical analysis of the problem's scope, and national efforts to address the problem were presented. As described in Chapters I and II, the use of volunteer tutors to teach reading to adults is the most widespread answer to this educational performance problem. Additionally, certain elements of the design context for this study have been examined in Chapter I and II. This information was obtained from the descriptive literature on adult literacy education. The content of adult literacy tutor training was also examined, including what is taught as well as what should be taught during tutor training.

Dissatisfaction with the current design of tutor training was also addressed in Chapters I and II. Present training situations have exhibited inconsistencies in time, content, and instructional delivery mode. Many discrepancies exist in topics and activities covered by tutor training, pointing out the need for more consistent and systematic training.

Identifying the performance problem of tutor training as one of instructional omission was considered in Chapter I. That is, potential or practicing tutors may not be capable of performing in ways they should because they lack sufficient information, skills, and/or understanding about

adult literacy education; and the training tutors receive may not remedy these deficiencies. Information contained in the literature on reading approaches and methodologies, adult education practices related to understanding adult learning theory, and the interpersonal communication between tutor and learner were examined in Chapters I and II.

Instructional Problem to be Resolved

In summary, the design of adult literacy tutor training has not been planned correctly, and adult literacy tutor training has not been presented consistently. Training, as it is currently designed, has no flexibility to accommodate time constraints of volunteer tutors. Also, tutor training, as it is presently practiced, does not accommodate tutors' differing needs for information. Therefore, the specific instructional problem is that conventional training approaches do not resolve the performance problems of tutor time constraints and varying levels of information and skills.

Design Context and Instructional Design Problems

The Rhodes (1992; Biehler & Rhodes, 1992) methodology requires careful consideration of the elements comprising the context for the instructional design. In this section, aspects of the design context will be examined and problematic elements identified. These elements of the

tutor training situation are responsible for the performance problem presented in Chapter I. Each problematic element is then defined as a instructional design problem that the instructional designer must resolve. After they are defined, alternative resolutions are proposed, examined, and justified for each design problem. Conceptual elements to be examined in this section are setting, clientele, and content.

Setting

Using Rhodes' terminology, the setting for this study is "non-school." To best describe the setting for volunteer adult literacy tutor training, the two categories of adult/continuing education and business/industrial/government training and development should be combined into one: continuing education for training and development under governmental guidelines. This recombination recognizes the following conditions: tutors agree to take part in a form of continuing education or training program to prepare themselves for their new tasks, volunteering their free time to do it; and tutors are typically part of a local literacy program that is operating with funds from the state or federal government. These local literacy projects must conduct training and services under specified guidelines or regulations.

Two problematic elements are present in this setting:

1. Individuals who want to become tutors do not do so

because they cannot attend training workshops at the scheduled times or places.

2. Training content is established by governmental guidelines and does not reflect an individual tutor's need for information and skills.

The first element results from the situational elements of time, funding, or location. When training is offered at scheduled times, certain individuals will have conflicting obligations. As an example, the local affiliate of Literacy Volunteers of America in Xyz City offers training workshops twice a year. In August, training is on Tuesday and Thursday nights from 7 to 9 P.M. for three consecutive weeks on the north side of the city. In February, training is on Saturday mornings from 8:30 A.M. to 12:30 P.M. for three consecutive weeks on the south side of the city. The Xyz City Literacy Project loses many potential hours of tutoring while interested individuals wait for a training workshop that fits into their personal schedule or is offered at a convenient location.

The instructional design problem to be resolved is, therefore, the discrepancy between the time and location requirements associated with conventional tutor training workshops and the time and location requirements of tutors. Three alternative resolutions to this problem will be considered:

1. Offer many training workshops each year at varying

time and places throughout the day and week.

2. Individually train each interested individual when and where it is convenient for that person.

3. Provide training with a flexible delivery system that can operate any time of the day, any day of the year, in varying locations.

The first resolution would require many hours of time from the trainer who could be an experienced volunteer, a paid administrator of the literacy project, or a specially-hired consultant. When volunteering time as a trainer, an individual may not always be available or agree to teach frequent workshops for only a few students.

If a paid administrator is teaching the training workshops, time dedicated to training would need to be "borrowed" from time usually spent on other administrative tasks. If a consultant is hired to conduct more frequent training workshops, additional funding would be required to pay the consultant's fees. Money is never abundant for local literacy projects as evidenced by the dependence on volunteer tutors, rather than paid teachers, for direct instruction. Money spent on frequent training workshops would easily exhaust a local provider's budget. For these reasons, the first resolution is not a viable solution to the first problematic element.

Consideration of the second resolution, individual and convenient training for each potential tutor, presents the

same constraints as the first resolution. Again, this resolution is not viable because of personnel and financial limitations.

The final resolution, provide training with a delivery system that can operate any time of day, any day of the year, and in many different locations, is the optimum resolution to the first problem. Such a resolution addresses the time and/or location constraints of the potential volunteer tutor, as well as the personnel and financial constraints of local literacy providers.

The second problematic element related to setting involves the regulation of training content by governmental funding agencies. In Chapter I, guidelines for the State of Illinois literacy grants were presented. Grant funding from the state is dependant upon adherence to these guidelines. Therefore, local tutor trainers are required to cover diverse topics that may or may not fulfill the needs of tutors for specific applications. The instructional design problem to be resolved is the discrepancy between training content presented to meet governmental guidelines and training content required by individual potential tutors. There are three alternative resolutions to the second problem:

1. Ignore tutor training guidelines.
2. Provide the financial and personnel commitments required to fulfill all training guidelines.

3. Provide training in a flexible format so that all required information is present and the learner controls the presentation of information to meet personal needs.

The first resolution -- writing a grant proposal promising adherence to training guidelines, but conducting training with reduced or different content -- could work until a state or federal inspection was made. This resolution could result in cuts in financial support until full compliance could be documented. The temporal nature of this resolution makes it nonviable.

The second resolution, doing it "by the book," has two negative aspects: time and actual need for content presentation. Appendix B reproduces the guidelines for tutor training from the State of Illinois. To sufficiently present and demonstrate the required content would take a college-level course. Unless a literacy project hires a training consultant from the faculty of a teaching institution, few trainers are qualified to present that level and diversity of content to potential tutors. Even if the right trainer were available, it is doubtful a sufficient number of prospective tutors would be willing, or even need, to spend the many hours needed to listen to all of the content.

Therefore, the third resolution, a flexible format where all required information is present and the learner controls the presentation of information to meet personal

needs, is the optimum choice. In this way, guidelines for content could be met, individual needs could be addressed, and tutors could dedicate their training time to topics they recognize as important to themselves.

Clientele

As stated earlier, the clientele for the instructional design are potential and/or practicing adult literacy tutors. In order to produce a training program responsive to the client's needs, learning characteristics of the target clientele require consideration. Volunteer tutors become learners themselves in the training context. Nine characteristics, based on Kemp's (1985) suggested categories of academic, personal, and social characteristics, have been developed.

1. Level of information known on topic.
2. Skill level for tutoring adult literacy learners.
3. Preferred learning modality.
4. Amount and nature of related experience.
5. Amount and nature of motivation to attend training.
6. Level of confidence in ability to tutor.
7. Amount of time available for training/tutoring.
8. Amount of training needed to gain tutoring proficiency.
9. Level of computer literacy.

As reported in Chapter II, the demographic research on the population of adult literacy tutors does not contain information on learner characteristics. Therefore, there is one problematic element related to clientele: The needs of potential/practicing tutors and their characteristics related to learning have not been examined and appropriate training planned from that data. The instructional design problem related to this element is the discrepancy between tutor training which does not incorporate learner characteristics (or includes only the lowest competency level associated with selected learner characteristics) and tutor training which provides for individual needs associated with a wide variety of learning characteristics. What training resolutions could perform this service?

Three come to mind:

1. Pre-assess potential tutors regarding learning characteristics, then homogeneously group them for training.

2. Ignore individual learning characteristics and present training for the lowest competency level of each characteristic. Continue training until acceptable skill performance has been demonstrated by trainer and viewed by the potential tutors.

3. Provide training with branching capabilities allowing each learner to self-assess and choose content that reflects personal needs.

The first resolution creates more problems than it resolves. Pre-assessment regarding each learning characteristic would be difficult because proper assessment instruments may not exist. Even if they did exist, potential tutors probably would not willingly submit to such extensive "examination" prior to training. Additionally, many potential tutoring hours would be lost while individuals waited for the session targeted for their specific levels. Therefore, this resolution is nonviable.

The second resolution, ignoring individual characteristics and presenting basic-level training, is an acceptable resolution. In fact, it appears to be the conventional form of literacy tutoring training. One condition makes it less than optimum; all potential tutors must sit through all training topics, regardless of prior knowledge, skills, and experience.

For example, the retired first grade teacher who possesses many years of experience and a great deal of knowledge on reading instruction, and yet must sit through three hours of training devoted to this topic. Training time for this individual would be much better spent on adult learning theory and practice or on how to adapt familiar reading methodologies to adult learners. Although it will not harm tutors to waste precious training time on previously mastered topics, it may alienate them from further training. An individual who gives up free time

expects the time to be spent wisely.

The third resolution, provide training with branching capabilities allowing each learner to self-assess and choose content reflecting individual needs, can address each learning characteristic and tailor training to the individual. For example, the retired first grade teacher mentioned earlier should be presented with options regarding information presentation. His/her choices would cause the training program to proceed as requested. Frequent opportunities to "back-track" or remake choices that did not turn out as expected could compensate for inaccurate self-assessment. This type of training would never be viewed as a waste of time because the learner would control the way training time was spent. Such training would not bore or alienate a tutor, so the opportunity to continue training once tutoring had commenced would be seen in a more favorable light. Training time well spent will optimize training efforts and enhance motivation for further training. The third resolution is clearly the best for the clientele problem.

Content

In Chapters I and II, content typical to conventional tutor training was presented. In Chapter II, this content was examined through both descriptive and prescriptive literature. For this study, the problematic element

related to content is the provision of topics and activities which contain the standardized and consistent information and demonstrate the standardized and consistent skills called for in the literature on adult literacy tutor training. The important question then becomes what information and skills are necessary to practice effective tutoring? The following outline, derived from the knowledge-base documented in Chapters I and II, contains the information required for comprehensive training.

Reading Methodologies

1. Language Experience Approach
2. Phonic/Phonemic Approaches
 - a. Sound-letter associations
 - b. Word patterns
3. Using context clues to decode words and/or establish meaning

Adult Education Practices

1. Understanding and facilitating the adult learner
2. Getting started (initial contact with learner)
3. Sensitivity to nonverbal communication
4. Goal setting
5. Overview of the local literacy program

Instructional Practices

1. Lesson planning
2. Creating instructional materials

3. Assessing

4. Recordkeeping

Establishing skills required by tutors logically follows from the required information. Skills related to reading methodologies are the ability (1) to use the Language Experience Approach to create learner-dictated materials for reading exercises, (2) to present consonant sound-letter associations through the device of "key words" and provide sufficient practice situations to enable learner mastery, (3) to present vowel letter-sound association through word patterns and provide sufficient practice situations to enable learner mastery, (4) to present the technique of using context clues to decode words and/or establish meaning and guide the learner's use of this technique when decoding or comprehension difficulties arise.

Skills related to adult education practices are the ability (1) to project a nonjudgemental, understanding, sensitive, and caring personality which encourages an adult learner to take an active part in beginning lessons, setting goals, and sustaining his/her learning processes, (2) to interpret nonverbal communication from a learner and project it positively to the learner, (3) to practice active listening through the technique of interested silence and respond with appropriate questions or comments

demonstrating tutor interest in learner's problems or concerns.

Skills related to instructional practices are the ability (1) to plan a lesson that uses various reading methodologies, (2) to create instructional materials to accompany planned lessons, (3) to assess learner's current abilities and/or progress toward goals, (4) to keep all records by local literacy project.

Developing the knowledge and skill level required of effective tutors necessitates content presentation to be procedural in nature. Potential tutors must "learn how to" perform the tasks related to the information in order for literacy learners to benefit from tutors' enhanced knowledge. Training should be conducted in ways that develop procedural skills which are firmly supported by background information. Typical training methodology for skill development (Odiorne & Rummler, 1989) is the presentation of skills, their demonstration, and opportunities for practice.

The instructional design problem thus becomes the discrepancy between the inconsistent, nonstandardized, and/or nonprocedural content found in conventional training and the consistent, standardized, and/or procedural content proposed in the professional literature on adult reading instruction and tutor training. Three possible resolutions to this problem are:

1. Provide training in a trainer-led classroom format where information can be presented and simulated skills can be demonstrated by experienced tutors and learner-actors then practiced by potential tutors.

2. Provide a form of "on the job" training by monitoring new tutors working with literacy learners, then directing the practice of skills or correcting inappropriate conceptions and/or inappropriately performed skills as they occur during a lesson.

3. Provide videotaped training that includes information on adult reading instruction, information on skills required of adult reading tutors, and demonstrations of those skills followed by practice of skills through role playing.

The first resolution, the classroom lecture/ demonstration/practice format, is an acceptable solution, documented as the conventional training method in the professional literature. The major drawback is lack of control over quality and consistency of information and skill demonstration. Quality and consistency are dependent upon the knowledge and performance ability of the individuals providing the training, giving the demonstrations, or directing the role-playing scenarios.

The second resolution, "on-the-job" information and skill development, could easily make the tutor and the literacy learner anxious and uncomfortable. Having someone

"watching over one's shoulder" could prove unnerving for a new tutor. The literacy learner could begin to question the tutor's competence or resent the monitor's intrusion. The most detrimental effect of "on-the-job" training stems from using unskilled, untrained tutors with illiterate adults as the "crash dummies" or "guinea pigs."

Offending the learner through poor educational practice or poor interpersonal communication should be avoided. Once such an offense has occurred, that literacy learner's attendance may be poor. Uninformed/unskilled behavior on the part of the tutor carries too great a risk to the well-being of the learner, the literacy program, and the tutor to make this alternative viable.

The third resolution, videotaped informational presentations and skill demonstrations followed by practice through role playing is the optimum resolution. Videotaped segments can provide standardized information and skill development with a level of consistency that is difficult to duplicate repeatedly in conventional training workshops. Additionally, the operating technology allows videotaped segments to be easily re-played as often as the tutor feels the need and to practice skills through role playing with a videotaped or actual partner. When these role playing sessions are subsequently videotaped, then re-played, the tutor can self-assess skill development and determine mastery.

CAIM as a Resolution to the Design Problems

The preceding section examined problematic elements responsible for the performance problem of this study. Instructional design problems reflecting these elements were defined. Generalized resolutions to the design problems were examined, then, optimum resolutions were chosen and justified. Those resolutions reveal the need for an instructional delivery system that is flexible and allows multiple time applications. Such a system must also have a flexible format with branching capabilities to afford enhanced learner control. Finally, such a system must allow for videotaped informational presentations and skill demonstrations. The specific, operationalized resolution to the design problem is, therefore, systematic tutor training delivered by computer assisted interactive media that provides flexibility in time and format, learner control of content, and videotaped instructional presentations and skill demonstrations.

Computer assisted interactive media can be designed and programmed so that information segments can be presented by videotape, laser disc, CD-ROM audio and/or visual presentations, computer monitor text, and/or printed text. The learner progresses through a programmed sequence of changing modalities. This sequence can be programmed to branch in reaction to the learner's response. For

example, a CAIM with branching capabilities could follow this sequence:

1. Learner begins CAIM training program.
2. A menu of topics is displayed on the computer monitor. The learner chooses READING METHODOLOGIES and the computer responds.
3. A menu of subtopics related to Reading Methodologies is displayed on the computer monitor. The learner chooses WORD PATTERNS and the computer responds.
4. Learner is given a choice to (a) watch a videotape segment on how to teach word patterns, or (b) watch a videotape segment demonstrating a tutor teaching a literacy learner some word patterns.
5. Learner makes choice and computer responds.
6. When videotape segment is complete, learner is given the choice to (a) watch the other videotape segment, (b) see the same videotape segment again, (c) answer questions to check understanding of skill or information just presented, (d) return to the main menu, or (e) exit program.
7. Learner makes choice and computer responds.
(If questions are chosen and learner responds incorrectly, s/he has the choice of seeing the videotape segment with the needed information.)

This example of the branching capability of CAIM illustrates the adaptability of this instructional delivery

system. Such a degree of adaptability will facilitate the accommodation of diverse learning characteristics within the design's target clientele. For example, a variety of pre-training information levels, skill levels, learning preferences, amounts of experience, confidence levels, and computer literacy levels can be dealt with by giving the tutors frequent choices aimed at meeting levels ranging from novice to competent practitioner. Frequent opportunities to continue or quit training after each content section can accommodate tutors' varying time constraints. Finally, levels of motivation for training can be positively manipulated by offering each tutor control over content and sequence of material.

Supplementary Materials as Resolution to Design Problem

Use of supplementary materials is documented in traditional training programs (McLagan & Suhadolnik, 1990; Odiorne & Rummler, 1988; and Carkhuff & Pierce, 1984). Typically, these materials take the form of a trainer's manual and a participant's handbook or workbook. Descriptive literature on tutor training supports this convention (McKallip, 1981; Armstrong & Hunt, 1982; James, 1982; Darling, Puckett & Paull, 1983; Lane, 1984; Outman, 1984; Sizemore, 1984; Edwards & Bell, 1985; and Molek, 1987). Use of supplementary materials is also documented in a CAIM training program. Gentry (1990) employed printed

hand-outs as supplementary materials in a computer assisted interactive video training program for family/divorce mediators.

Three of the four resolutions that support CAIM as a device for training also support the addition of supplementary materials to a comprehensive instructional delivery system. Because those resolutions call for information and skill development that could be available in many locations anytime of the day or night; information and skill development that allow the learner to pick and choose what s/he perceives to be necessary; and information and skill development presented in a variety of learning modalities to meet personal preferences, supplementary materials are supported as a necessary part of a comprehensive tutor training program.

To fully accommodate a learner's preferred modality of learning, a packet containing diverse instructional materials should accompany the CAIM training program. These diverse materials would give each learner optimum control over the presentation mode of information and the process for skill development. For example, if a tutor chooses to receive training on the use of phonics in literacy education, s/he could watch a videotaped lecture on phonics, watch a videotaped demonstration of a tutor teaching a phonics lesson, read selections on phonics and how to teach them, or listen to an audiotape of phonetic

sounds and their letter associations. The novice could choose to use all options to gain confidence and competence; whereas, the experienced tutor might only need to skim the reading selections to refresh his/her memory.

In Chapter IV the CAIM training program will be formulated. During this process, additional materials that supplement content presentation and/or skill development will be collected and integrated into the comprehensive training program. These materials may take traditional media forms such as audiotapes, workbooks, handbooks, and reprints of journal articles. In Chapter IV, these selected materials will be documented and justified.

Summary

Chapter III has taken the information gathered in Chapters I and II and applied it to the preparation for the instructional design of a CAIM adult literacy tutor training program. In Chapter III, conceptions of instructional design and approaches to the design of CAIM have been examined. The generic conception with an instruction-based approach was chosen as appropriate for this study. The Rhodes (1992; Biehler & Rhodes, 1992) outline was employed to execute the preparation for design. Tasks such as identification of the design contextual elements of setting, clientele, content, and resources were completed.

Up to this point, four instructional design problems have prompted twelve alternative resolutions. All alternatives were considered and evaluated, then four were found to be optimum resolutions to the problems identified by the design process.

In review, four instructional design problems related to design elements of setting, clientele, and content have been established and examined. These are the discrepancies between:

1. Time and location requirements associated with conventional tutor training workshops and the time and location requirements of potential/practicing tutors.
2. Training content presented to meet governmental guidelines and training content required by individual potential tutors.
3. Tutor training not incorporating learner characteristics, or only incorporating the lowest competency level associated with selected learner characteristics, and tutor training which provides for individual needs associated with a wide variety of learning characteristics.
4. Inconsistent, nonstandardized, and/or nonprocedural content found in conventional training and the consistent, standardized, and/or procedural content proposed in the knowledge-base on adult reading instruction and tutor training.

Consideration of the four problems prompted twelve generalized resolutions. These alternative resolutions to the design problems have been considered and evaluated.

Four have been found to be optimum:

1. Provide training with a flexible delivery system that can operate any time of the day, any day of the year, in varying locations.

2. Provide training in a flexible format so that all required information is present and the learner controls the presentation of information to meet personal needs.

3. Provide training with branching capabilities allowing each learner to self-assess and choose content that reflects personal needs.

4. Provide videotaped information presentations and skill demonstrations followed by practice through role playing.

Computer assisted instructional media as an instructional delivery system can operationalize these four resolutions.

The next chapter, Instructional Design: Formulation, will document the design of a prototype CAIM adult literacy tutor training program. This design will be flowcharted, described, and produced. Chapter V will describe the field testing of the design and any revisions made as a result of field testing.

CHAPTER IV

INSTRUCTIONAL DESIGN: FORMULATION

In Chapter III performance problems related to the design of adult literacy tutor training were examined. Alternative resolutions to each performance problem were proposed and evaluated. An optimum or acceptable resolution to each problem was chosen and justified. The decisions made during the preparation phase of instructional design will guide the formulation phase.

Additionally, the formulation phase will be guided by the research on computer assisted interactive media [CAIM] reported in Chapter II. In review:

1. When learners can choose to control presentation options and program progression, they exercise this control and demonstrate enhanced recall (Schaffer & Hannafin, 1986; Laurillard, 1984).

2. When advice is given on information requiring attention during a CAIM instructional segment, learning is positively affected (Tennyson, Christiansen & Park, 1984; Hannafin, Phillips & Tripp, 1986).

3. When opportunities are given to practice the skills and/or information presented during a CAIM instructional segment, learning is positively affected (Hannafin,

Phillips & Tripp, 1986).

4. When a final review of information presented during a CAIM instructional segment is given, learning is positively affected (Tennyson, Christiansen & Park, 1984).

This chapter contains the flowchart of the computer program and a narrative description of the prototype CAIM adult literacy tutor training program designed for this study. Segments of the flowchart will be presented, followed by a description of the instructional process during that segment.

Flowchart and Narrative Description of Training Program

The flowchart is the graphic representation of the sequence of instructional events in the CAIM program. The specific meaning of each symbol used in the flowchart is given in Appendix C. This appendix contains Rhodes' (1987) Flowchart for Computer Assisted Interactive Video, the model used for graphic representation during this instructional design formulation. To aid the reader's comprehension, a section of the flowchart will be printed, then described. The linear sequence of the computer program will be followed during this description. Actual sequence of instruction is under the control of the tutor being trained. Only the initial segment is automatic. After that point, choice options are provided frequently.

The CAIM program designed for this study has three major segments: (1) the introductory segment, (2) the

training segment with ten instructional modules, and (3) the exit procedures segment. The introductory segment orients the tutor by providing specific information required to begin the training process. The training segment comprises the largest portion of the training program and branches from a main menu containing the topics for training listed as instructional modules. The titles of the instructional modules are

- A. The Adult Learner
- B. A Sample Lesson
- C. Reading Methodologies
- D. Effective Communication
- E. Getting Started
- F. Goal Setting and Motivation
- G. Planning Lessons and Making Teaching Materials
- H. Handwriting
- I. Testing and Assessment
- J. Recordkeeping

Module A, The Adult Learner, provides a tutor with rudimentary adult learning theory presented through practical hints, examples, a videotaped lecture, and additional readings. Module B, A Sample Lesson, shows a videotaped segment of a tutor and a learner progressing through a typical tutoring session. Module C, Reading Methodologies, provides lectures and skill demonstrations of the language experience approach, phonics instruction

for adults, and teaching techniques for word patterns, sight words, and context clues. Module D, Effective Communication, provides information and demonstrates skills in listening, and attends to the processes of encoding and decoding nonverbal messages.

Module E, Getting Started, gives a tutor many examples and hints on what to do during the first few tutoring sessions. Module F, Goal Setting and Motivation, instructs a tutor in cooperative goal setting techniques. Module G, Planning Lessons and Making Materials, provides a tutor with information and tools to plan tutoring sessions and make supplementary teaching materials. Module H, Handwriting, provides instruction and skill-building techniques to assist a tutor's own handwriting development. This module also provides the information and materials to facilitate a learner's handwriting skill development.

Module I, Testing and Assessment, and Module J, Recordkeeping, are not enabled. Both of these modules require information specific to each local literacy project before they can be designed. They are included in this prototype training program to show that information and skills relating to these two topics are a necessary part of systematic tutor training.

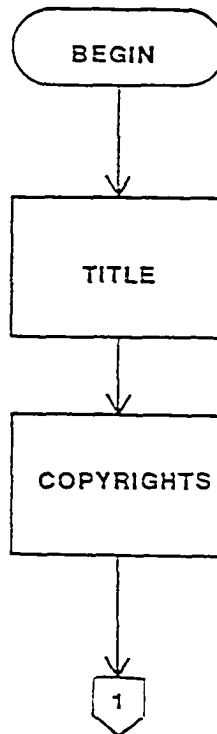
Further explanation and justification for each module will appear in the narrative section related to each flowchart segment. The order of the modules, as appearing

in the main menu, reflect a logical progression of information and skills necessary to tutor effectively. Information in a preceding module may also make a subsequent module easier to understand. Although a tutor is given free choice of module sequence, a screen does appear suggesting linear progression through the modules as a logical alternative for tutors receiving training for the first time.

The exit procedures segment of the computer program contains a screen that allows the tutor to return to the main menu, or continue to end the program. The Main Menu option was added in case the tutor's exit choice was a mistake. If the tutor does want to exit, s/he is reminded to record the day's training progress on the log sheets, then the computer monitor goes black.

Introductory SegmentTitle Screens

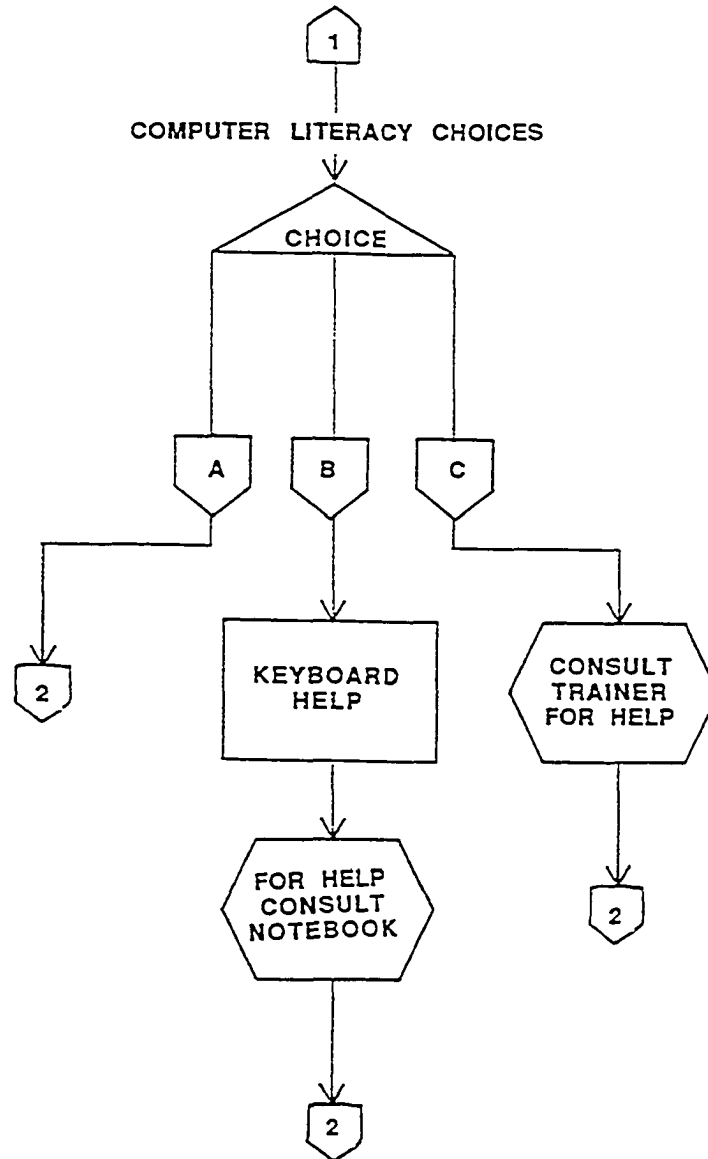
Flowchart Section 1:



Flowchart Section 1 shows the segment of the CAIM training program containing the title screens. These two screens give the following information: Title -- Adult Literacy Tutor Training Program; author -- Mary Jo Parish; producer of the videotapes -- Literacy Volunteers of America, Inc., and include copyright information.

Computer Literacy Assessment and Instruction

Flowchart Section 2:



This training program has been designed to accommodate varying levels of tutor computer expertise. Because the existing demographic research on tutors does not include computer literacy levels, the training program must be designed to accommodate computer-skill levels ranging from

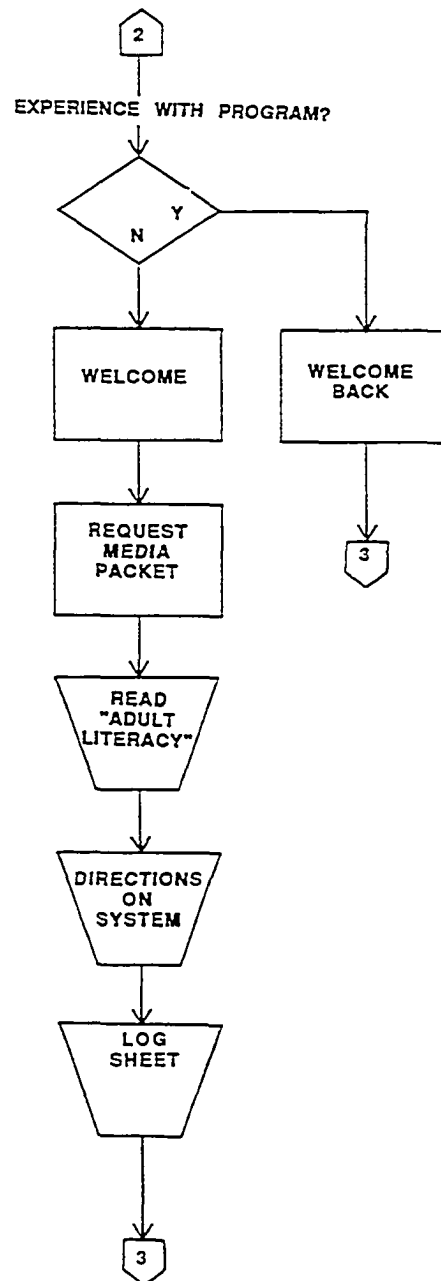
total lack of experience to well-developed computer literacy. Only basic computer skills are required for this type of training. In order to assess skill levels and provide needed instruction, the first screen in this section asks: "Which statement best describes your feelings? A. I am comfortable using a computer. B. I have used a computer, but I still feel apprehensive about it. C. I have never used a computer." Then the following instructions are presented: "On the keyboard: Press the letter of your response." Choice A allows the tutor to proceed directly onto the next section. Choice B presents two instruction screens that tell exactly what keys will be used for this program and direct the tutor to printed materials in the Media Packet Notebook (see Appendix E). The Notebook has a section on "Computer Skills" containing a picture of the computer keyboard with the critical keys highlighted and described. When the tutor is ready to continue, the program proceeds directly onto the next section. Choice C directs the tutor to request the assistance of the literacy project's trainer. Certain people feel strong apprehension towards computer usage. With a trainer guiding a computer novice through the introduction of the simple skills needed to operate this program, apprehension should be reduced. The lesson plan for the trainer's presentation can be found in the Trainer's Manual (Appendix F). When the tutor feels

confident enough to continue, the program proceeds directly into the next section.

The computer skills screens have been included at the very beginning of the program for two reasons: 1) Independent progress from this point requires a tutor to know the location of the Enter key, and 2) a trainer or facilitator would only need to assist a tutor for a very short time once training had begun, then leave the tutor to proceed independently.

Experience Assessment and/or Orientation to the Program

Flowchart Section 3:



The first screen of this section asks the tutor if s/he has used this training program before. If the tutor has, the Main Menu screen is displayed. If the tutor responds that s/he has not used the program, the program proceeds to a series of screens that welcome the tutor to CAIM adult literacy tutor training and direct him/her to ask for the Media Packet. It contains supplementary materials mentioned throughout the training program. Contents of the Media Packet provide the tutor with skill development opportunities, as well as additional information. The Media Packet was described in detail in Chapter III and a list of its contents appears in Appendix D.

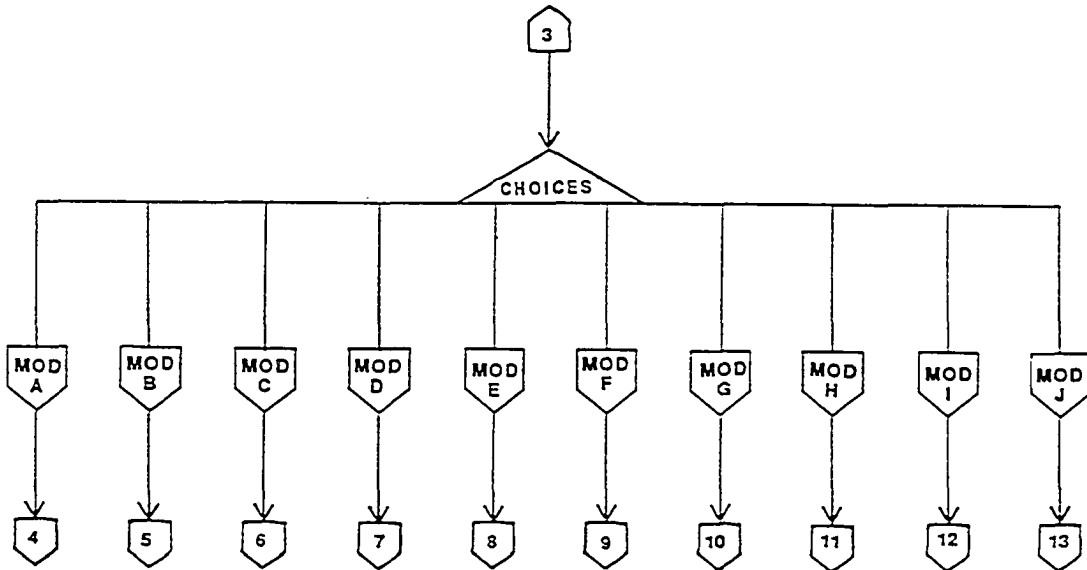
In the Media Packet Notebook is a section entitled "Adult Illiteracy: A National Problem, A Local Solution." The next screen instructs the tutor to read this section, write down any questions, and direct questions to local literacy project personnel listed in the Notebook on page four. This section meets a guideline set by the state of Illinois and is required for grant funding of tutor training programs. It has been included at this point in the training to simulate the presentation of such information in traditional training programs. When tutors attend workshops, one of the first activities is the introduction of local literacy project personnel followed by an overview of the literacy problem that faces the

nation and that particular community. This sequence is documented in the descriptive literature (Sizemore, 1984; and Darling, Puckett, & Paull, 1983).

Next, a series of screens describes the instructional module system and introduces the Log Sheets on page five and six of the Notebook. A new tutor probably will not be able to work through all ten modules at one sitting. If a tutor decides to stop training, it will be necessary to note the stopping point, so training can continue there when resumed. The Log Sheets will facilitate this process. Tutors are reminded to fill in the Log Sheets during the series of exit screens. After this information is presented, the tutor is directed to proceed to the Main Menu section when ready.

Main Menu

Flowchart Section 4:



This section can be accessed after the orientation segment, during the exit procedures, and/or at many different points throughout the instructional modules of the program. The Main Menu screen gives the tutor complete control over information sequence, or provides a pre-designed training sequence if followed in a linear fashion. Its function is similar to that of an index or title page in a book. It provides the "reader" with the information and process needed to find particular information. The term "menu" is standard to computer software language, and usually refers to a choice screen that allows the user to pick and operationalize a particular computer function.

The Main Menu contains the module sequence mentioned earlier in this chapter. The screen allows new tutors to

choose modules in the order they are listed, experienced tutors to seek specific information, or both to choose sequences that are comfortable. Additionally, tutors are told a description of each module can be found in the Media Packet Notebook on pages seven and eight. The pages of the Notebook referred to on this screen give additional information about the content of each module. This information may help tutors decide and select the sequence of the instructional modules.

To include all of this information, module name and description on the Main Menu, would have required a series of screens. This might have resulted in the tutor feeling overwhelmed with information, when just a simple choice is required. If some tutors want additional information before making decisions, the information could be easily accessed by opening the Notebook. Finally, the sentence, "To begin working in a module, type its letter." appears at the bottom of the screen.

Training Segment

Instructional Modules

The instructional modules contained in the CAIM adult literacy tutor training program deliver content through videotape instructional segments, videotape skill demonstrations, additional reading selections, and/or computer text lessons/exercises/examples. Some modules

provide the opportunity to practice recently-presented skills or require the tutor to perform a task designed to enhance learning.

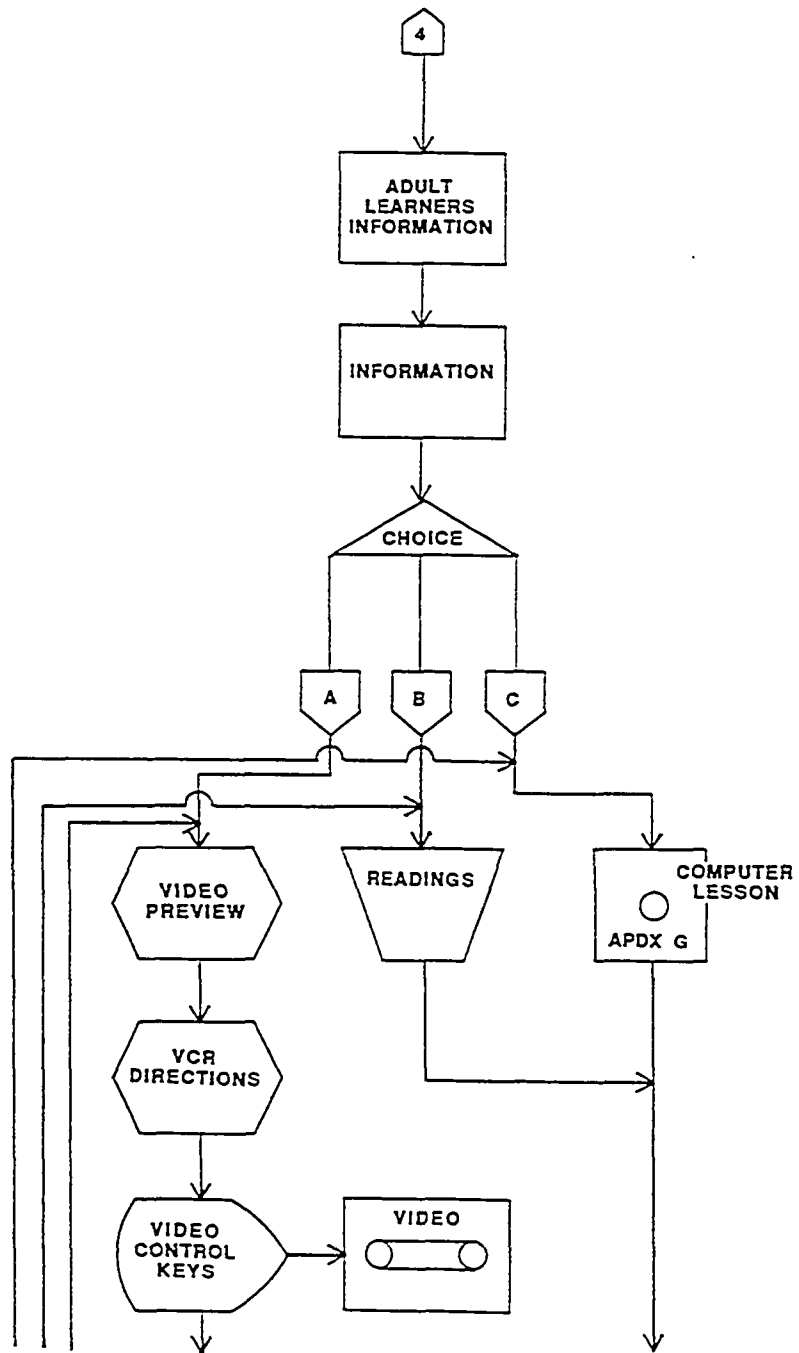
Each videotape segment is predated by orienting information to focus the tutor's attention. For example, just before a videotape segment providing information on procedure for the first tutoring session, a screen with this statement appears: "In this video segment you will be given four hints on how to get started during your first tutoring session." Following the videotape segment, a computer screen appears with a review of the essential information from the tape. In this case the screens display this advice: "Remember: 1) Plan a list of questions. 2) Be sensitive to learner's reaction to prying. 3) Stress confidentiality. 4) Let learner know his/her needs and wishes will be respected during lessons." The orientation and review screens should help focus a tutor's viewing and provide information from which notes may be taken. Tutors who wish to take notes on videotaped information are advised that review screens appear at the end of each videotape segment to facilitate this process.

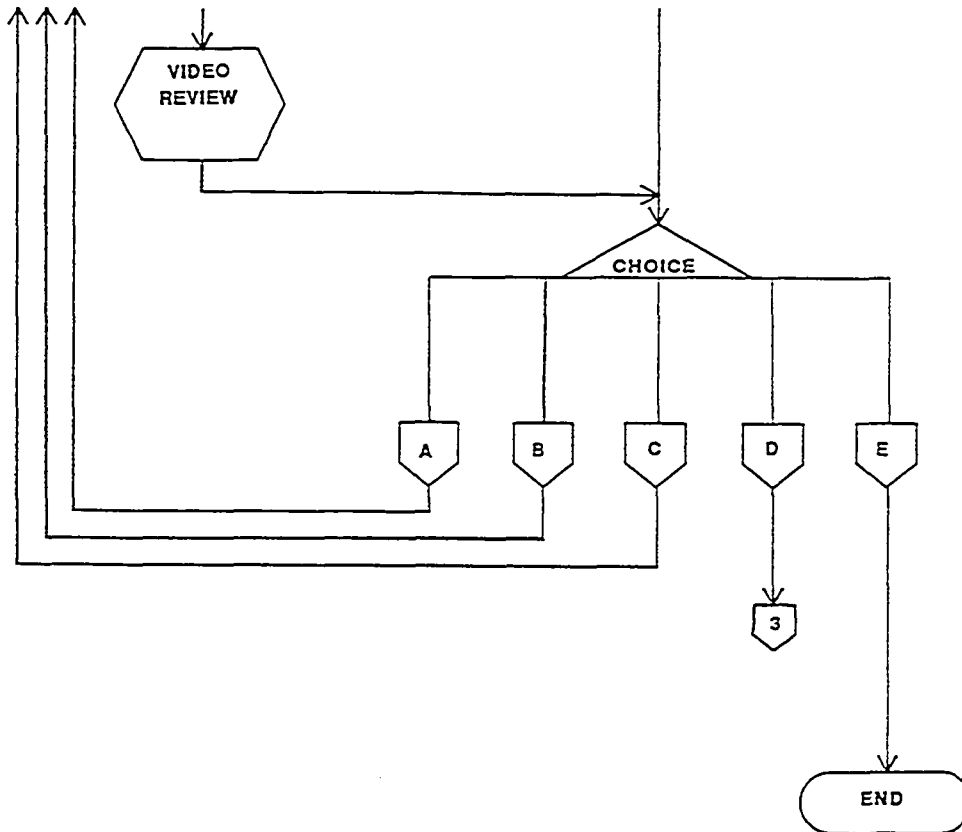
The tutor is given every opportunity to experience multiple sensory modalities during instruction. Individual learning preferences will guide choices. Each modality (i.e., videotape, printed information, audiotape, computerized lesson) contains all or most of the

information a potential tutor will require on the topic. For example, The Adult Learner module has a videotaped lecture on adult learning theory, directs a tutor to a book chapter with in-depth information on the topic, and contains a complete computerized lesson with informational hints for working with adult learners. If the tutor watches the videotape and feels the need for more information, it can be obtained from the reading selection or the computerized lesson. Choosing only one source may provide sufficient information or skill demonstration to enable a tutor feel confident in his/her ability to perform effectively. And, choosing to experience multiple learning modalities will provide reinforcement of the necessary information and/or additional skill-building demonstrations or activities. These modality choices may help inexperienced tutors feel more comfortable and well-informed about the tutoring process, or allow experienced tutors to control the amount and depth of information they require.

The Adult Learner

Flowchart Section 5:





The descriptive literature on tutor training supports the inclusion of adult learning theory and practice in a tutor training workshop (Colvin & Root, 1987; Darling, Puckett, and Paull, 1983; James, 1982). Additionally, guidelines for grant funding in the state of Illinois require "the adult learner -- needs, goals uniqueness" (Illinois Literacy Council, 1988, p. 1) be covered during tutor training.

The designer has presented this module first for two reasons. First, tutors may tend to have preconceived notions about the role of the teacher and that of the student. Such notions may involve status differences and may be more appropriate for an adult teacher/child student relationship. Information regarding roles in an adult tutor/adult learner relationship need to precede all other content modules because the instructional process is built upon such an understanding. Second, the reading methodologies suggested by Literacy Volunteers of America and utilized in this training program employ adult learning theory and practice. By requesting a new tutor to work in this module first, the presentation of roles and/or content not common to public school education may be better understood and accepted.

The Adult Learner module begins with a computer text introduction. The first two screens display the following text:

We know that children are not "miniature adults," and that it is not appropriate to expect adult behavior from children. Yet, too often, tutors view adult literacy learners as "big kids" and attempt to teach them the same way children are taught. Such a practice can cause a learner to feel resentment, hostility, or failure.

Research on adult learning preferences has

provided educators with some basic "tips" for facilitating learning.

The next screen gives the tutor the choice of (A) a videotaped lecture, (B) a reading selection, or (C) a lesson on the computer. The screen also states "Later, in the program you will have the chance to do more than one if you wish."

If (A) is chosen, a screen appears introducing the videotape segment and asking the tutor to watch for five important characteristics of adult learners. The next screen explains how to prepare the VCR. After the videotape has been shown, a screen appears reviewing the five characteristics:

For effective learning, adults must . .

- 1) Take responsibility for tasks
- 2) Want to acquire skills
- 3) Have accurate perceptions of what they're to learn
- 4) Accept consequences of success or failure
- 5) Perceive material to be relevant to lives

The last screen for choice (A) gives the tutor the option to watch the videotape again, read a selection, complete a computerized lesson on the adult learner, return to the Main Menu, or exit the program.

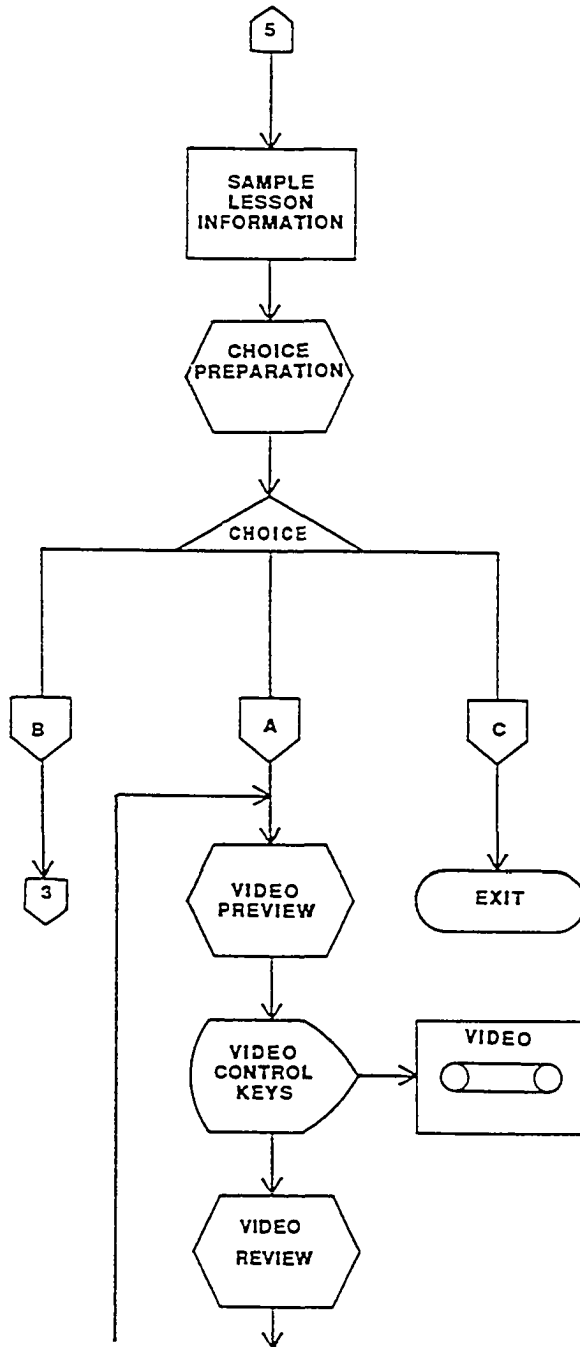
The (B) choice screen directs the tutor to a reading selection found in Teaching Reading in Adult Basic

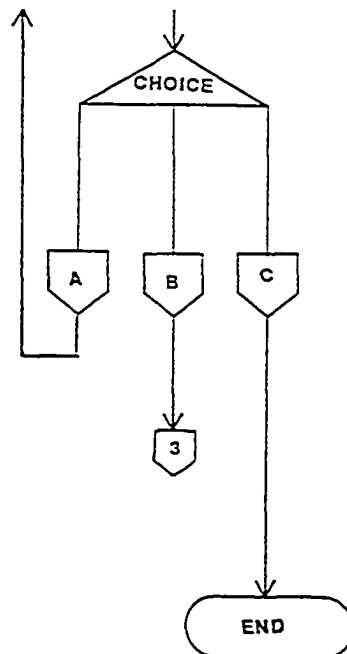
Education, by Bowren & Zintz (1977), included in the Media Packet. When the tutor is ready to continue, the same videotape, computerized lesson, Main Menu, exit choices are given.

The (C) choice contains a textual lesson presented by a series of screens on the computer monitor. This lesson contains five "tips" for working with adult learners and examples illustrating each "tip." The tutor is directed to take notes in his/her Notebook. The text of the lesson is in Appendix G. At the end of the computerized lesson, the tutor may watch the videotape, read the selection, go through the computerized lesson again, return to the Main Menu, or exit the program.

A Sample Lesson

Flowchart Section 6:





This module contains a videotape demonstration of Ruth Colvin, founder of Literacy Volunteers of America, tutoring an experienced tutor playing the role of a literacy learner. This module appears before Reading Methodologies to serve as an introduction or overview of the content presented in Module C. But, the tutor may decide to use the module later to review the reading instruction process.

The first few screens describe the content of the videotape segment and provide the tutor with information to facilitate his/her next choice option. The screens point out when a person might choose to see this module, and inform the tutor of the two typical learning preferences

that determine when to view the videotape segment. For example, some tutors may prefer to view a complete reading lesson at the start of training, thus aiding their understanding of the total process of tutoring. Or, other tutors may prefer to view the reading lesson at the end of training, where it could serve as a review of the total process. Then, the next screen gives the tutor the choice of (A) watching the videotape, (B) returning to the Main Menu, or (C) exiting the program as the way to express personal learning preference.

If (A) is chosen, a screen alerts the viewer to the four different reading methodologies that will be demonstrated. Instructions follow on how to start the videotape segment. After it has been shown, this text appears on the next two screens:

You have just seen the Language Experience Approach demonstrated with the Vegetable Fish Soup recipe.

Phonics instruction occurred during the section dealing with the beginning sounds of words and the letters that make the sounds. Key words were used to help the learner remember the sound-letter associations.

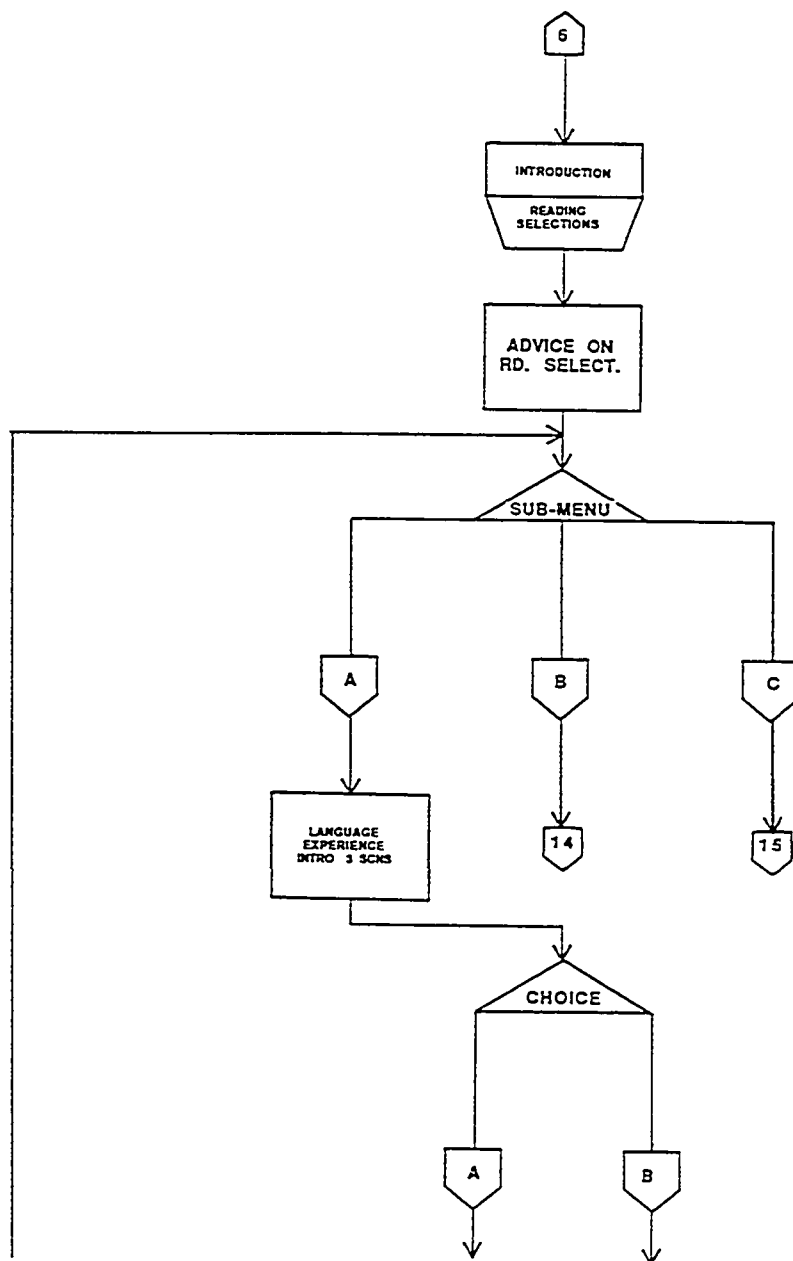
Sight words were covered with the three underlined words from the recipe that ended up on letter cards.

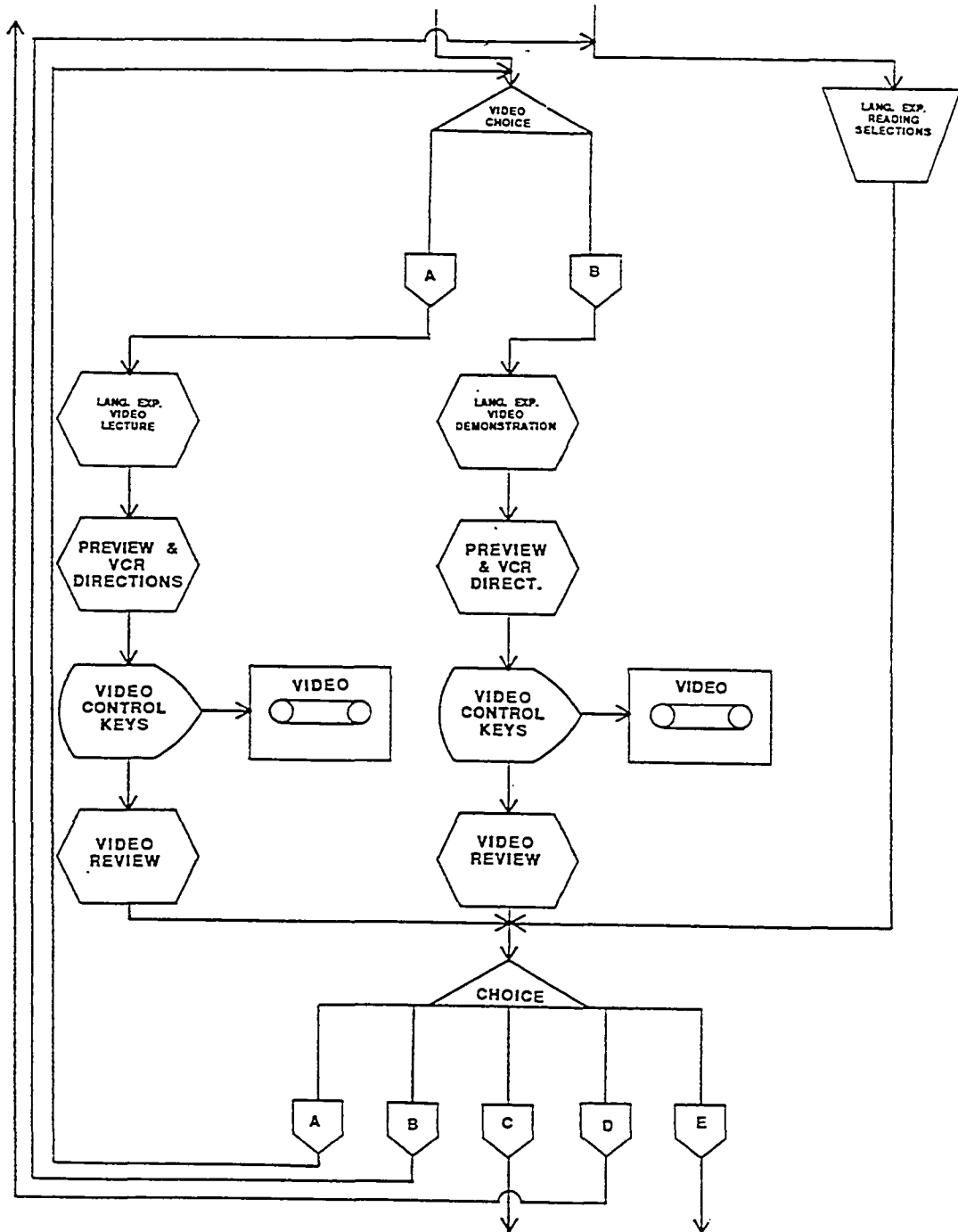
Larry used context clues when he read "fillets" after "fish." He was familiar enough with the recipe to guess what the word was.

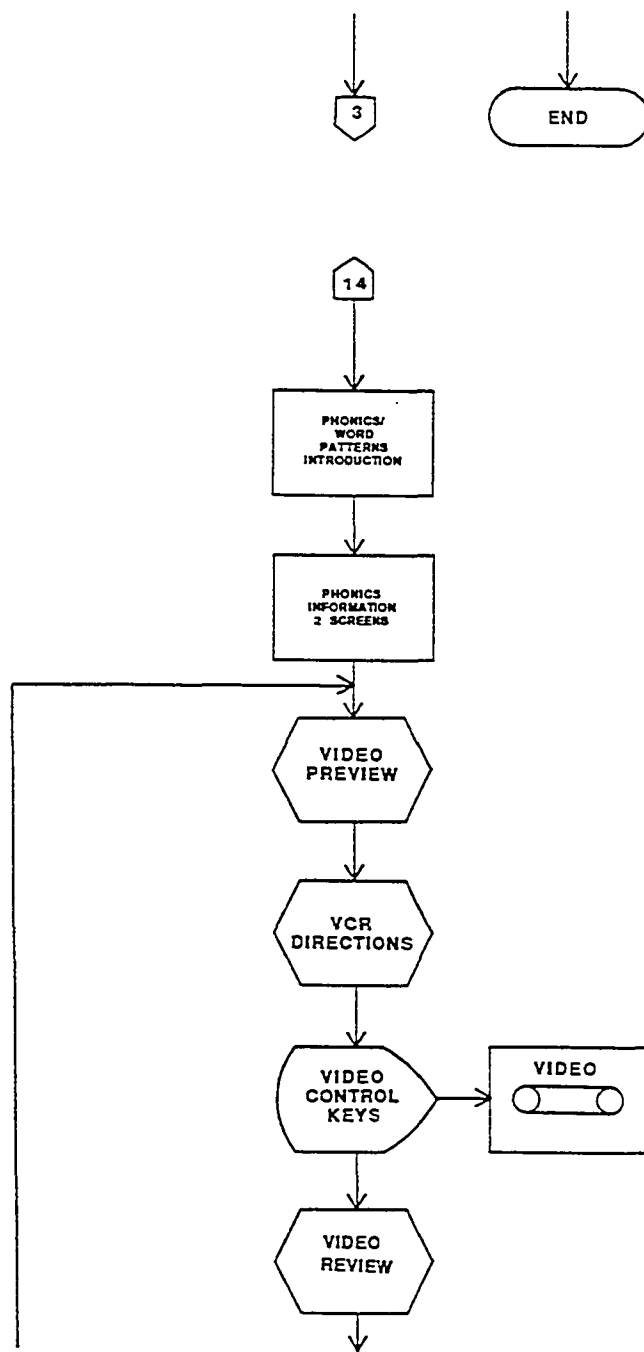
Then the tutor is given the choice of watching the sample lesson again, returning to the Main Menu, or exiting the Program.

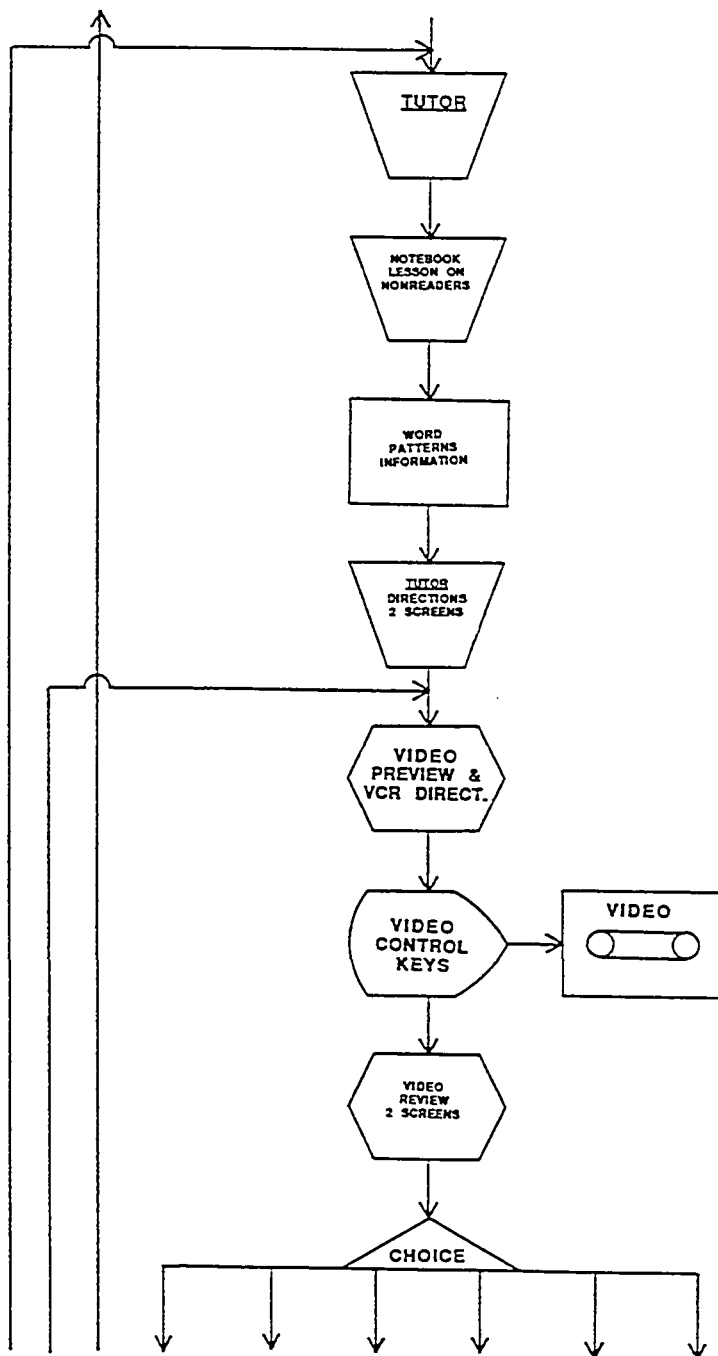
Reading Methodologies

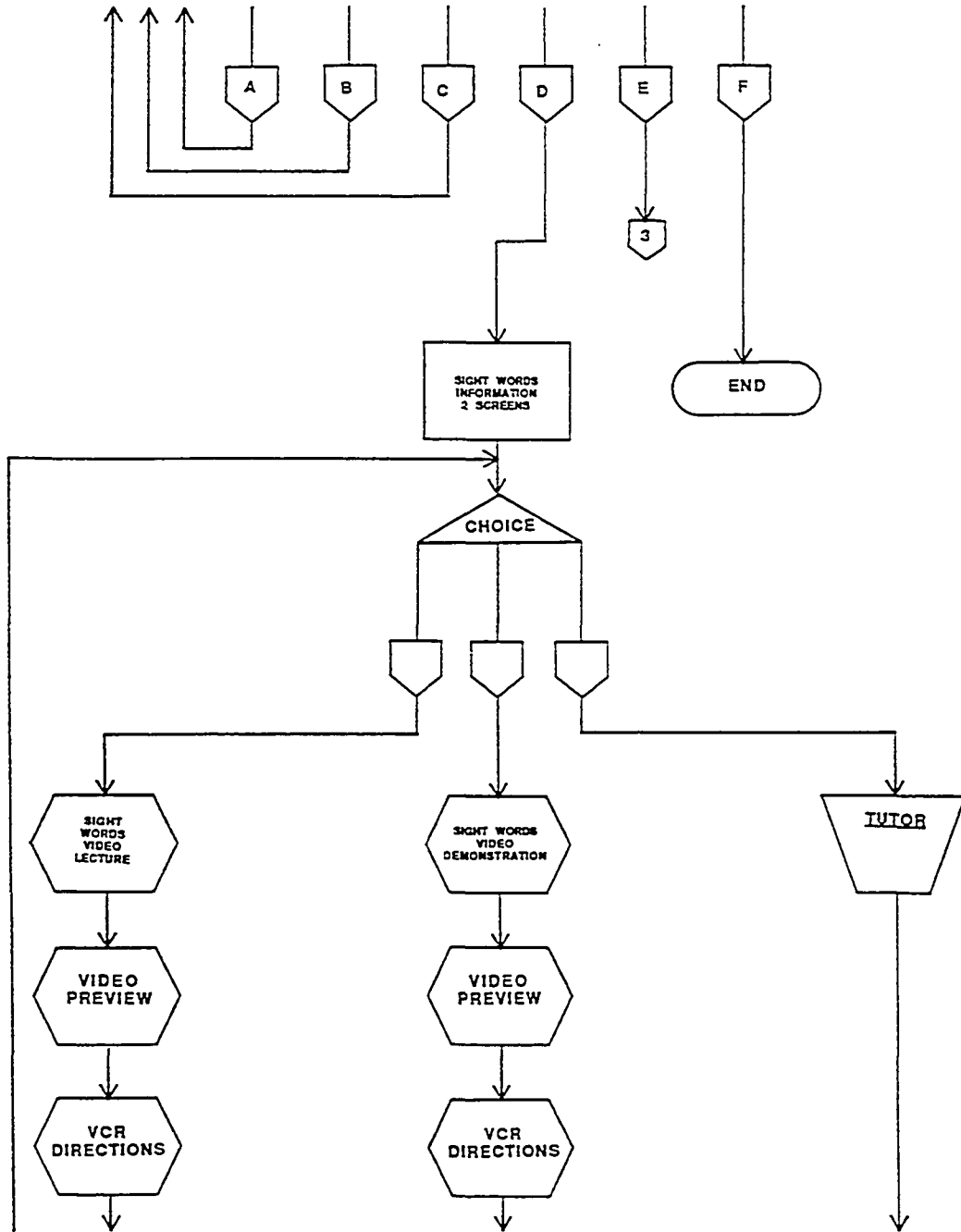
Flowchart Section 7:

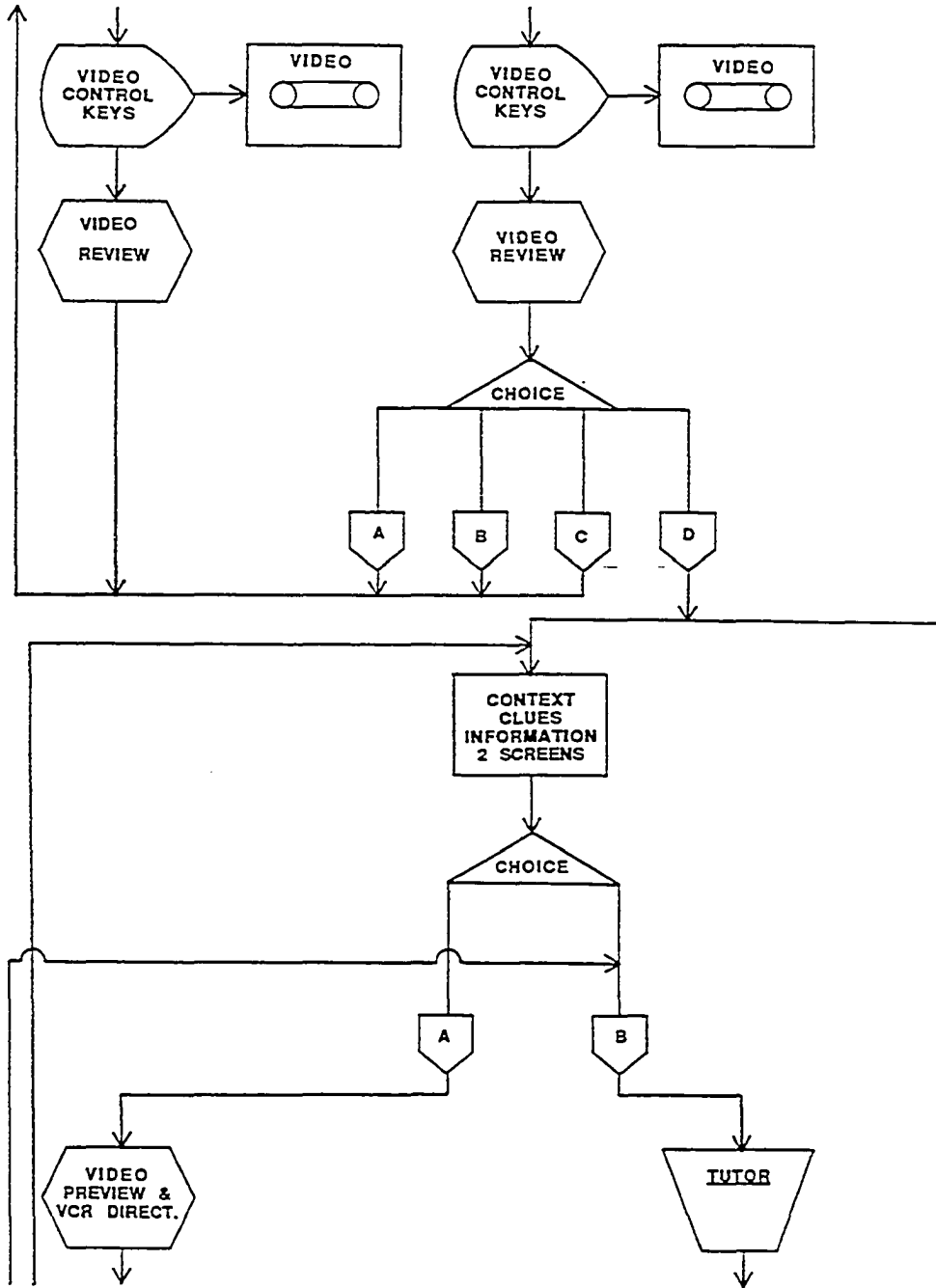


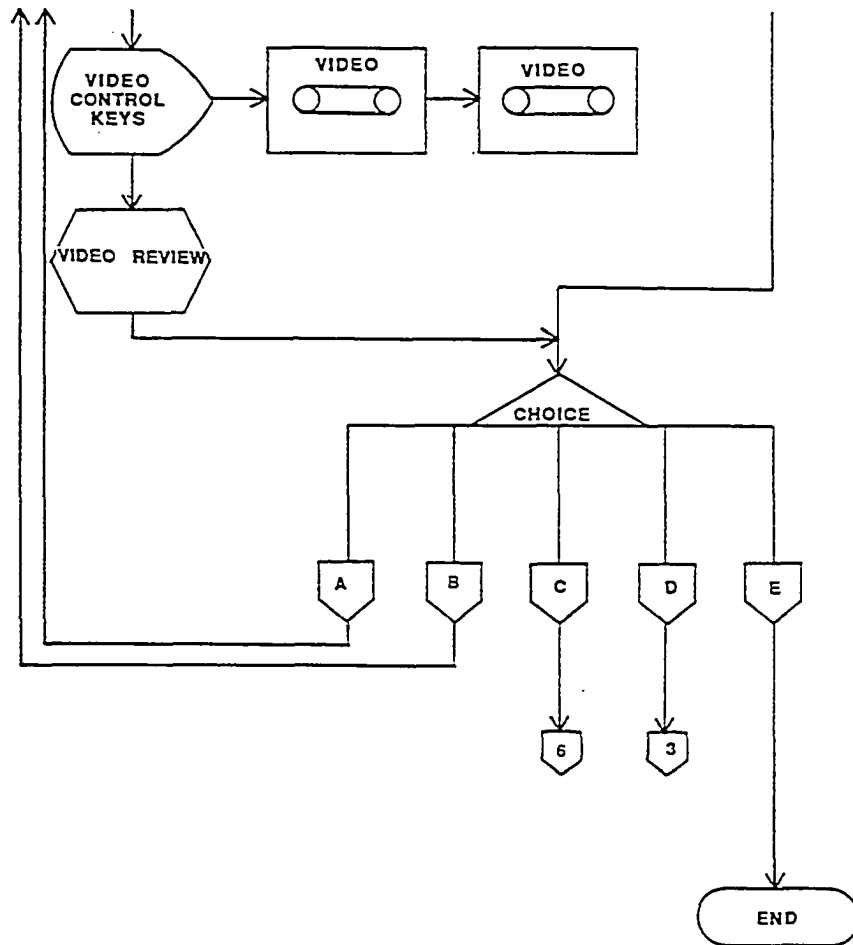












The module on reading methodologies appears third on the menu for three reasons. First, information from The Adult Learner and A Sample Lesson introduces and explains some of the procedures presented in this module. Second, information and skills related to teaching reading are

vital to successful tutoring, thereby warranting early introduction in a training program. Third, until the specific reading methodologies are understood, information presented in other modules will not make sense (i.e., Planning Lessons and Making Materials, Getting Started, and Goal Setting and Motivation).

The descriptive literature on tutor training supports the inclusion of reading methodologies in a training workshop (Colvin & Root, 1987; Edwards & Bell, 1985; Sizemore, 1984; Darling et al., 1983). Additionally, the guidelines for grant funding in the state of Illinois require "the language acquisition process and the reading process" and "instructional techniques for adult literacy learners" (Illinois Literacy Council, 1988, p. 1) be included in tutor training.

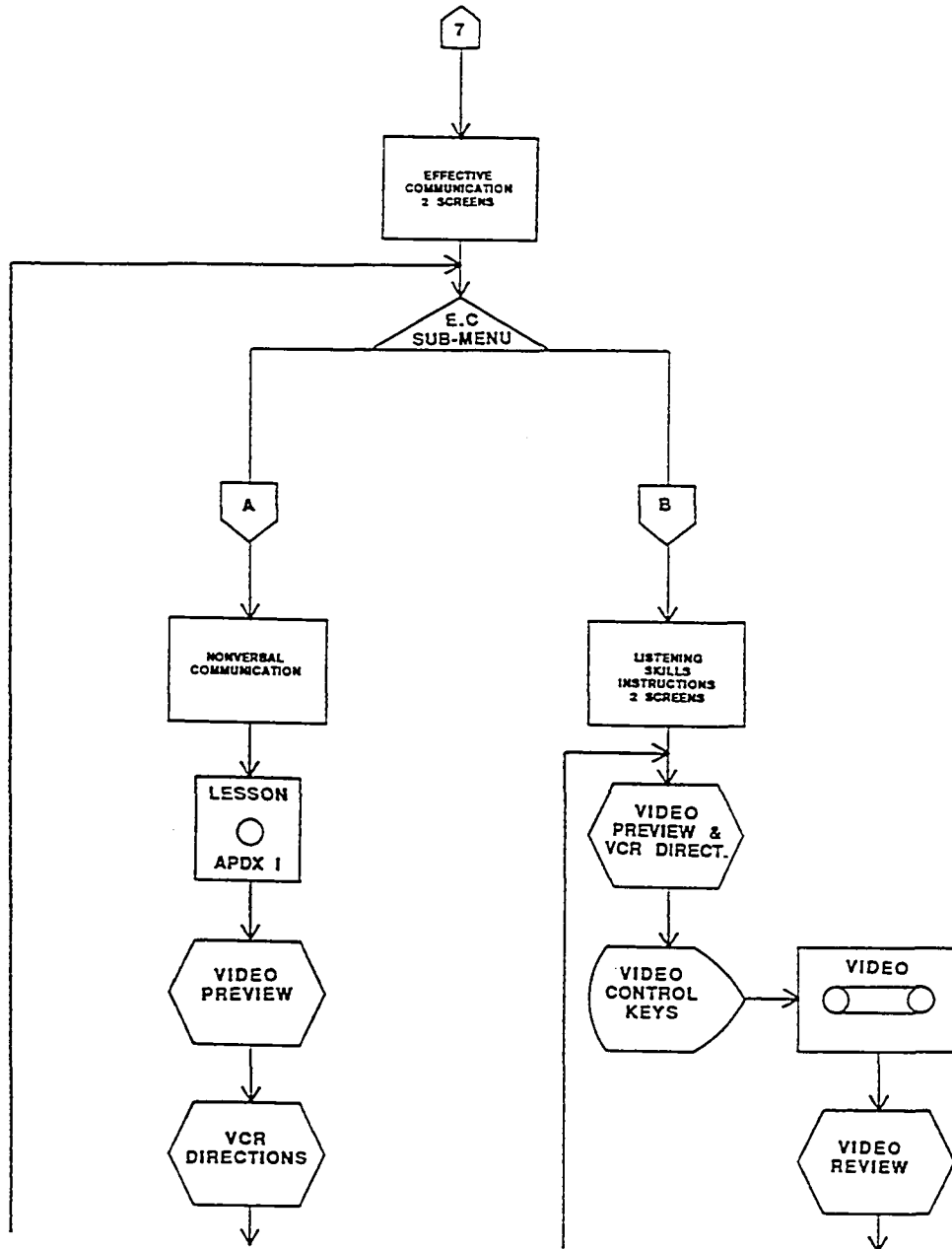
The first screen of this module describes the complexity of the topic to the tutor and directs his/her attention to the section in the Notebook that contains additional reading selections. Because this topic will continue to be of interest to experienced tutors, the reading selections have been chosen to further expand on the information presented by this basic module. The next screen describes the three sub-sections of the module: The Language Experience Approach, Phonics and Word Patterns, and Sight Words and Context Clues. If the tutor wishes further information on the contents of each sub-section,

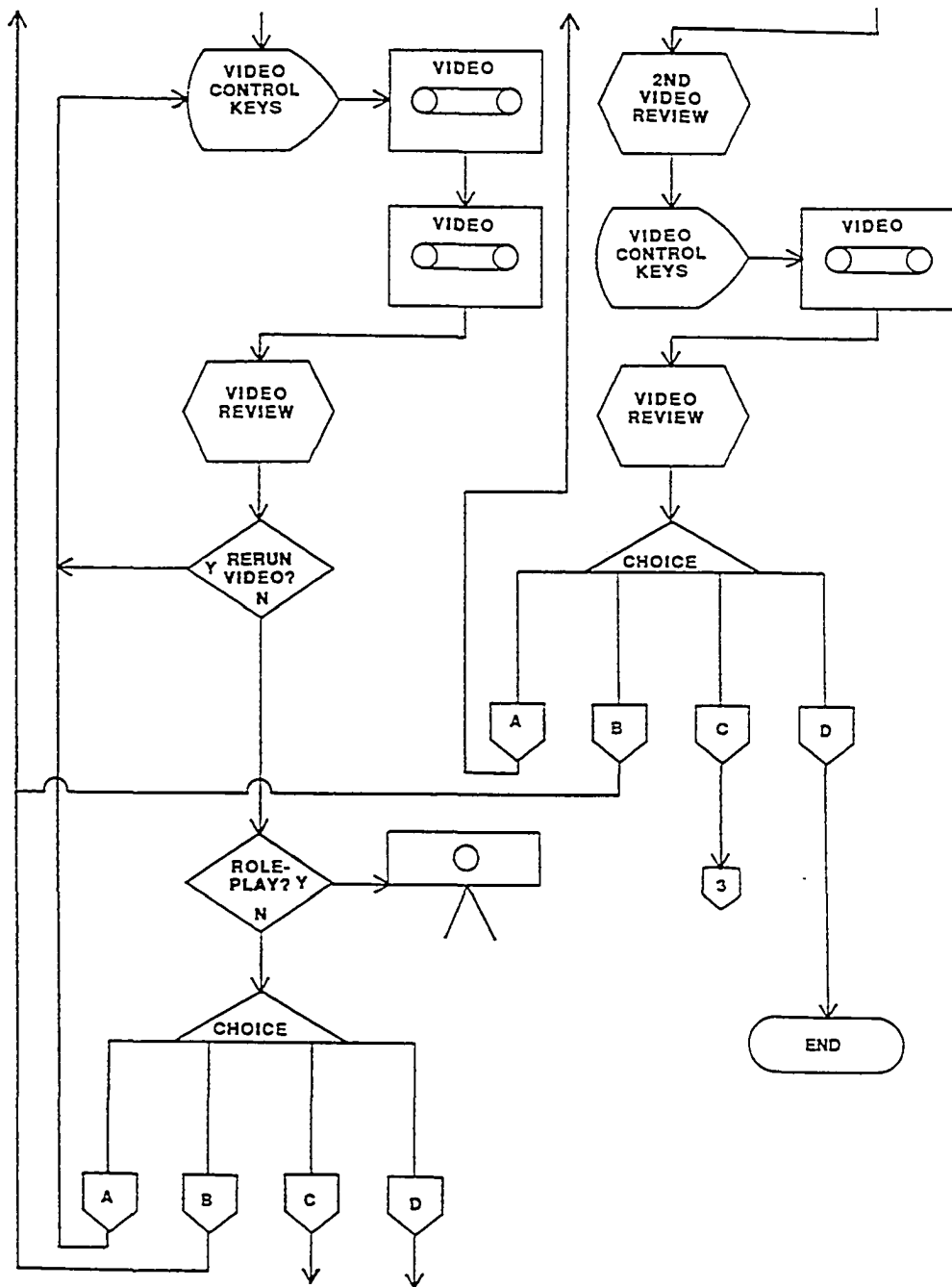
s/he is directed to the information on page RM1 in the Notebook.

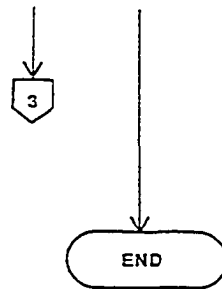
Each sub-section has a number of screens that introduce the topics and illustrate the process to be covered. Each sub-section also has two videotape segments: a short lecture on the reading methodology, and a demonstration of teaching that reading methodology. Additionally, each sub-section gives the tutor the choice of watching the two videotapes again, going on to reading selections on the methodology, returning to the Reading Methodologies sub-menu to access another methodology, returning to the Main Menu, or exiting the program. Appendix H has the text of each reading methodology's introductory screens, videotape segment orienting and review screens, and directions for reading selections.

Effective Communications

Flowchart Section 8:







Effective Communication appears as the fourth module on the Main Menu for two reasons. First, its content relates to theory presented in *The Adult Learner and Reading Methodologies*. Second, information in this module sensitizes a tutor to techniques presented in the following module, *Getting Started*.

The descriptive literature on tutor training supports the inclusion of this module's content on nonverbal communication and listening skills in a workshop (Colvin & Root, 1987; Darling et al., 1983). Additionally, the guidelines for grant funding in the state of Illinois require "methods to establish rapport" (Illinois Literacy Council, 1988, p. 1) be included in tutor training.

This module has been designed to provide the tutor with information on sending/receiving nonverbal communication and on listening skills. In this module, the

tutor is sensitized to an illiterate adult's ability to decode nonverbal messages, many of which can be unconsciously sent. Additionally, the tutor is presented with information and skill demonstrations related to good listening practices. The first two screens of the module introduce the tutor to the role effective communication plays in tutoring. The third screen gives the tutor the choice of working on nonverbal communication skills or listening skills. This screen serves as the Effective Communication module's sub-menu.

The nonverbal communication section has sixteen information screens on what is commonly called "body language," text of which can be found in Appendix I. The information screens lead directly into two videotape segments. In this module, the tutor is not given a choice on learning modality. Visual images and full motion are needed to properly demonstrate conscious and unconscious nonverbal communication. Each videotape segment has a preceding screen that directs the tutor's attention to critical actions, and is followed by a screen that reviews the critical action, and gives the tutor the chance to watch the segment again. Also, by pressing certain function keys, a viewer can stop the tape, rewind it, or freeze the picture. This option is available on all videotape segments and directions for its use appear on the computer monitor while the VCR is searching for the correct

segment and while the videotape is being played on the television monitor. This learner control option will be of critical value during these videotape segments because the nonverbal communicative actions are completed so quickly.

The nonverbal communication sub-section of this module also contains the option of tutor/machine role play. Because this training program is a prototype, this section has not been enabled. High-quality videotape production of nonverbal communication events is beyond the talent and financial resources of the designer. If the prototype training program is adopted for use in the future, this section could be fully produced and enabled.

The listening skills sub-section of this module has two introductory screens with this text:

So many times when people find themselves in the role of 'teacher,' they think effective communication means talking a lot. This is based on a person's experiences during youth. Your teachers probably did talk a lot! But, when working with adult learners, what you hear will be much more important than what you say. You will need to listen a lot, not talk a lot!

Two short videotape segments follow. The tutor is directed to watch for definitions and examples of reflective listening, paraphrasing, focus questions, encouraging skills, and summarizing. After each video segment, a

review screen appears displaying the following text:

Reflective listening and summarizing help
demonstrate your sincere concern to your learner.

Paraphrasing, focus questions and encouraging
statements demonstrate to your learner that you
are listening to him or her.

When a good listener senses something is wrong,
s/he --

- * Gives the person a chance to talk about it
- * Acknowledges the person's feelings
- * Will try to fit the problem situation into the
lesson

Again, the tutor is not given the choice of watching the
videotape segments; they appear automatically. Also, the
learner has the ability to rewind, stop, or freeze frame
the videotape. When the videotape segments and review
screens are over, the tutor has five choices:

(1) Watch the videotapes again.

(2) Participate in a role-playing session where
listening skills may be practiced and appropriate
responses videotaped (this role-playing session has not
been enabled for the same reasons the nonverbal
interaction section was not enabled).

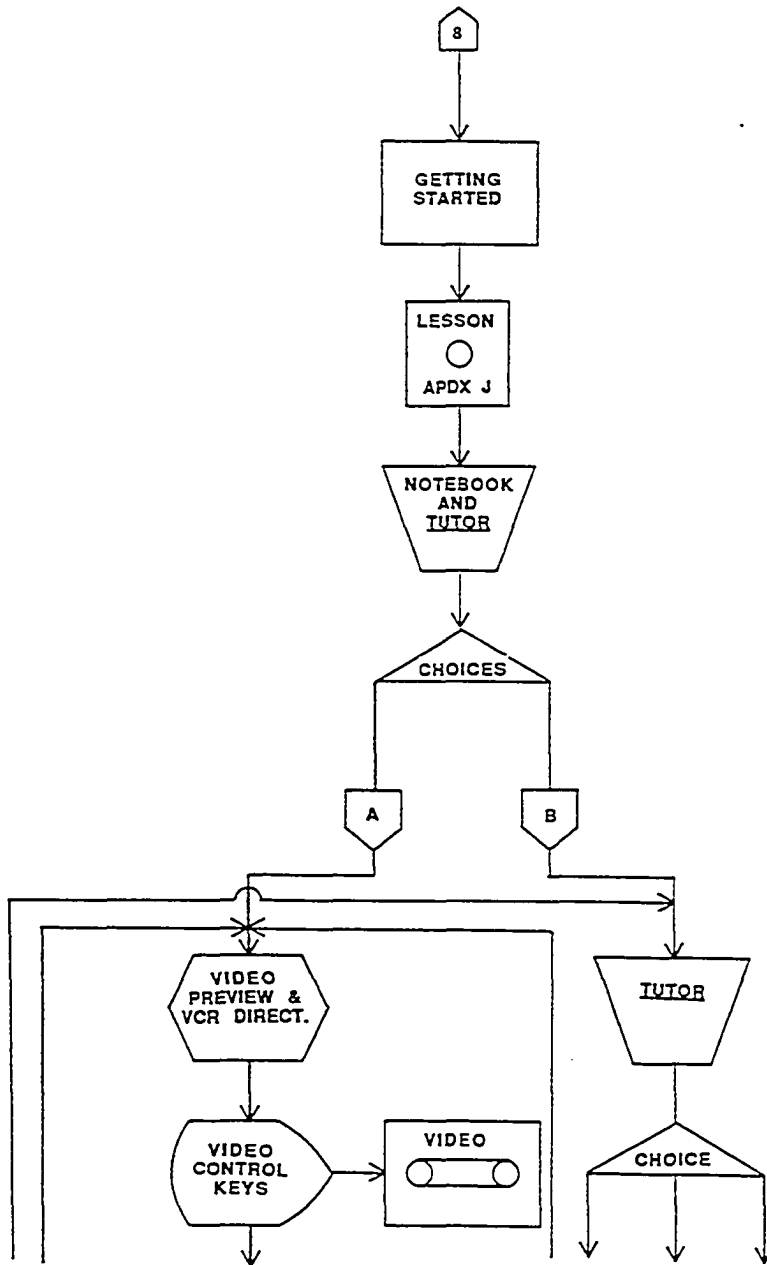
(3) Return to the Effective Communication sub-menu.

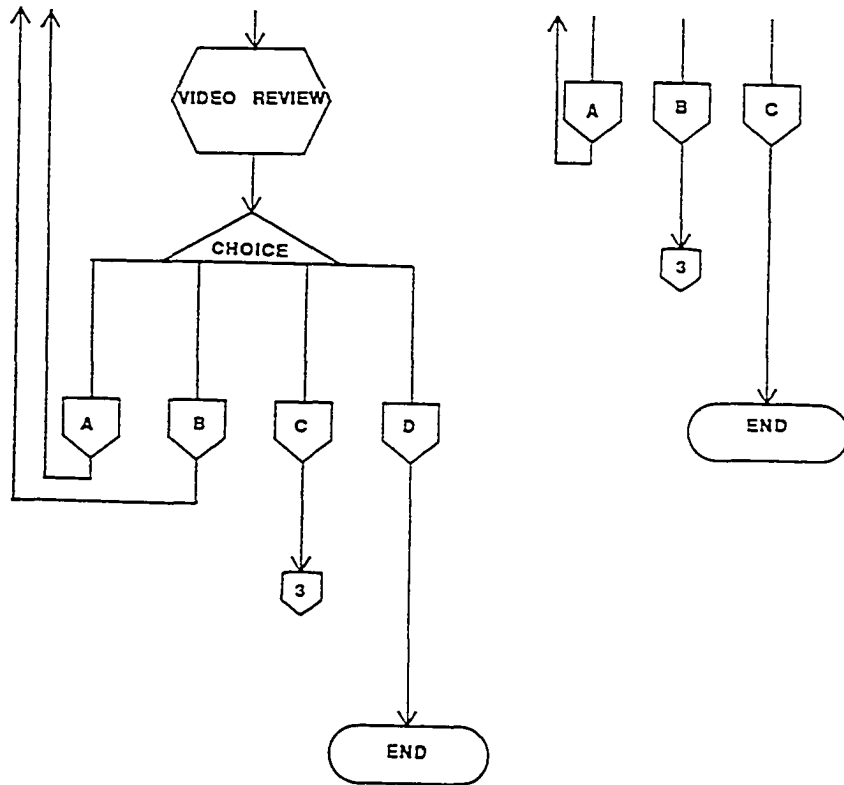
(4) Return to the Main Menu.

(5) Exit the program.

Getting Started

Flowchart Section 9:





This module provides the tutor with information and skill demonstrations intended to guide practice during the first few tutor/learner encounters. It is fifth on the Main Menu because its content utilizes information from the preceding four modules. It is a transitional module from the "this is why you do it" and "this is how you do it" modules to the "this is what you do" modules that follow.

The descriptive literature on tutor training supports the inclusion of techniques presented in this module in a tutor training workshop (Colvin & Root, 1987; Edwards & Bell, 1985; Darling et al., 1983; James, 1982).

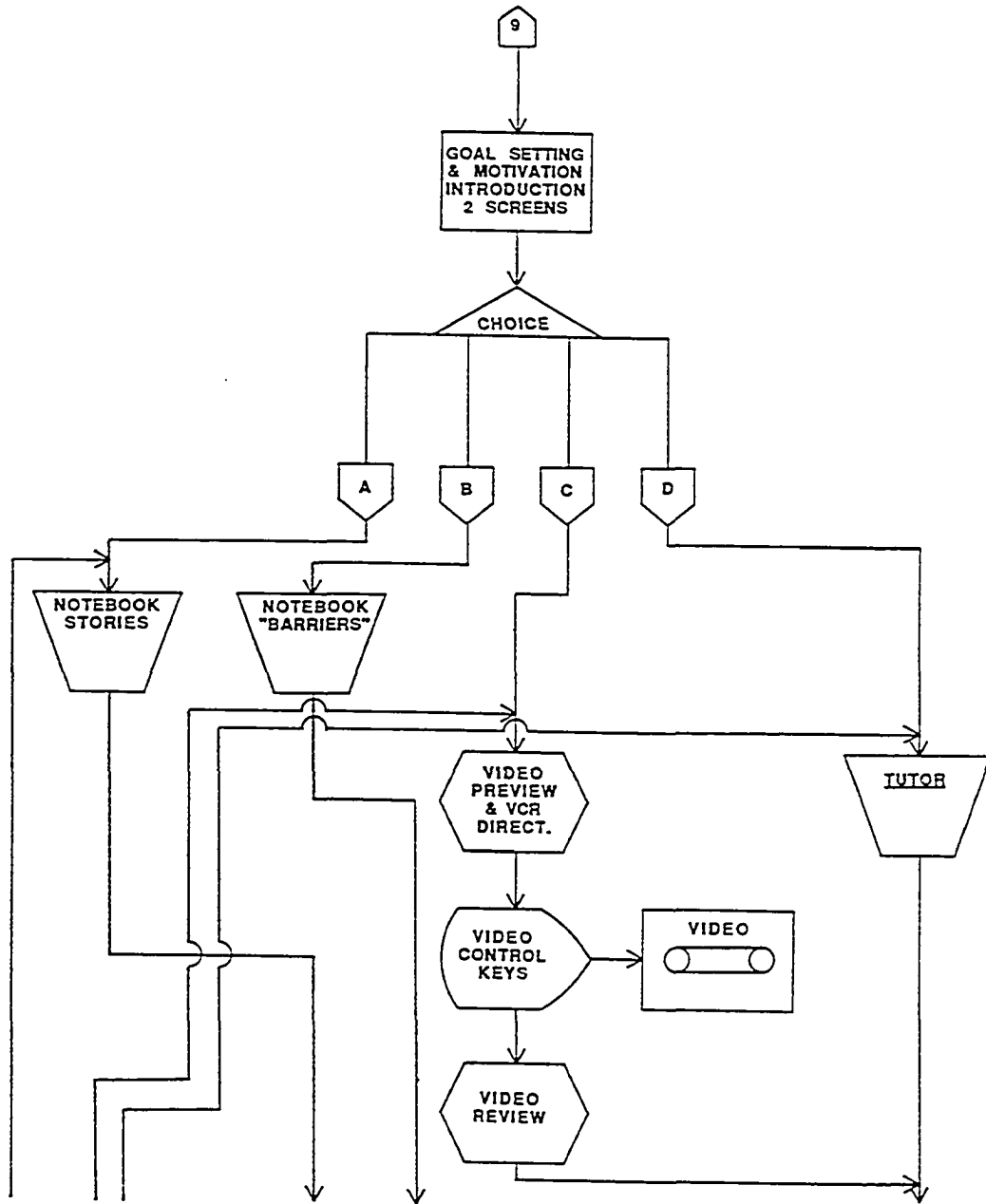
Getting Started begins with six screens voicing some of the typical concerns new tutors have and reassuring them about the tutoring process. (See Appendix J). After the textual introduction to the topic, the tutor is given the choice of seeing a videotape, or reading some hints on how to get started. If the videotape is chosen, a screen appears introducing the videotape and directing the tutor's attention to the four hints given on how to start tutoring. After the videotape segment has been shown, a screen appears reviewing the four hints: "1) Plan a list of questions, 2) Be sensitive to learners' reaction to "prying," 3) Stress confidentiality, 4) Let learners know their needs and wants will be respected during lessons." This review screen is followed by another giving the tutor the choice of seeing the videotape segment again, going on to a reading selection, returning to the Main Menu, or exiting the program.

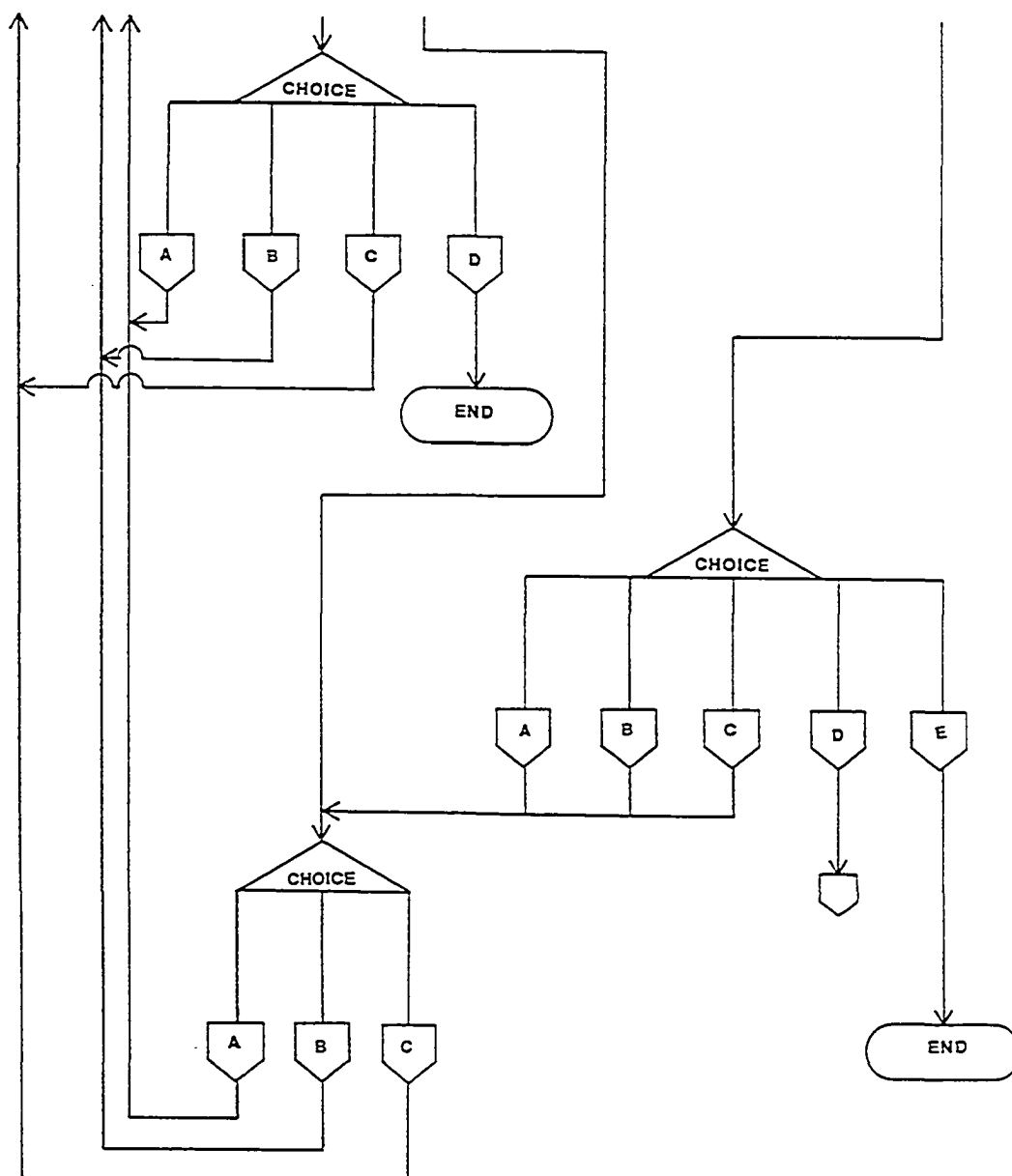
If the tutor chooses to get information from the reading selections, a screen appears directing him/her to selected pages in the book Tutor found the Media Packet. After the screen on reading selections, the tutor can

choose to watch the videotape, go back to the Main Menu, or exit the program.

Goal Setting and Motivation

Flowchart Section 10:





The Goal Setting and Motivation module follows Getting Started because techniques presented in Getting Started actually begin the process of cooperative goal setting for tutor and student. For example, the process of "chatting" and "small talk" described in the previous videotape segment allows a tutor to uncover a learner's reasons for beginning literacy education. This information can then be used to begin the process described and demonstrated in this module when a tutor and a learner set long and short range goals together.

The descriptive literature on tutor training supports the inclusion of goal setting and motivation in a training workshop (Darling et al., 1983). Additionally, the guidelines for grant funding in the state of Illinois require "goal setting . . . organizing instruction to meet individual needs" (Illinois Literacy Council, 1988, p. 1) be included in training.

This module begins with three screens explaining that adult literacy learners typically have very good, personal reasons for attempting literacy education. These reasons often represent long-range goals. Short-range goals, objectives, and tasks are used to attain long-range goals. The fourth screen gives the tutor these choices:

(A) read the stories of some successful literacy learners to learn about their goals and

motivations, (B) read about situations that can cause a literacy learner to lose sight of personal goals and motivation, (C) watch a video segment on goal setting, (or) (D) read about the goal setting process?

The tutor is informed that additional opportunities to access these choices will be given later.

If A is chosen, the tutor is directed to the "Goal Setting and Motivation" section of the Notebook and the sub-section on successful literacy learners, includes articles from adult education and reading journals recounting personal stories of literacy learners. These articles are often touching and can be very motivational for potential and experienced tutors. When the tutor is ready to continue, s/he is given the choice of B, C, D, quoted above, or allowed to exit the program.

If B is chosen, the tutor is directed to the "Goal Setting and Motivation" section of the Notebook and the sub-section on life situations that face adult learners. This section contains an article on barriers that hinder adult literacy learners. This information documents research on the problems and values of literacy learners. Such information is of critical value to tutors who often come from middle-class environments and have little knowledge of the daily life of a nonreader. When the tutor is ready to continue, s/he is given the choice of A, C, D

quoted above, or allowed to exit the program.

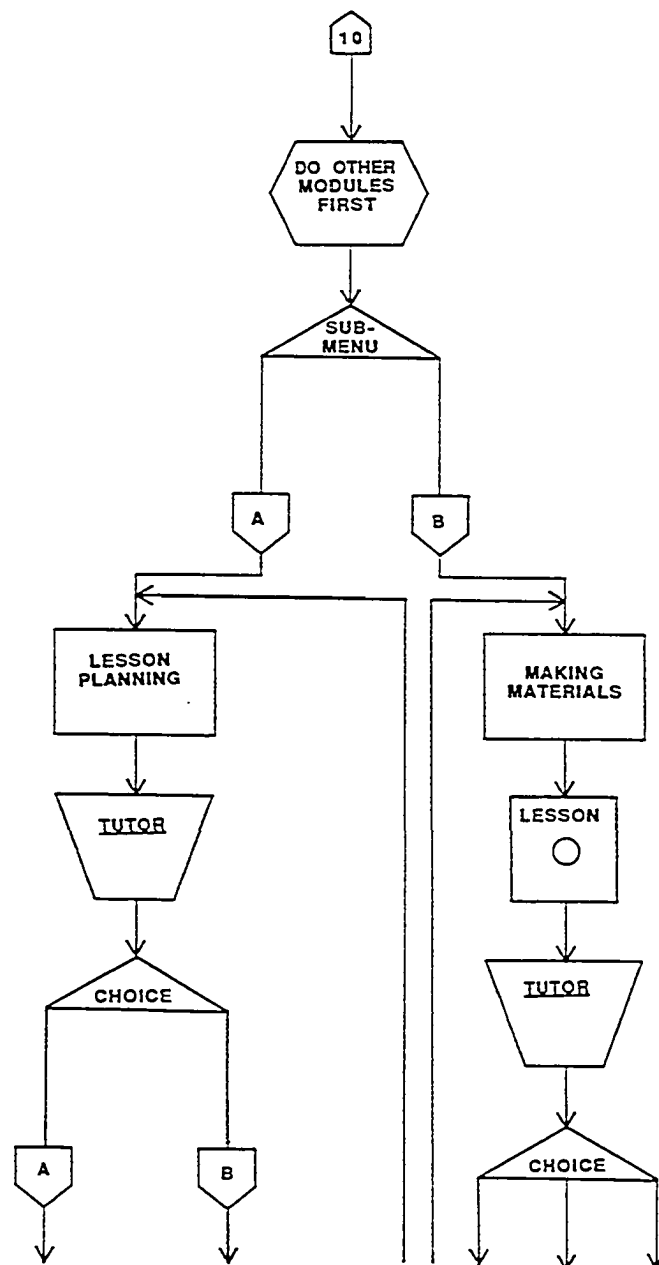
If C is chosen, a videotape segment is introduced and shown. This tape shows how to help a learner set long and short range goals. It also demonstrates setting subgoals and establishing manageable tasks from these subgoals. After the videotape, the review screen appears with the following text:

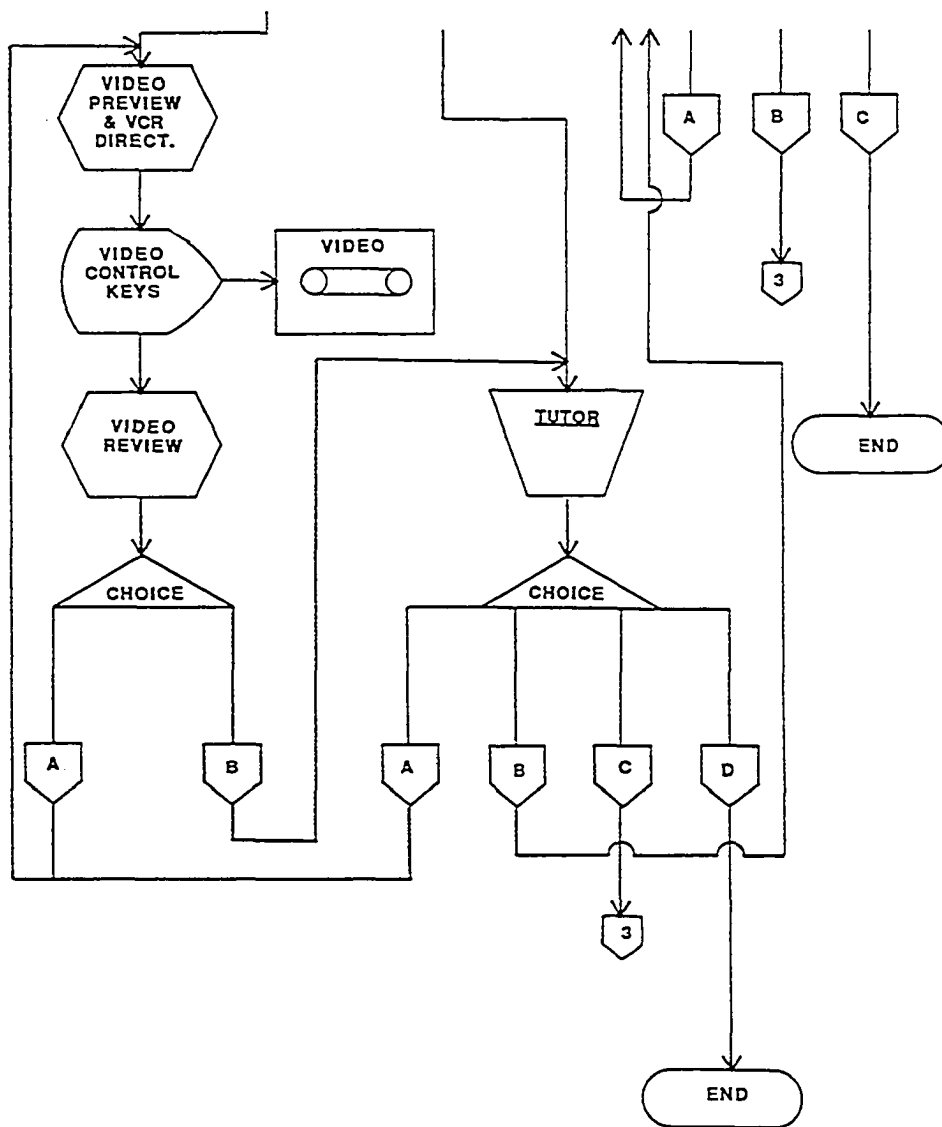
Remember: 1) Talk with learner to set long range and short range goals. 2) Turn short range goals into subgoals. 3) Set up manageable tasks to meet subgoals. 4) Refine and revise goals as you work together.

After that screen, the tutor can choose option A, B, C (again), D, or exit the program. If D is chosen, the tutor is directed to read pages fifteen through eighteen and fifty-five to fifty-seven in Tutor. When the tutor is ready to continue, choices A, B, C, or exiting the program are possible.

Planning Lessons and Making Materials

Flowchart Section 11:





Planning Lessons and Making Materials appears at this point in the training program because information presented in all of the previous modules is required by this module. The descriptive literature on tutor training supports the inclusion of lesson planning and making materials in a workshop (Colvin & Root, 1987; Edwards & Bell, 1985; Sizemore, 1984; Darling et al., 1983; James, 1982). Additionally, the guidelines for grant funding in the state of Illinois require "lessons plans -- organizing instruction to meet individual needs" and "tips on preparation of 'tutor-made/real world' materials" (Illinois Literacy Council, 1988, p. 1) be included.

This module begins with a screen suggesting Getting Started, Reading Methodologies, and Goal Setting and Motivation should precede work on this module. The tutor is given the opportunity to return to the Main Menu or continue in the module. This suggested prerequisite also appears in the Notebook on page 8 in the description of this module.

The second screen displays a sub-menu giving the tutor the choice of working on the Planning Lessons section or the Making Materials section. If Planning Lessons is chosen, a screen appears emphasizing thorough planning prior to tutoring. The next screen directs the tutor to look at the two lesson plan forms in Tutor on pages 102 and 103. On pages 56 and 65-68, the tutor can find these forms

filled in with sample lessons. When the tutor is ready to continue, s/he is given the choice of watching a videotape segment on lesson planning or reading about the process. If the videotape is chosen, it is introduced by a screen directing the tutor to find the form on page 102 of Tutor. Use of this form is demonstrated in the videotape by a tutor describing what she has planned for a literacy learner with minimal reading skills. After the videotape, a review screen appears with the following text: "Did you notice that the tutor did not fill in each space on the Lesson plan form? A form may help you organize your ideas for the lesson. Use it in the way that best suits your needs."

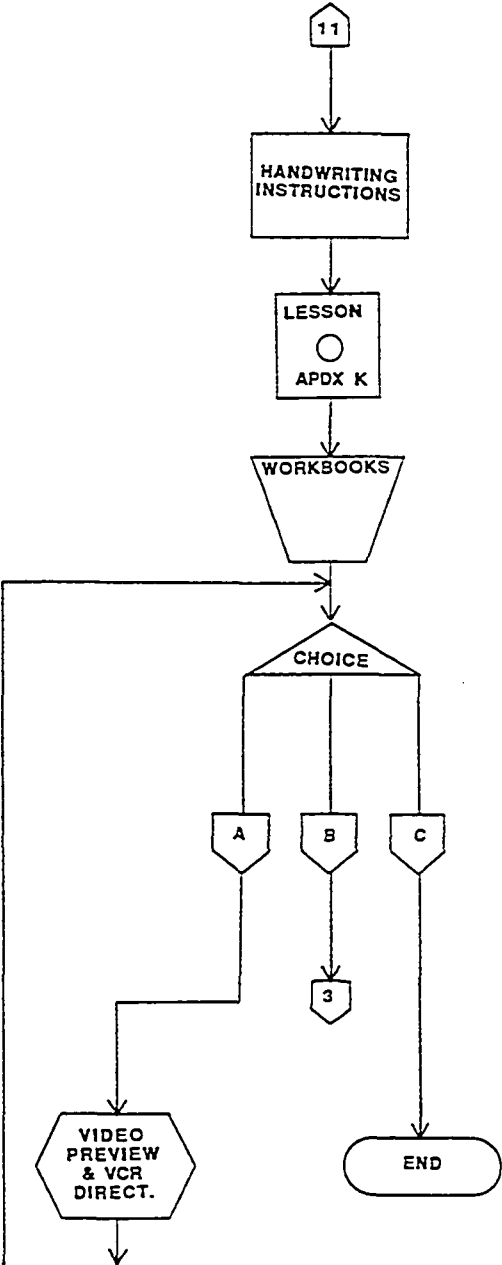
After the review screen, the tutor can choose to watch the videotape again or read about lesson planning. If the reading selection is chosen, the tutor is directed to read pages 57 - 59 in Tutor. When the tutor is ready to continue, s/he is given the choice of watching the videotape again, going on to the Making Materials subsection of the module, returning to the Main Menu, or exiting the program.

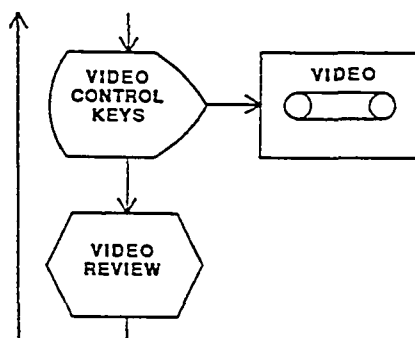
The Making Materials section of the module has a series of six screens describing the typical lack of funding for sophisticated commercial teaching materials, and the need for developing inexpensive items to use in literacy lessons. The tutor learns how to "recycle" items

such as old board games, newspapers, magazines, maps, bus schedules, coupons, labels, and "junk mail." No videotape segments were available on this topic, so the tutor is directed to read pages 51-54 in Tutor for further suggestions. When the tutor is ready to continue, s/he is given the choice of going on to the Lesson Planning subsection, returning to the Main Menu, or exiting the program.

Handwriting

Flowchart Section 12:





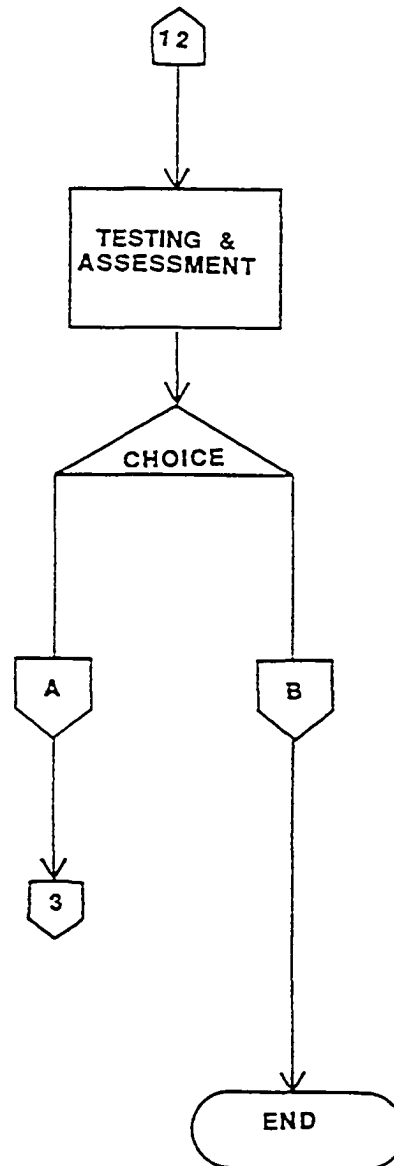
This module is located near the end of the Main Menu because this information may or may not be required by a tutor or learner depending on the quality of his/her manuscript printing and cursive writing. Colvin & Root (1987) include the topic in their tutor training handbook.

This module is designed to serve two purposes: (1) to develop the tutor's handwriting skills, and (2) to develop the tutor's ability to facilitate a learner's handwriting skill development. This module has a series of twelve screens on the D'Nealian manuscript and cursive alphabets and the advantages of their use, the role of writing in reading education, and directions on use of the workbooks and 1/3 and 1/2 inch lined transparencies contained in the Media packet. (See Appendix K for text of screens.) After the information screens, the tutor is given the choice of seeing a videotape on handwriting, returning to the Main Menu, or exiting the program.

The videotape segment is introduced with a screen alerting the tutor to watch for the three manuscript letters that appear differently in print. The videotape segment shows the two D'Nealian alphabets and reinforces points covered previously. After the videotape, a screen reviews a, g, and t, as the letters appearing differently in printed materials. The tutor is then given the choice of watching the videotape again, returning to the Main Menu, or exiting the program. Both the information screens and the videotape emphasize the need for practice to attain mastery.

Testing and Assessment

Flowchart Section 13:



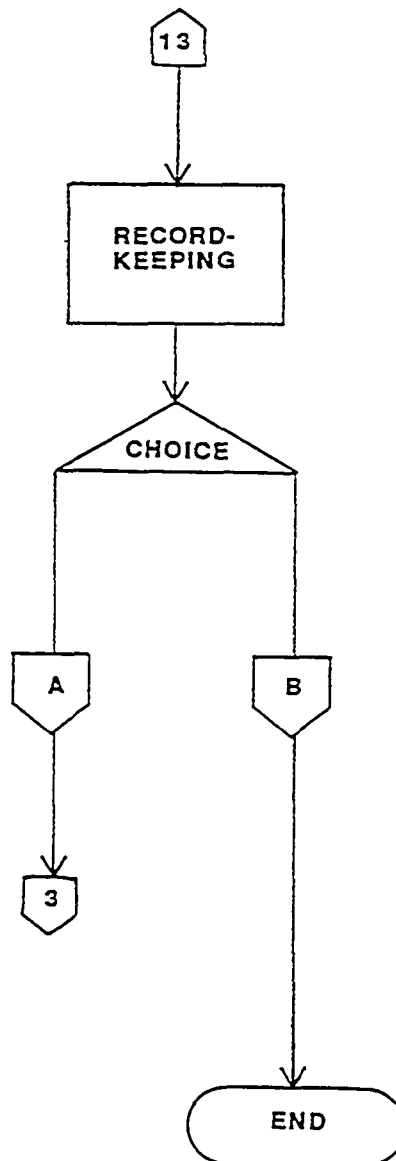
The module has not been enabled in the prototype training program. Each local literacy project uses different formal and informal testing and assessment measures. Some of these procedures are required by grant

funding sources, others have been developed locally. If this training program were to be used by a local project, this section would be designed to reflect that project's testing and assessment devices.

Inclusion of testing and assessment training within a tutor training workshop is documented by Colvin and Root (1987); Darling et al. (1983) and is required for grant funding in the state of Illinois. The state's tutor training guidelines require "informal ways to detect possible hearing, vision and learning difficulties; introduction to assessment tool(s) and other methods of monitoring progress" (Illinois Literacy Council, 1988, p. 1) be included in tutor training.

Recordkeeping

Flowchart Section 14:



This module of the CAIM tutor training program has not been enabled. Each literacy project has its own policies, procedures, and forms for recordkeeping. If this prototype training program was adopted by a local literacy project,

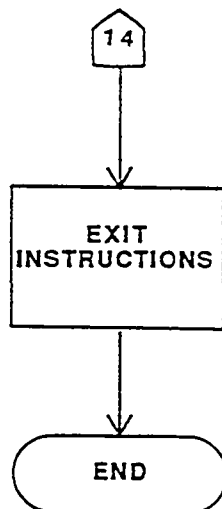
this section would be designed to present the information each tutor would require for accurate recordkeeping.

Inclusion of recordkeeping as a tutor training topic is documented by Colvin and Root (1987); Sizemore (1984); Darling et al. (1983); Edwards & Bell (1985); James (1982) Although specific recordkeeping techniques are required when state of Illinois funding has been obtained, the state's guidelines do not mention it as a required training topic.

Exit Segment

Exit Screens

Flowchart Section 15:



This section of the program allows the tutor to stop the training session at a place that is personally comfortable. Whenever "Exit the Program" has been chosen, a screen appears directing the tutor to record progress on the Log Sheets appearing on page 5 and 6 of the Notebook and to rewind any videotapes used during the training session. The tutor is then thanked for taking part in the training program and directed to press X to turn off the electronic equipment.

Summary

This chapter has flowcharted and described the CAIM program designed for adult literacy tutors with five sections and ten instructional modules. Frequent references were made to appendices detailed lessons and supplementary materials. Computer text described in Chapter IV, six videotapes from Literacy Volunteers of America, Appendices E-K, and a Media Packet with contents listed in Appendix D, will comprise the systematic tutor training program for this study.

Chapter V will describe the process and results of the field testing of the CAIM training program. Also included in Chapter V will be any revisions made to the training program as a result of the field testing.

CHAPTER V

FIELD TEST AND DESIGN REVISIONS

This chapter will report on the intent, methodology, and procedure of the field test conducted on the instructional design reported in Chapter IV. Also included in this chapter will be the design revisions made as a result of data gathered during the field test.

Intent of Field Test

Decisions regarding the field test of the computer assisted interactive media [CAIM] training program require examination of the literature on field testing of computer software found within the body of literature on software engineering. Frequently, within the literature, testing of software is referred to as "debugging. . . the art of isolating and correcting error causes" (General Electric, 1986, p. 7.8). This process involves working with the computer programming code. Although the design formulation process for this study required "debugging," further testing of the training program was necessary.

Within the literature, the concept of field testing, or going out into the field to allow potential users to experience the design prototype, was termed "validation testing" (Schwartz, 1975; General Electric, 1986; Walters,

1988), "alpha testing" (Simpson, 1987; Ward, 1990), or "a walkthrough" (Freedman & Weinberg, 1982). This study will use the "validation testing" concept published by General Electric (1986) as the model for field testing because it is easy for a person who is not an electrical engineer to understand and follow.

Validation testing serves to demonstrate that all functional and performance characteristics of a software specification have been achieved. . . . Ideally, validation testing is performed by an independent test group that has not been involved in design or implementation of the software. This independent test group should include top-level personnel and should approach testing from the ultimate user's viewpoint. (General Electric, 1986, p. 7.4)

Myers (1979) writes "Testing is the process of executing software with the intent of finding errors" (cited in General Electric, 1986, p. 7.6). This process is conducted to uncover seven error classes:

1. Data reference errors - those which occur when data items are referenced improperly.
2. Data declaration errors - conflicts between intended and actual usage.
3. Computation errors - the result of improper analysis or computational precision.

4. Comparison errors - the result of improper or imprecise condition expressions.
5. Control-flow errors - the result of incorrect branching targets.
6. Interface errors - the result of improper passage of data between modules (coding segments).
7. Input/Output - the result of incorrect file formats or erroneous file specifications (p. 7.6-7.8).

Data reference, control-flow, and interface errors were addressed during the formulation phase of the design. The designer was confident that these errors had been found and corrected. Comparison and input/output errors are automatically found by the authoring software, P C Pilot, used during the formulation phase of the design. The designer, again, believed that these errors had been eliminated from the prototype program. Computation errors were not considered because this class of error is not possible in the program's computer programming code. Therefore, the software errors sought by the field/validation testing process fall into the data declaration error class. Field testing will be conducted to locate "conflicts between intended and actual usage."

In summary, field testing of the prototype CAIM adult

literacy tutor training program will be conducted with "top-level personnel" involved in literacy education who will be directed to "approach testing from the ultimate user's viewpoint." Its intent is to uncover data declaration errors, or, to establish if information and skills required of literacy tutors can be delivered by CAIM and understood by tutors.

Methodology of the Field Test

Qualitative research methodology was adopted to document the events of the field test. The primary techniques of (1) observation, in person and videotaped, (2) structured questionnaire, and (3) unstructured interview were used to gather data. The designer chose this methodology for two reasons (1) its flexibility and comprehensive nature accommodate unexpected subject behaviors, reveal software problems not anticipated, and allow examination and questioning of behaviors and problems when they occurred; and (2) the literature documents this type of research as suitable for this type of design. Gentry (1990), using Rhodes' instructional design methodology, designed and produced a computer assisted interactive video training program for family/divorce mediators. Gentry subsequently field tested her design with the primary techniques mentioned above, the same process used in this study's field test.

Gentry's field test description included documents as

well as procedures. Her structured questionnaire, "Computer Assisted Interactive Video (CAIV) Questionnaire, Mediator Roles and Tasks: Orientation Session" (pp. 281-282), was reworded and employed as the questionnaire for this field test; and, her "WELCOME to Mediator Roles & Tasks: Orientation Session, A CAIV Instructional Program" (p. 280), a sheet containing field test orientation information and basic instructions, was reworded and used at the beginning of each field test session.

Setting

An interactive video workstation, consisting of an IBM personal computer, a computer monitor, a two-channel video cassette recorder [VCR], and a small color television, was assembled. Illinois State University's Department of Curriculum and Instruction permitted this equipment to be taken off-campus and assembled at a location more accessible to the field test participants. The field test site was a private home near Peoria, Illinois and Illinois Central College [I.C.C.]. This site was finally chosen because of insurance-coverage requirements on the borrowed equipment. The researcher was not able to arrange for a testing site on the I.C.C. campus where the security of the equipment could be assured and the researcher could be allowed unlimited access during the dates of the field test.

Participants

All participants are/were employed at Illinois Central College, East Peoria, Illinois, in the Adult Basic Education Department. Illinois Central College is a two-year community college serving the area surrounding Peoria, Illinois. The geographic area contains large industrial manufacturers, agriculturally-based public and private businesses and many service-oriented organizations. The population lives in urban, suburban, and rural settings. Community and workplace adult literacy education programs have existed in the area for over 20 years.

Five persons, as in the Gentry (1990) study, participated in the field testing of the CAIM adult literacy tutor training Program. Three worked with the program individually, and two others viewed the program together.

Subject A

This woman has worked in the Department of Adult Basic Education for fifteen years. She has been an adult educator and adult reading improvement instructor for ten years and the coordinator of a tutoring program for "at-risk" high school students for five years.

Subject B

This man is the director of the Reading and Study Skills Laboratory at I.C.C.. He is a frequent speaker at

state conferences on the topic of adult reading education and has presented reading and study skills techniques for adult learners at national conferences.

Subject C

This man is a retired department chair of the former English and Adult Basic Education Department at I.C.C.. He has taught English and business communications and presently serves as a consultant and trainer to local businesses and industries on the topic of business communications.

Subject D

This woman is a former reading teacher, learning center coordinator, and teacher educator who is presently teaching Reading Methods to community college education majors.

Subject E

This woman is the coordinator of an adult literacy tutoring program staffed by volunteer community college students. She organizes the literacy program and presents volunteer adult literacy tutor training sessions.

All of these individuals were selected as participants for the field test because of their experience and expertise with reading, adult learners, and/or adult literacy education. Each participant was contacted by telephone. The design, purpose, and estimated time of the

CAIM training program and the field test were explained to each person and his/her participation was requested. Seven individuals were called. One declined due to personal time constraints. Another was going to be out of town during the time of the field test. That left five individuals to take part in the test.

General Procedure of the Field Test

Participants arrived at the testing site and were escorted to the location of the equipment. They were seated comfortably and offered a beverage. A video camera, pre-focused on the participant and the workstation, was started. The researcher explained that videotape would be viewed only by her and would serve only as back-up system to her written field notes. Because of the intended purpose of the videotapes, field note documentation, written permission from the subjects was not deemed necessary.

While the researcher answered any questions regarding use of the video camera, small talk took place until participants exhibited what the researcher would consider relaxed behavior. The instruction sheet entitled "Welcome to Adult Literacy Tutor Training with Computer Assisted Interactive Media: The Field Test" (Appendix L) was given to each person. The directions were read, then the researcher asked if there were any questions, which were

answered. Finally, the researcher verbally summarized the purpose of the training program and this field test to be sure that the written instructions were understood.

When each participant sat down, the title screen was on the computer monitor. The brightness had been dialed down so the screen appeared black. The dial was adjusted so the screen could be seen, and the participant began to use the program. Dialogue and questions directed at the researcher were encouraged. After the computer literacy segment, welcome screens, and the media packet examination, the Main Menu was displayed. Each participant chose the module s/he found most interesting. Progress through the module was monitored by the researcher, sitting to the side of the workstation, who noted problems, questions, and positive and negative comments. The researcher relied upon the videotaping to record choices, time-on-task, and conversations.

When a module was completed, the researcher asked the participants if they wanted to continue or quit working with the program. When participants decided to end training, the researcher turned the CAIM apparatus off and asked them to fill in the "Adult Literacy Tutor Training Program Field Test Questionnaire" (Appendix M). As the participants were doing so, questions and conversation directed at the researcher regarding the questionnaire were answered and noted. When the participants were finished

with the questionnaire, they were thanked and moderately paid. Participants then left the testing site.

Description and Assessment of Field Test Sessions

Session I

Subject A took part in this session, held on June 9, 1992 from 6:50 P.M. to 7:45 P.M.. The introductory procedures described above took place. During the examination of the media packet the subject made the following comments, "How critical do you want me to be about this? I can be really critical, you know." The researcher replied, "Please, I really want your honest opinion. If I am going to improve this, I need you to be critical." Subject A said, "Okay. First of all, why do you call this a Media Packet? We do that all the time in education. We take simple things and give them big names. What is this thing really?" The researcher replied, "It's the materials that accompany the training program. From time to time in the program, you will be given instructions to find things in the Media Packet." Subject A said, "If it's your additional materials, why don't you just call it that? Why the name Media Packet? I really don't know what that means, and it might put-off a tutor. Be simple about this. Call it Materials."

Subject A then proceeded through the introductory screens of the program and chose to work in The Adult

Learner Module. After reading two screens, the subject said, "You know, this is really a good idea. I could go for something like this. Volunteers are busy people. With this they wouldn't have to meet someone else's schedule; they could do this when it was convenient for them. This would appeal to me if I were a tutor."

The subject then read more screens until she came to the screen that gives the choice of learning modality. She said, "I'm going to choose the video. That's what you want me to do, right?" As the researcher assured her that she could choose whatever she wanted, she pressed the key that started the video.

When the video segment was complete, she said, "That's not enough!" implying that the video did not contain sufficient information about adult learner characteristics. The researcher reassured her that she would have other opportunities to gain more information from reading selections or a computerized lesson and showed her the reading selections in the Notebook. She appeared satisfied by that information.

When she read the review screen, she commented, "I don't agree with that." She pointing to item three on the screen 'For effective learning adults must . . . 3) Have accurate perceptions of what they're to learn.' "That's not right. Their perceptions are not accurate. They really don't know what they are capable of when they start

classes. They have really inflated opinions of their ability. It takes quite a bit of time to convince them that, if they are going to be brain surgeons, they need to learn to read first." The researcher agreed with the inflated opinion ideas and shared experiences from her background that documented this phenomenon. Later, when viewing the videotape of the session, the researcher realized that the subject had misinterpreted the statement from the video segment. When the video's narrator used those words ("have accurate perceptions of what they're to learn), she was describing the situation where learners are familiar with the objectives and tasks of a lesson, and understand what is expected of them.

The subject's comments showed that the video's content may not be clear to all viewers, but changing the wording on the review screen would not be good because it repeated the narrator's actual words. Also, Subject A is an experienced adult educator. Most potential tutors are not, so they would not have the biases and experiences that led Subject A to misinterpret the information. Therefore, the review screen will not be changed.

After the video segment and review screen had passed, the subject chose the computerized lesson on Adult Learning Characteristics. After the learner's dictated Language Experience story, this statement appears, "The tutor then says that this is the way any good teacher presents a

lesson: preparation, demonstration, guided practice, independent practice." Subject A said, "There you go again with the big words. No tutor is going to use those words, and no student is going to understand her if she does." This comment prompted the researcher to subsequently reword the screen to state, "The tutor then points out to the learner that this is the way a good teacher presents a lesson--by getting things ready, showing the student what to do, helping the student practice it, and then letting the student try it alone." The subject completed the computerized lesson and came to the exit screen.

When the researcher asked if she wanted to look at another module, the subject responded, "No, that's enough. Is that enough?" The researcher told her that she could stop anytime she wanted. The subject said, "Okay. What's next?" The researcher then gave the subject the questionnaire to fill out. The subject completed the questionnaire, asking for help when the wording of certain questions was unclear. The researcher paid and thanked the subject.

Subject A's Questionnaire Responses. The questionnaire responses quoted in this chapter are printed exactly as written on the forms. Any errors, mistakes, or unusual punctuation marks are direct representations of the subjects' handwriting.

Subject A reported she had not worked with CAIM before. She felt adequately prepared for the session and had no expectations about the experience. She found the equipment and materials very easy to use and the content level of difficulty to be mid-range.

The subject responded, "Training of tutors," when questioned about the purpose of this program. When asked if the purposes of the program had been met, she wrote, "It appears to allow a volunteer ample opportunity to learn how to tutor." The subject thought that she had benefitted from this learning experience, and wrote "Another opportunity to observe a training program use of new technology." Under bad points about this type of instructional system she wrote, "I question some of the video content - choice of wording, (vocab.)" Under good points she wrote, "1. can be used whenever the volunteer has time - at their own learning pace. 2. Variety of learning modes offered. 3. Appears easy to follow."

When asked if she liked anything about the program, she responded, "The various learning styles offered to the trainee." She said nothing needed to be added or taken out of the program, including other content on adult literacy tutoring. She responded "yes" to a future opportunity to use this type of training system.

When asked what types of people, students or tutors, would be attracted to this mode of instruction, she wrote,

"1. Those who are not looking for the tutoring to be a social activity- 2. Busy people who don't want to waste time." "Some people need 'hand holders'--those who are basically insecure themselves," was the subject's response to the question about what type of people might react negatively to this mode of instruction.

Session II

Subject B took part in this session. It was held on June 10, 1992, from 1:05 P.M. to 3:00 P.M.. After the subject and the researcher chatted for a short time, the subject appeared ready to begin. He was given the instruction sheet, which he read. He examined the Media Packet as instructed and spent about four minutes looking over the Notebook. He then turned to the computer monitor and began working on the CAIM training program. When he reached the computer literacy screens, he wanted to know what happened to the learner with each response. The researcher showed him the various options and brought out the Trainer's Manual that contained the trainer-directed lesson on computer keys.

When the subject reached the Main Menu, he asked about the content of the various modules. The researcher directed him to pages seven and eight in the Notebook containing a short description of each module. When the subject then asked how long it would take to go through

each module, The researcher explained the number of options made guessing the amount of time difficult. The subject still maintained that it was important for the tutors to have some idea how long a module would take to motivate them to work longer on the program. "You want to break these modules up so that the sections take about 20 minutes. My experience is that people will only work efficiently for about 20 minutes. Then they need to get up, move away, and do something else." The researcher then asked the subject to work through a module to gain an impression of the various options to see if this explained the difficult nature of trying to provide only 20 minute sections.

After choosing the Getting Started module first, he worked through the module with few comments. When one screen directed him to find a section in the book Tutor, he asked why this information was not put into computer text? The researcher replied, "First of all, Tutor is not my work and I felt I had to maintain the integrity of Literacy Volunteers of America's copyright. Second, I was concerned that if I had too much reading to be done on the computer monitor, it might become tedious or the tutor might experience eye fatigue. Reading from a book seemed more comfortable." The subject agreed with these points and continued on. Interestingly, his expectations for a "high-tech" delivery system did not include the use of

traditional printed materials.

When Getting Started was completed, the subject returned to the Main Menu and chose A Sample Lesson. During the video segment he mentioned he had met Ruth Colvin at various reading conferences. When the option for the Main Menu appeared at the end of the module, he returned to it. Next, he began The Adult Learner module. He first chose the Reading Selection option for this module. The section directs the tutor to a chapter in a book by Fay Bowren and Miles Zintz. The subject then spent some time talking about his association with Dr. Bowren, ignored the book chapter, and went on to the second choice screen.

Subject B asked, "How long is this video?" The researcher replied, "I'm not sure. It's rather short." Subject B then said, "You should put the time right after it. A person would be more willing to watch a video if he thought it was only going to take X amount of time. In the lab, that's how I get students to keep going. I say, 'Come on, this will only take you five more minutes. Surely, you can work five minutes longer?' You really need to add times to these things."

The subject then pressed the enter key and the video began. He watched it and commented on how drab the narrator's clothing appeared. At the end of the video segment, he chose the computerized lesson on adult learner

characteristics. As he worked through the lesson, he asked what he was supposed to do with the Notebook. The researcher pointed to the directions on the screen. The subject said, "Oh, I missed that. You need to make those things blink. Can you make words blink with this thing?" The researcher said, "Yes. You can program certain sections of text to blink relatively easily." Subject B then said, "Then you'd better do it. If it is important, you need to draw their attention to it. If it was blinking, I would not have missed it." He continued to work through the lesson. "You need spaces between the lines on these screens. My research shows you need one and a half spaces between every line. When I make up things for the lab, that's what I use." The researcher told the subject that one and a half spacing was not an option with the authoring system used to make the program.

When the option for the Main Menu appeared again, he chose it. When the menu appeared, he asked, "Have I seen all the toys?" The researcher pointed out that there more modules, but he could stop at any time. "But, have I seen all the toys? I don't want to quit until I've seen all that this thing will do." The subject was asking if he had the chance to experience the various presentation modalities. She confirmed his statement, handed him a questionnaire, and asked him to fill it in. When he had completed it, he was paid. The researcher and subject

chatted for a long time. As he was leaving, the next group of people to view the program were just arriving.

Subject B's Questionnaire Responses. This person reported he had not worked with CAIM before. He answered "very high" to the question on degree of adequate preparation for the day's session. Although the experience was similar to what he had expected, he had not expected "to use/mix media." He found the equipment and materials "mid-range" in difficulty and the content level to be easy.

The subject responded, "To train tutors - flex time training," when questioned about the purpose of this program, and wrote, "Yes," when asked if the purposes of the program had been met. The subject thought that he had benefitted from this learning experience by seeing "potential of system." Under bad points about this type of instructional system, he wrote, "Video too slow, go to laser." As to good points, he wrote, "Usable menu system." When asked what he really liked, he responded, "Seeing a professional demonstrate the complete plan," referring to the Ruth Colvin lesson. He wrote, "suggestion to add time needed suggestions (sic). Flash/something to draw attention to 1st time to refer to/to use," when asked if something should be added or taken out of the program. The question on other content related to adult literacy tutoring was left blank. He responded "yes" to a future opportunity to use this type of training system.

When asked what types of people, students or tutors, would be attracted to this mode of instruction, he wrote, "Persons investigating their aptitude for doing tutoring." The subject's response to the question about what type of people might react negatively to this mode of instruction was, "Persons who wish to use other instructional plans."

Session III

Subjects C and D took part in this session, held on June 10, 1992, from 3:05 P.M. to 5:10 P.M.. Both subjects were seated side-by-side in front of the workstation. Small talk was very limited because they seemed very anxious to begin the session. The researcher gave each subject an introduction sheet to read. They took some time looking through the Media Packet. Subject D answered Subject C's questions on the D'Nealian Handwriting workbooks included in the packet. Subject D commented on the high quality of printing in the Notebook. The researcher explained it was word processed on a Macintosh computer and printed on a laser printer.

As the pair began to go through the program, Subject C wanted to know about the three computer literacy options. The researcher explained what each option contained and showed both subjects the Trainer's Manual with the trainer-directed lesson on computer key location. When the Main Menu appeared, the subjects took the time to refer to the

Notebook pages that had short descriptions on each module. Subject D & C said they wanted to see the Reading Methodologies module.

The Reading Methodologies module is the most complex module in the training program. The subjects took the time to explore each sub-section and each option of this module. Each took great care reading the screens and waiting until the partner was finished before moving on. Subject C, a reading methods instructor, had many positive comments about the content of the module. She frequently voiced agreement to various statements appearing on the computer monitor. When Subject C asked questions about the content, Subject D often responded before the researcher.

After the video segment on phonics, Subject C purposefully hit the number four on the number key-pad instead of the enter key. The computer screen went black and the researcher was not able to get the program back up. Subject D reacted angrily to Subject C's action, so he responded, "I did it on purpose. I wanted to see what would happen if I hit the wrong key. You know, it is very likely that a person could hit the wrong key by mistake. I wanted to see what would happen if I did." The researcher said, "That's perfectly okay. That is a valid point. I thought I had frozen out any inappropriate keys, but I guess it doesn't work for this screen. Let me start the system up again and get you back to the place where we

were. I'll have to examine the programming to see if I can prevent this from happening again." Restarting the program took about five minutes.

At another point, Subject C mentioned he had difficulty reading the black print when it appeared on a blue background. Subject D pointed out to him that he had forgotten his glasses. The researcher made note of this situation.

When the pair finished the Reading Methodologies module, they chose to quit working on the program. They completed the questionnaires and were paid for their participation. The subjects chatted with the researcher for about 35 minutes. When the conversation concluded, the researcher thanked them for their time and they left.

Subject C's Questionnaire Responses. This person reported that he had not worked with CAIM before. "I had little problem in handling the machinery or the concepts of the program. I also was given enough background to understand the research problem," was his response to the question on degree of adequate preparation for the day's session. The experience was "mostly similar" to what he had expected, but different in that he knew it would be multi-media related but he anticipated less printed material. He found the equipment and materials "easy" to use and the content level to be difficult.

The subject responded, "To provide a technique for providing background to a tutor just beginning the teaching of reading to a nonliterate adult," when questioned about the purpose of this program. He wrote, "I was very satisfied as a nonreading teacher that I would be able to perform a credible job of teaching reading to a nonliterate adult after completing the program," when asked if the purposes of the program had been accomplished. The subject thought that he had benefitted from this learning experience and wrote, "I was convinced that there are various techniques of teaching reading besides phonics and that adequate research had been performed to make those techniques accessible to a wide variety of tutors."

Under bad points about this type of instructional system, he wrote, "Expensive both in hardware and software." Regarding good points, he wrote, "Extremely well organized, a usable system, organized for individualized or group teaching." When asked if there was anything about the program that he really liked, he responded, "It included several techniques for teaching reading. I like the multimedia concept." He said he did not know of any content that should be added or taken out of the program. To the question on other content related to adult literacy tutoring, he responded, "Math would seem to be a logical extension of this technique. I would also like to see a social science experience." He responded

affirmatively to the idea of a future opportunity to use this type of training system.

When asked what types of people, students or tutors, would be attracted to this mode of instruction, he wrote, "Since such a concerted effort is being extended by social agencies to overcome the nonliteracy problem, I would think those agencies would find it appropriate and helpful." The subject's response to the question focusing on what type of people might react negatively to this mode of instruction was, "I can think of none except persons who already think they have all the answers."

Subject D's Questionnaire Responses. Although she had not worked with CAIM before, she answered "Thoroughly" to the question on degree of adequate preparation for the day's session. The experience was "different" than what she had expected because it was "more sequentially developed, easy to understand, and yet thorough in the way it prepares a reading tutor." She found the equipment and materials "very easy" to use and the content level to be mid-range.

The subject responded, "To effectively prepare/train reading tutors in both reading content and reading methods to enable them to successfully teach adult students," when questioned about the purpose of this program. She wrote, "To a degree to make this a potentially highly effective tutor training vehicle," when asked to what degree had the

purposes of the program been accomplished? She benefitted from this learning experience, "By seeing highly complex reading skills presented in a more simple, practical, quickly learnable manner."

As to problematic aspects of this type of instructional system, she wrote, "The acting on the VHS tapes by the tutors - they read what they said." Concerning good points, she wrote, "1. The review sections. 2. The simplicity of the directions. Easy to follow! 3. The low level computer skills needed to use it. 4. The overall quality of the program." When asked if there was anything about the program that she really liked, she responded, "The many-faceted approach - taped demonstrations, added readings, audio tape, notebook examples, etc." She thought an evaluation form to assess the tutor's level of learning from this program should be added. The subject did not provide any response related to content that should be taken out of the program.

To the question on other content related to adult literacy tutoring, she responded, "Math training and instruction." Her response to the idea of a future opportunity to use this type of training system was, "Yes." When asked what types of people, students or tutors, would be attracted to this mode of instruction, she wrote, "This is designed to inform the teaching novice as well as to review for someone with a teaching background." The

subject's response to the question which addressed the type of people who might react negatively to this mode of instruction was, "Those not highly motivated. In a TV-oriented society, this format seems the most logical and practical one for small group or individual tutor training."

Session IV

Subject E took part in this session held on June 12, 1992 from 9:20 A.M. to 10:40 A.M.. The subject and the researcher chatted for a short time and then the researcher handed the subject the instruction sheet. The subject read through the sheet and examined the contents of the Media Packet. When she began to work on the computer, she quickly progressed through the first screens and reached the Main Menu. She looked at pages seven and eight in the Notebook where the descriptions of the modules appeared, then chose The Adult Learner module. Again, she quickly progressed through the first few screens, mentioning, "I am a very fast reader."

When she reached the first choice screen, she chose to work on the computerized lesson. At the screen that reads "Most adult non-readers fail to see themselves a successful learners because they think you only learn in school," she commented, "How true. I need to point that out to my tutors. I never thought about that." She continued with

the lesson. She commented again when she read "Adult learners require a great deal of emotional support and sincere praise for their efforts." "So do tutors!" she quipped. She explained that many tutors volunteering for her program had left other programs because they were disappointed with the lack of demonstrated appreciation they received for their efforts. She talked about the monthly meetings she holds for her tutors. During these meetings, each tutor gets the opportunity to talk about events which have occurred during tutoring sessions that month. The comments and advice of the other tutors serve as a form of emotional support and recognition and makes them think of themselves as a part of a social, as well as, a service group.

At this time, Subject E explained the I.C.C. Volunteer Corps was about to change its name to the Student Literacy Corps, and volunteers for the program could receive college credit hours for their service if they registered for Psychology or Sociology Independent Study hours.

After the subject had finished the computerized lesson on adult learning, she returned to the Main Menu and chose the Reading Methodologies module. "I want to see what they have to say about phonics," she stated. When she reached the sub-menu, she chose the phonics section, then the video segment. Her comments agreed with those of the narrator. At the first opportunity, she exited the Reading

Methodologies module and chose to quit the program.

After completing the questionnaire, the researcher paid her. After chatting for a short time, she left.

Subject E's Questionnaire Responses. This person reported she had not worked with CAIM before. She answered "very prepared" to the question on degree of adequate preparation for the day's session. The experience was "similar" to what she had expected, the equipment and materials "very easy" to use, and the content level "easy."

The subject responded, "to enable a tutoring program to train and in-service volunteers consistently - less staff needed, good for tutors at distant sites, good way for tutors to refresh or learn without waiting for a scheduled in-service," when questioned about the purpose of this program. She wrote, "Did a good job," when asked to what degree had the purposes of the program been accomplished? The subject believed she had benefitted from this learning experience and wrote, "Comfortable way to learn; presents material well for beginner."

As to problematic features of this type of instructional system, she wrote, "Need human support not given by machine, cost." Concerning good points, she wrote, "consistency, easy to use, accurate material." When asked what she really liked, she responded, "I liked the ease of the program and the way the lessons to be selected

are categorized." She thought "learning styles" should be added to the program. No comment was written in response to the question of what content should be deleted.

To the question on other content related to adult literacy tutoring for which CAIM would be appropriate, she responded, "Learning styles, learning disabilities." She responded affirmatively to the idea of a future opportunity to use this type of training system. When asked what types of people, students or tutors, would be attracted to this mode of instruction, she wrote, "People who perceive that it would save them time." The subject's response to the question what type of people might react negatively to this mode of instruction was, "People who need the social experience and support that group interaction provides, people who need to have questions answered on the spot."

Decisions on Selected Field Test Data and Subsequent Revisions to the CAIM Training Program

When Subject E suggested adding information on learning styles, examination began of the literature on the topic. This examination revealed various authors have proposed different classification systems for learner preferences. Learning style testing instruments require choices that reflect a self-perceived personality trait. After these responses are analyzed, a learning preference classification is prescribed to the person.

Such information may be valuable to learners and may, in some way, shape the way they seek knowledge; but, the value of these categories to a tutor lies in the awareness of their existence. In other words, tutors need to know that different people prefer to learn in different ways, or process information in different ways; but, it is questionable if tutors need to know specific testing procedures or classification terminology which has not yet been standardized.

The Reading Methodologies module in the training program provides suggestions for dealing with learning differences. For example, five different reading approaches are described and demonstrated: (1) Language Experience Approach, (2) Phonics, (3) Word Patterns, (4) Sight Words, and (5) Context Clues. These different techniques respond to different learner preferences. The videotaped segments explain that not every person will do well with each technique, but that most learners respond favorably to one or more of the techniques. The designer has decided, for a prototype training program, this is sufficient information on learning differences or preferences. Additionally, the State of Illinois guidelines for the content of tutor training programs does not include the topics of learning styles. These facts support the designer's decision to minimize the learning style issue.

Subject B suggested adding the amount of time required to complete the section or view the videotape because of his successful experiences with timed instructional materials in his reading and study skills laboratory. The designer has decided not to follow this advice for three reasons. First, the clientele in the laboratory classes may require incentives to motivate participation in learning activities. But, motivation of tutors toward training should be sufficiently high to preclude incentives. Tutors attend training voluntarily.

Second, an estimate of time required to complete a module is difficult to give because of different options available throughout each module. Also, tutors are encouraged to work at their own pace for as long as desired, so time spent at learning tasks is already controlled by the tutors.

Third, the videotaped segments range from about thirty seconds to six minutes, not an excessive amount of time for adult tutors in the view of the designer. Because a videotaped segment is shown when a tutor chooses to see it, and because no segment is exceedingly long, providing information about segment length should not affect a tutor's choice.

Subject A suggest blinking words to draw attention to directions. The designer decided, after viewing this type of change, blinking words were more distracting than

attention demanding. Therefore, the decision was made to highlight the words appearing in directions with a vivid color.

Subject C's discomfort with black letters on a blue screen was considered. The designer decided to change the blue background to yellow, thus making the black words more visible.

The fact that inappropriate key strikes could disable the system was discovered by Subject C. The designer rewrote the computer programming code so that this would not reoccur. If incorrect key strikes occur, the program immediately jumps to the same screen. This jump is instantaneous and appears, to the user, that such a key strike causes no response. This should cause the user to reexamine his/her action, and respond correctly.

In review, four changes were made to the adult literacy tutor training program because the designer believed they represented good advice and reflected actual learner perceptions that could affect tutor acceptance of the training program.

1. The Media Packet was renamed Training Materials Packet.
2. Teaching Processes vocabulary changed on Adult Learner screen.
3. Programming examined and changed when possible so that wrong keystrokes would not affect system.

4. All screens having black printing on a blue background were changed to a yellow background. Important directions were highlighted with color.

Summary

Chapter V has described the intent, methodology, and procedure of the field test conducted on the prototype CAIM tutor training program. Data from the field test were analyzed and specific revisions resulting from these data reported. Consideration of some data did not prompt design revision, and such decisions were documented and justified. Chapter VI will contain the summary, conclusions, and recommendations of this study.

CHAPTER VI

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Adult illiteracy exists in the United States of America: those, who cannot read, do not and cannot perform in ways they should as individuals, members of families, members of groups or organizations, and/or members of our society. Attempts to quantify the scope of the problem have reached varied and conflicting conclusions because of definition and data collection difficulties; but, regardless of the exact number of illiterate adults, a sufficient number exists to prompt local, state, and national governmental action.

Many adult literacy education grants and programs have been established and funded to resolve the problems of adult illiteracy. The majority of these efforts use volunteer tutors who require training before they can begin tutoring; but, no consensus exists within the professional literature on what information and skills should be emphasized during training, or how this content should be presented.

People volunteering to tutor adult illiterates begin the training process with varied levels of information, varied skills, and limited amounts of time. Conventional

tutor training does not address these individual characteristics. Therefore, the educational problem of adult illiteracy leads to the following instructional problem: Conventional training approaches do not resolve the problems associated with training volunteer adult literacy tutors (i.e., varying levels of information, skills, and available time). This study attempted to resolve the instructional problem by applying Rhodes' (1992; Biehler & Rhodes, 1992) instructional design methodology to the design, formulation, production, and revision of an adult literacy tutor training program delivered by computer assisted interactive media.

This study's CAIM training program utilized the authoring software PC Pilot and six videotapes produced by Literacy Volunteers of America [LVA] to provide informational lectures and skill demonstrations. The training program contains ten instructional modules on the following topics: adult learning theory and practice; a demonstration of LVA's recommended reading instruction methodology; detailed descriptions of those methodologies; nonverbal communication and listening skills; initial tutor/learner contact; goal setting and motivation; planning lessons and making teaching materials; handwriting skill development and handwriting instruction; testing and assessment; and recordkeeping. A packet of supplementary media was designed and assembled to accompany the CAIM

training program.

The objectives of this study were (1) to identify the information and skills appropriate for an adult literacy tutor training program, (2) to design an instructional delivery system, using computer assisted interactive media, appropriate for preparing tutors in the identified information and skills, (3) to produce a prototype computer assisted interactive media program for training tutors in selected content areas, and (4) to field-test the prototype computer assisted interactive media program to identify any needed reformulation of the design.

Summary and Conclusions: Objective I

Summary

The general research questions related to the first objective were (1.1) what information and skills should be included in a training program for tutors and (1.2) what research exists upon which to base these decisions?

These questions were answered through a review of the professional literature on the topics of adult literacy education; adult learning theory and practices; reading methodologies; theory and practice of adult reading instruction; adult literacy tutor training; and computer assisted interactive media as an instructional delivery system. This literature review supported the inclusion of information and skills on reading methodologies, adult

education practices, and instructional practices in a tutor training program.

Conclusions

On the basis of research conducted for this study, the following information should be included in a comprehensive tutor training program:

Reading Methodologies

1. Language Experience Approach
2. Phonic/Phonemic Approaches
 - a. Sound-letter associations
 - b. Word patterns
3. The use of context clues to decode words and/or establish meaning

Adult Education Practices

1. Understanding and facilitating the adult learner
2. Getting started (initial contact with learner)
3. Sensitivity to nonverbal communication
4. Goal setting
5. Overview of the local literacy program

Instructional Practices

1. Lesson planning
2. Creating instructional materials
3. Assessment
4. Recordkeeping

Skills to be included in a comprehensive tutor training program are related to reading methodologies, adult education practices, and instructional practices. The skills associated with reading methodologies are the ability (1) to use the Language Experience Approach to create learner-dictated materials for reading exercises, (2) to present consonant sound-letter associations through the device of "key words" and provide sufficient practice situations to enable learner mastery, (3) to present vowel letter-sound association through word patterns and provide sufficient practice situations for mastery, (4) to present the technique of using context clues to decode words and/or establish meaning and guide the learner's use of this technique when decoding or comprehension difficulties arise.

The skills related to adult education practices are the ability (1) to project a nonjudgmental, understanding, sensitive, and caring personality which encourages an adult learner to take an active part in beginning lessons, setting goals, and sustaining his/her learning processes, (2) to recognize nonverbal communication from a learner and project positive nonverbal communication to him/her, (3) to practice active listening through the technique of interested silence and respond with appropriate questions or comments demonstrating tutor interest in the learner's problems or concerns.

The skills related to instructional practices are the ability (1) to plan a lesson that uses various reading methodologies, (2) to create instructional materials to accompany planned lessons, (3) to assess learner's current abilities and/or progress toward goals, and (4) to keep all records required by a local literacy project.

Summary and Conclusions: Objective II

Summary

The second objective, to design an instructional delivery system, using computer assisted interactive media, appropriate for preparing tutors in the identified information and skills, prompted these general research questions: (2.1) what are the problematic elements of the design of an interactive multimedia instructional delivery system for training tutors and (2.2) what resolutions address these elements? The answers to these questions were sought by employing Rhodes' (1992; Biehler & Rhodes, 1992) instructional design methodology. It requires the examination of problematic elements and instructional design problems resulting from the problematic elements, the proposal of alternative resolutions to these problems, and the documentation and justification leading to the choice of the optimal resolution for each design problem.

Conclusions

Four instructional design problems were related to the design elements of setting, clientele, and content. The first problem was the discrepancy between the time and location requirements associated with conventional tutor training workshops and those requirements of tutors. The second problem was the discrepancy between training content presented to meet governmental guidelines and that required by individual tutors. The third problem was the discrepancy between conventional tutor training and tutor training which provides for individual needs associated with a wide variety of learning characteristics. The fourth problem was the discrepancy between the inconsistent, nonstandardized, and/or nonprocedural content found in conventional training and the consistent, standardized, and/or procedural content proposed in the knowledge-base on adult reading instruction and tutor training.

Consideration of the four problems mentioned above prompted twelve generalized resolutions which were considered and evaluated. Four were found to be optimum: (1) provide training with a flexible delivery system that can operate any time of the day, any day of the year, in varying locations, (2) provide training in a flexible format so that all required information is present and the learner controls the presentation of information to meet

personal needs, (3) provide training with branching capabilities allowing each learner to self-assess and choose content that reflects personal needs, (4) provide videotaped information presentations and skill demonstrations followed by practice through role playing.

Summary and Conclusions: Objective III

Summary

The third objective, to produce a prototype computer assisted interactive media program for training literacy tutors in selected content areas, prompted these general research questions: (3.1) what are the characteristics of the instructional delivery system most appropriate for a tutor training program and (3.2) what design features support the use of computer assisted interactive media as the optimum instructional delivery system for tutor training? The answers to these questions were developed after reviewing the literature on CAIM and applying the Rhodes' (1992; Biehler & Rhodes, 1992) methodology.

Conclusions

Computer assisted interactive media should be the instructional delivery system to operationalize the designed tutor training program. CAIM is a viable instructional delivery system for adult literacy tutor training because of its characteristic (1) flexibility and (2) support of learner control options.

Specific design features support the use of CAIM as the optimum instructional delivery system for tutor training. These features are (1) flexible time format, (2) flexible location format, and (3) learner-controlled informational retrieval options, which make it responsive to the training needs of literacy tutors. Additionally, the videotaped skill demonstration segments can provide tutors with standardized examples of good tutor practice with a consistency of presentation that cannot be equalled with conventional training methods.

Summary and Conclusions: Objective IV

Summary

The fourth objective, to field test the prototype CAIM training program and identify needed revisions prompted one research question: (4.1) what is the optimum research methodology and field test procedure to examine the prototype CAIM training program? This question was answered by examining the literature on software and testing the CAIM training program.

Conclusions

Qualitative research methodology and Gentry's (1990) procedures can be successfully employed to field test a CAIM tutor training program and analyze the data collected. This study's field test utilized qualitative research methodology by employing the techniques of observation,

structured questionnaire, and unstructured interview to gather data. The intent of the field test was to uncover data declaration errors, or conflicts between intended and actual usage. Although the field test was conducted with adult educators and/or reading instruction professionals rather than tutors, field test data suggest the instructional design and content of the training program to be sound. Based on the behaviors and responses of the expert participants, it was concluded that the CAIM tutor training program could be appropriate and effective for the actual clientele of the design--tutors.

These data from the field test suggested specific revisions should be made to the prototype program. The suggested revisions regarding vocabulary, error vulnerability, and inappropriate screen color were subsequently made.

Recommendations

The first recommendation calls for further research in the area of adult literacy education: specific reading methodologies for adults, adult literacy learner's cognitive processes, adult learning disabilities, intervention strategies for adult learning problems, and learning characteristics of tutors. Such information, established through sound research methodology, could lead to adaptation of instructional approaches and techniques,

thus, positively impacting the practice of literacy education.

A second recommendation calls for the production of high-quality videotaped lectures and skill demonstrations for adult literacy education. Such videotapes would satisfy viewers' expectations for broadcast-quality visual appearance and actors' performances. By meeting expectations for the look and sound of typical television segments, distractions from content (such as those caused by actors obviously reading from cue cards) could be minimized. Additionally, well-written videotape content, reflecting sound research on adult literacy education, could positively impact tutor practice.

A third recommendation is the use of Rhodes' (1992, Biehler & Rhodes, 1992) methodology for instruction design of CAIM programs. Its focus on resolving design problems through consideration of alternative resolutions results in an end-product that is justifiably optimum. Designers choosing to focus on the resolution of design problems encountered during instructional design could benefit from the application of Rhodes' methodology.

The fourth recommendation involves changes to the CAIM tutor training program produced for this study. First, the Testing and Assessment and the Recordkeeping modules should be fully enabled to meet the requirements of a selected

literacy project. This would allow data collection on the complete training program and could lead to further revisions that would enhance effectiveness. Next, the role-playing option in the Effective Communication module should be fully enabled. Also, other modules in the training program could be expanded to allow role-playing practice of selected skills. Such practice would aid the development of tutor skills.

A fifth recommendation requires further field testing with tutors at a literacy project which uses volunteer tutors for direct instruction of literacy learners. Such tests should involve more participants with different levels of knowledge. However, further assessment with the targeted clientele should be undertaken before actual implementation is considered. Such an assessment could call for further design revisions that might improve the program's appropriateness and effectiveness.

A final recommendation calls for the CAIM tutor training program to be presented at regional meetings of adult literacy educators. Such a presentation should allow individuals access for extended periods of time, if they so desire. The designer believes that direct experience with CAIM training could lead to eventual adoption of this study's program by literacy project administrators. Such adoption could deliver comprehensive, systematic, tutor training at a consistent quality level to a large number of

tutors, thereby positively affecting the quality of literacy education.

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APPENDIX A

RHODES' GENERIC INSTRUCTIONAL DESIGN

A Method

This method is both linear and recursive. The ordered steps should be repeated as circumstances warrant. The outline categories are not mutually exclusive.

A. Preparation

00. Identify design context.

- a. Key question: For what setting am I to prepare instruction?
- b. Possible contexts:
 - 1) "school"
 - a) primary education
 - b) secondary education
 - c) college/university education
 - 2) "non-school"
 - a) adult and continuing education
 - b) business/industrial government training and development
 - c) sales/public relations/customer education
- c. Questions to consider:
 - 1) Who selected/identified the design context?
Why?
 - 2) Is the design context personally interesting?
 - 3) Is the design context professionally relevant?

01. Identify reasons for undertaking instructional design.

- a. Key question: Why is instructional design called for?
- b. Possible reasons:
 - 1) dissatisfaction with designs
 - a) current
 - b) proposed
 - 2) new developments
 - a) information
 - b) technologies
 - 3) requests for design
 - a) institutional
 - b) extra-institutional

- 4) proposals for change
 - a) local/state
 - b) regional/national/international
 - c. Questions to consider:
 - 1) Is something wrong with the current situation? Evidence?
 - 2) Who wants instructional design carried out? Why?
 - 3) Is instructional design needed? Wanted? Desired? Desirable?
02. Identify the significant features in the design context.
- a. Key question: What are the important features in the design context?
 - b. Possible significant features:
 - 1) Clientele
 - a) primary
 - b) secondary
 - 2) Personnel
 - a) managerial
 - b) operational
 - 3) Resources
 - a) financial
 - b) material
 - 4) Conventions
 - a) instructional
 - b) curricular
 - 5) Publics
 - a) actual
 - b) potential
 - 6) Culture
 - a) innovative
 - b) traditional
 - c. Questions to consider:
 - 1) What is the relative importance of the features identified?
 - 2) Can some features safely be ignored?
 - 3) May some features likely make design difficult or impossible?
03. Identify significant performance tasks in the design context.
- a. Key question: What are the important tasks in the design context?
 - b. Possible significant tasks:
 - 1) Type
 - a) physical/manual
 - b) intellectual
 - 2) referent situation
 - a) school

- b) community
 - c) employment
 - d) other
 - e) undefined
 - 3) Time-frame
 - a) current
 - b) anticipated
 - 4) Status
 - a) required
 - b) optional
 - c. Questions to consider:
 - 1) What is the relative importance of the tasks identified?
 - 2) Who determines if a certain task is significant? How?
 - 3) Are important tasks required now? Anticipated in the future?
04. Identify the performance problems in the design context.
- a. Key question: What are the important performance problems?
 - b. Possible performance problems:
 - 1) Omission
 - a) persons don't/won't/can't perform in ways they should
 - b) persons may/will not be able to perform in ways they should
 - 2) Commission
 - a) persons do perform in ways they should not perform
 - b) persons may/will perform in ways they should not perform
 - 3) Combinations of the above
 - c. Questions to consider:
 - 1) Who believes performance is a problem?
 - 2) Is the desired performance desirable? For whom?
 - 3) Is the desirable performance desired? By whom?
05. Identify the types of performance problems.
- a. Key question: What kind of performance problem are they?
 - 1) Motivation
 - a) satisfaction
 - b) dissatisfaction
 - 2) Capability
 - a) mental
 - b) physical
 - 3) Resources
 - a) human

- b) financial
- 4) Management
 - a) personnel
 - b) organizational
- 5) Education/training
 - a) design
 - b) practice
- c. Questions to consider:
 - 1) What are the significant elements in the performance problems?
 - 2) Who/what is responsible for the performance problems?
 - 3) How is an education/training problem distinguished from others?

Note: Instructional design is not warranted on educational grounds unless an education/training problem can be identified.

- 06. Identify the specific education/training problem to be resolved.
 - a. Key Question: What is the education/training problem I should resolve?
 - b. Possible education training problems:
 - 1) Omission
 - a) design: planning has/may/will not be done
 - b) practice: practice has/may/will not be done
 - 2) Commission
 - a) design: planning is/has been done incorrectly
 - b) practice: practice is/has been done incorrectly
 - c. Questions to consider:
 - 1) What evidence is needed to determine education/training problem?
 - 2) What evidence is available? From whom?
 - 3) How is the education/training problem related to the original performance problem?
- 07. Identify the type of education/training problem.
 - a. Key Question: What kind of education/training problem is it?
 - b. Possible types of education/training problems:
 - 1) Political
 - a) institutional
 - b) associational
 - 2) Administrative
 - a) policies
 - b) procedures
 - 3) Personnel
 - a) professional

- b) lay
- 4) Curricular
 - a) scope
 - b) sequence
- 5) Instructional
 - a) design
 - b) practice
- c. Questions to consider:
 - 1) What are the features of each education/training problem type?
 - 2) Who/what is responsible for the education/training problem?
 - 3) What makes a problem instructional instead of curricular?

Note: Instructional design is not warranted on educational grounds unless an instructional problem can be identified.

08. Identify the instructional problem to be resolved.
- a. Key question: What is the instructional problem?
 - b. Possible instructional problems:
 - 1) Omission
 - a) persons don't/won't/can't have information, skills, attitudes
 - b) persons don't/won't/can't get information, skills, attitudes
 - c) persons don't/won't/can't use information, skills, attitudes
 - d) persons may/will not have/get/use information, skills, attitudes
 - 2) Commission
 - a) persons have/get/use incorrect information, skills, attitudes
 - b) persons use information, skills, attitudes incorrectly
 - c) persons may/will have/get/use incorrect information, skills, attitudes
 - d) persons may/will use information and skills incorrectly
 - c. Questions to consider:
 - 1) What evidence is needed to identify an instructional problem?
 - 2) What evidence is available? From whom?
 - 3) Who/what is responsible for the instructional problem?

09. Identify the type of instructional problem to be resolved.
- a. Key question: What kind of instructional problem is it?
 - b. Possible types of instructional problems:
 - 1) Problem of design

- a) intention: what instruction should/could/may/is to do
- b) composition: how it should/could/may/is to be arranged
- 2) Problem of practice
 - a) organization: how instruction is arranged
 - b) operation: how instruction functions
- c. Questions to consider:
 - 1) How do design and practice problems conceptually differ?
 - 2) How do design and practice problems practically differ?
 - 3) Can design and practice problems actually be distinguished?

Note: Instructional design is not warranted on educational grounds unless a problem of instructional design can be identified.

B. Formulation

10. Identify the problematic elements in the instructional problem.
 - a. Key question: What elements are responsible for the instructional problem (of design)?
 - b. Possible problematic elements:
 - 1) Conceptual
 - a) intent: what could/should/is to be achieved by instruction
 - b) principles: what could/should/is to be basis for instruction
 - 2) Contextual
 - a) setting: where instruction could/should/is to take place
 - b) participants: who could/should/is to take part
 - 3) Instrumental
 - a) content: what could/should/is to be the subject matter
 - b) devices: what could/should/is to be means of instruction
 - 4) Performative
 - a) instructor performance: what he/she could/should/is to do
 - b) student performance: what they could/should/are to do
 - c. Questions to consider:
 - 1) What is relative significance of the various elements?
 - 2) What is the relative complexity of the various elements?
 - 3) How are the elements related to the performance problem?

11. Define the instructional design problem(s) to be resolved.
 - a) Key question: What is (are) the instructional design problem(s)?
 - b) Possible design problems:
 - 1) Substantive: what should be done
 - a) omission: conceptual, contextual, instrumental, performative
 - b) commission: conceptual, contextual, instrumental, performative
 - 2) Procedural: how it should be done
 - a) omission: conceptual, contextual, instrumental, performative
 - b) commission: conceptual, contextual, instrumental, performative
 - c. Questions to consider:
 - 1) What is the relative importance of the various problems?
 - 2) What problems must be resolved? Should be? Can be ignored?
 - 3) How are the instructional design problems related to the instructional problem of instructional design?

12. Identify ways to resolve the instructional design problem(s).
 - a. Key question: How can I resolve the design problem?
 - b. Possible ways to resolve design problems:
 - 1) Methods
 - a) generate new designs
 - b) revise existing designs
 - 2) Techniques
 - a) imitation
 - b) adaptation
 - c) invention
 - c. Question to consider:
 - 1) What is the relative difficulty of generation and revision?
 - 2) What is the relative difficulty of imitation, adaptation, and invention?
 - 3) Who is to generate? Revise?

13. Devise alternative resolutions to the instructional design problem(s).
 - a. Key Question: How can the design problem be resolved?
 - b. Possible resolutions:
 - 1) Substantive design problems
 - a) resolution #1
 - b) resolution #2
 - c) resolution. . .n?

- 2) Procedural design problems
 - a) resolution #1
 - b) resolution #2
 - c) resolution. . .n?
 - c. Questions to consider:
 - 1) What is the relative complexity of the various resolutions?
 - 2) Are the resolutions the result of new or of revised design?
 - 3) Are the resolutions related to the original performance problem?
14. Assess the alternative resolutions to the design problem(s).
- a. Key Question: How worthwhile are the various resolutions?
 - b. Possible assessments (as arranged on a continuum):
 - 1) optimum (it should be done or done this way)
 - a) best possible
 - b) most favorable
 - 2) acceptable (it could be done or done this way, if necessary)
 - a) adequate
 - b) satisfactory
 - 3) unacceptable (it shouldn't be done or done this way)
 - a) inadequate
 - b) unsatisfactory
 - c. Questions to consider:
 - 1) Have the resolutions been proposed before? To what effect?
 - 2) What distinguishes "optimum" from "acceptable?" "Acceptable" from "unacceptable?"
 - 3) What makes "unacceptable" unacceptable?
15. Select the most suitable resolution to the design problem(s).
- a. Key question: Which resolution do I choose?
 - b. Possible criteria for selection:
 - 1) Political expediency
 - 2) Personal preference
 - 3) Empirical evidence
 - 4) Analytic reasoning
 - 5) Combination of the above
 - c. Question to consider:
 - 1) What is the relative importance of the selection criteria?
 - 2) Is the optimum resolution the most suitable?
 - 3) What kind of resolution is most often selected?

- C. Execution
 - 1. Realize selected alternative(s)
 - 2. Describe, explain, and justify alternative(s)
- D. Review
 - 1. Conduct diagnostic assessment
 - 2. Identify design deficiencies
- E. Revision
 - 1. Alter design
 - 2. Realize and test alterations
 - 3. Review results

DESIGN SUPPLEMENT - COMPUTER AIDED INTERACTIVE TECHNOLOGY

- 11S. Define the CAIT substantive design problems (what should be done).
 - a. Key question: What are the substantive design problems?
 - b. Possible substantive problem areas, e.g.:
 - 1) Contextual/Participants: target clientele characteristics
 - a) entry level knowledge and skills
 - b) motivations
 - 2) Conceptual/Intention: results to be sought
 - a) instructor objectives
 - b) expected outcomes for target clientele
 - 3) Instrumental/Content: subject matter to be included
 - a) propositional: for "learning that. . ."
 - b) procedural: for "learning how to. . ."
 - c) performative: for "learning to. . ."
 - 4) Conceptual/Principles/Pedagogy: pedagogical ideas to be used.
 - a) "preparation/presentation"
 - b) "systems"
 - c) "discovery"
 - 5) Conceptual/Principles/Psychological
 - a) conditions for learning
 - b) gnometectonic sequence
- 11P. Define the CAIV procedural design problems (how should it be done?)
 - a. Key question: What procedural design problems do I need to resolve?
 - b. Possible procedural problems areas:
 - 1) Structure
 - a) segments
 - b) branching
 - 2) Intersubjectivity
 - a) personalization

- b) individualization
 - c) interaction
 - d) language
 - e) feedback
- 3) Appeal
- a) intellectual
 - b) emotional
 - c) aesthetic
- 4) Devices
- a) Video
 - b) Computer
 - c) CD-ROM
 - d) other

Generic Instructional Design: A Method
(c) 1992 Dent M. Rhodes

Design Supplement - Computer Aided Interactive Technology
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APPENDIX B

LITERACY VOLUNTEER TRAINING GUIDELINES

Prepared and recommended by the Methods and Training Subcommittee, Illinois Literacy Council, January 1988.

The ultimate success of the Illinois Literacy Volunteer effort rests with the effectiveness of volunteer training. Training must be of high quality, systematic and ongoing. Members of the Methods and Training Subcommittee of the Illinois Literacy Council represent a variety of institutions and organizations. The subcommittee is charged with the responsibility of recommending policies and guidelines regarding the methodologies employed and the training undertaken by volunteer literacy programs in Illinois.

The Methods and Training Subcommittee recommends initial volunteer training be a MINIMUM OF TWELVE (12) HOURS in length. Continuing professional development opportunities for volunteer tutors should OCCUR MONTHLY and be at least THREE (3) HOURS in length. The Methods and Training Subcommittee recommends the following eight (8) topics be included in all volunteer training. Specific strategies, methods and techniques should be developed by local coordinators and trainers to fit the specific needs of their communities.

- TOPIC #1: Introduction to the problem of illiteracy and orientation to the literacy efforts at the local, state and national levels.
- TOPIC #2: The adult literacy volunteer -- expectations, rights, responsibilities and roles within the local program administration.
- TOPIC #3: The adult learner -- needs, goals, uniqueness; methods to establish rapport; initial goal setting.
- TOPIC #4: The adult language learner -- the language acquisition process and the reading process (definition or reading/comprehension).

- TOPIC #5: Assessment techniques -- informal ways to detect possible hearing, vision and learning difficulties; introduction to assessment tool(s) and other methods of monitoring progress.
- TOPIC #6: Instructional techniques for adult literacy learners at beginning, middle and advanced levels (as appropriate). These include vocabulary/word analysis, comprehension and writing skills (for native English speakers). For second language learners, instruction should include listening comprehension, speaking, reading and writing skills.
- TOPIC #7: Materials/Resources/Support -- overview of commercial materials available; tips on preparation of "tutor-made/real world" materials; selective use of readability formulas; orientation to continuing education opportunities and support services.
- TOPIC #8: Goal setting and lesson plans -- organizing instruction to meet individual needs.

Monthly professional development opportunities may include but not be limited to the following: the appropriate role of oral reading; workplace literacy*; advanced testing; study skills*, computer assisted instruction; volunteers as classroom aides; counseling techniques*; retention strategies*; problem solving; and advanced writing strategies, (*indicate specific adaptation for ESL).

APPENDIX C

FLOWCHART SYMBOLS FOR COMPUTER ASSISTED INTERACTIVE MEDIA

Symbols

A. Operations

1. Information
2. Preparation/Directions
3. Single Choice
4. Multiple Choice
5. Off-program Activity
6. Begin/Quit/End

B. Devices

1. Screen Display
2. Video Tape
3. Video Disc
4. Video Camera
5. Compact Disc
6. Telecommunications
7. Computer Assisted Instruction
8. Graphics
9. Word Processing



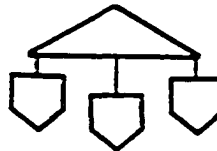
INFORMATION



PREPARATION/
DIRECTIONS



SINGLE CHOICE



MULTIPLE CHOICE



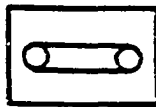
OFF-PROGRAM
ACTIVITY



BEGIN/END/QUIT



SCREEN DISPLAY



VIDEO TAPE



VIDEO DISC



COMPACT DISC



VIDEO CAMERA



TELECOMMUNICATIONS



COMPUTER ASSISTED
INSTRUCTION



GRAPHICS



WORD PROCESSING

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APPENDIX D

CONTENTS OF TRAINING MATERIALS PACKET (MEDIA PACKET)

1. Notebook - Adult Literacy Tutor Training Program
2. Colvin, R. J., Root, J. H. (1987). Tutor. Syracuse, NY: Literacy Volunteers of America.
3. Literacy Volunteers of America, Inc. (1984). Tutor's Video Guide. Syracuse, NY: LVA
4. Literacy Volunteers of America, Inc. Phonics - audiotape. Syracuse, NY: LVA
5. Bowren, F. F., & Zintz, M. V. (1977). Teaching Reading in Adult Basic Education. Dubuque: William C. Brown.
6. Thurber, D. N. (1987). D'Nealian Handwriting, Book Two. Glenview, IL: Scott, Foresman and Company.
7. Thurber, D. N. (1987). D'Nealian Handwriting, Book Five. Glenview, IL: Scott, Foresman and Company.
8. 1/2 inch line transparencies for practicing handwriting.
9. 1/3 inch line transparencies for practicing handwriting.
10. Pen for writing on overhead transparencies.
11. Trainer's Manual - Adult Literacy Training Program

APPENDIX E

NOTEBOOK FOR TRAINING MATERIALS PACKET (MEDIA PACKET)



NOTEBOOK

Adult Literacy Tutor Training Program

This Notebook accompanies the Adult Literacy Tutor Training
Materials Packet

Training System © 1992 Mary Jo Parish



TABLE OF CONTENTS

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| Getting Started | GS1 |
| Reading Methodologies | RM1 |
| The Non-Reader | NR1 |
| Computer Skills | CS1 |
| A Sample Lesson | SL1 |
| The Adult Learner | AL1 |
| Testing and Assessment | TS1 |
| Goal Setting and Motivation | GM1 |
| Effective Communication | EF1 |
| Planning Lessons and Making Teaching Materials | PL1 |
| Recordkeeping | RK1 |

Welcome!

You are about to begin a new experience in tutor training.

If you have just decided to become a tutor, this training program will provide you with the information you will need to become an effective tutor.

If you are an experienced tutor this training program can provide you with the information you seek to further develop your tutoring skills.

This training program is presented with computer assisted interactive media. You control the sequence and type of information you receive by making choices. In this way, the computer can provide a training program custom-made FOR YOU!

If at any time, you experience difficulty with the machinery, contact the person on page 4 whose name is marked with a star.

This Notebook will be referred to frequently during the training program. Just follow the instructions given on the computer screen.

Thank you for your commitment to adult literacy and good luck with your training.

"Adult Illiteracy: A National Problem, A Local Solution"

The United States of America is faced with a serious problem that has economic, political, social, psychological and educational ramifications. That problem is wide-spread adult illiteracy. The media frequently reports that approximately 23 million adults in America are illiterate. These people find it difficult to read road signs, telephone directories, application forms, directions on prescription medicine bottles, or even their own mail. An adult who cannot read finds it very difficult to get through many simple tasks required of an employee, family member, organization or group member, or of a member of our society.

Efforts are being made by national state, and local governments, as well as service and charitable organizations to teach adult illiterates how to read. In our community. . . [This section will be completed with information specific to the local literacy organization using the training program.]

3

[When this program has been adopted by a literacy project,
information about that project will appear here.]

List of Names

Director:

[This page will be filled in for each literacy project]

Trainers:
*

Experienced Tutors:

LOG SHEETS

✓ CHECKLIST ✓

| <u>Sections or Modules</u> | <u>Notes</u> |
|--|--------------|
| <input type="checkbox"/> Computer Skills | |
| <input type="checkbox"/> Reading Methodologies | |
| <input type="checkbox"/> Language Experience | |
| <input type="checkbox"/> Phonics | |
| <input type="checkbox"/> Word Patterns | |
| <input type="checkbox"/> Sight Words | |
| <input type="checkbox"/> Context Clues | |
| <input type="checkbox"/> Getting Started | |
| <input type="checkbox"/> The Sample Lesson | |
| <input type="checkbox"/> The Adult Learner | |
| <input type="checkbox"/> Effective Communication | |
| <input type="checkbox"/> Testing and Assessment | |
| <input type="checkbox"/> Planning Lessons and Making Materials | |
| <input type="checkbox"/> Handwriting | |
| <input type="checkbox"/> Recordkeeping | |
| <input type="checkbox"/> Goal Setting and Motivation | |

Note: As you complete each section, check it off. Record progress on the next page. New tutors will want to work through each section and module. Experienced tutors will want to work through each section that they would like additional information on.

Module Descriptions

Getting Started: This module will give you hints on what to do with the adult literacy learner the first time you work together.

A Sample Lesson: This module shows a videotape of a tutor and learner during a typical lesson. Various reading methodologies are demonstrated.

The Adult Learner: Research tells us that adults prefer to learn in ways that differ from our typical notions about school. The way you remember being taught may not be the best way to teach an adult. This module gives you the information you need to work effectively with an adult learner.

Reading Methodologies: This module shows you how to teach reading using The Language Experience Approach, Phonics, Word Patterns, Sight Words, and Context Clues. These methods are part of the Whole Language Approach to reading. Research has shown this to be the most successful way for adults to learn to read.

Testing and Assessment: This module shows you how to administer tests and interpret the results. *[Not Enabled -- Must be specially designed for each literacy project.]*

Goal Setting and Motivation: This module demonstrates cooperative goal setting techniques. It shows how a tutor and learner can work together to design meaningful and motivating lessons. Note: It may be best to view this module after The Adult Learner.

Effective Communication: Listening and talking with an adult literacy learner requires some special skills. This module helps the tutor understand the "two-way street" of communication and develop necessary communication skills.

8

Planning Lessons and Making Teaching Materials: This module shows how to plan a lesson and create materials to go along with the lesson. Note: It may be best to view this module after the Reading Methodologies, Goal Setting and Motivation, and Getting Started modules.

Recordkeeping: This module shows you how to keep records and fill in forms required by the literacy project's funding source. [*Not Enabled -- Must be specially designed for each literacy project*].

Videotape Instructions

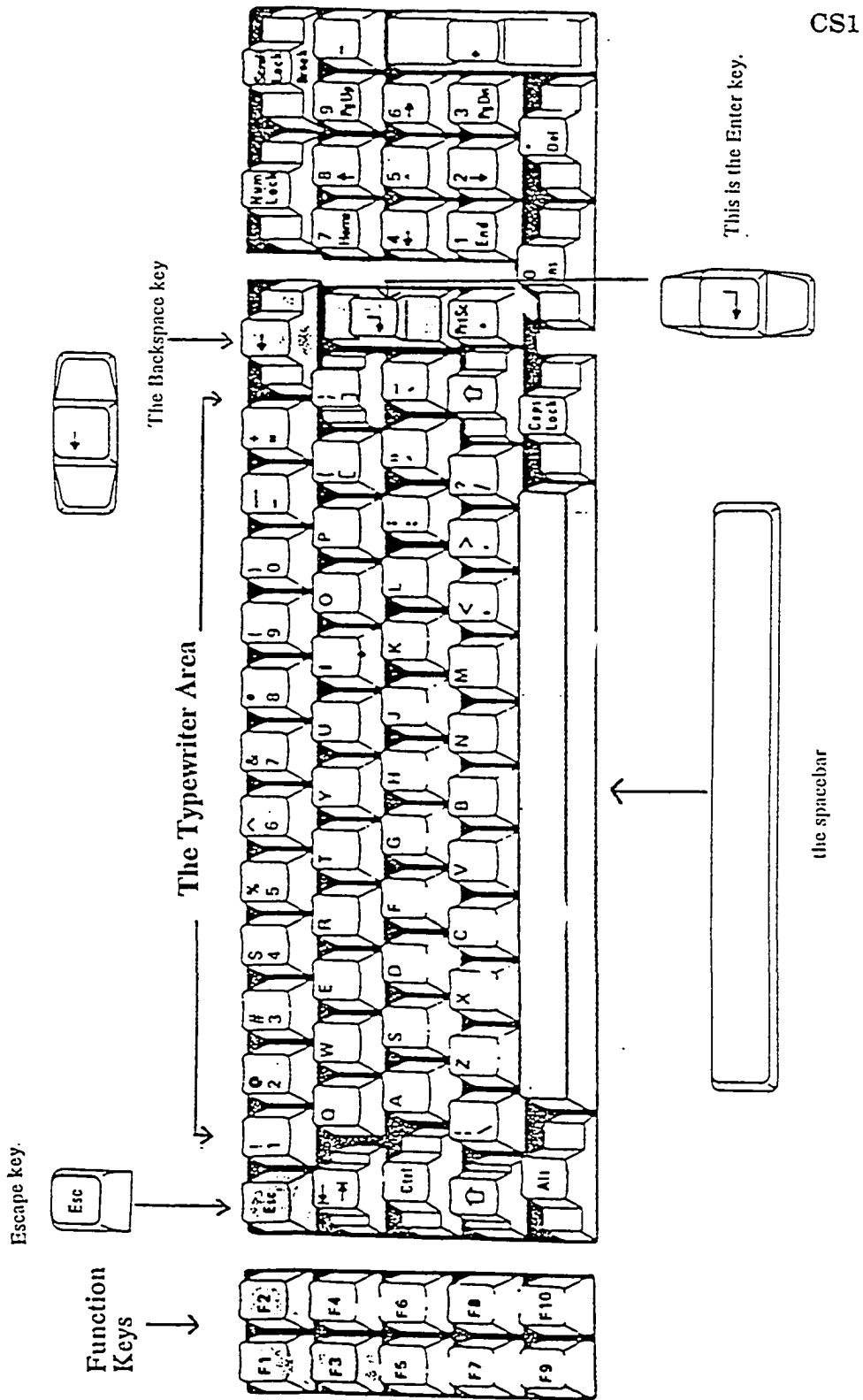
Read these instructions through completely the first time you use the VCR.

1. The computer screen has just directed you to place a certain tape in the VCR. Do that now.
2. Press <Enter> to start the videotape segment.
3. When the tape segment stops, Press <Enter> on the computer to continue the training program.

Note: Each videotape segment has an introductory computer screen preceding it and a review screen following it. You will not need to take notes while the tape is playing. If you want to take notes when the videotape segment is over, the review screen will have the information you need.

Each module has a section in the notebook with space to take notes.

Remember to REWIND all tapes when you stop for the day.



Each module has a section in the Notebook with blank pages for taking notes. These pages will not be included in this appendix. From this point, just the printed Notebook pages will be shown. Two module sections contain reprints of articles from The Journal of Reading and directions on finding articles in other adult education journals. Following is a list of these articles:

Reading Methodologies Section

Davidson, J. L., & Wheat, T. E. (1989). Successful literacy experiences for adult illiterates. Journal of Reading, 32(4). 342-346.

Jones, E. V. (1986). Teaching reading through language. Lifelong Learning: An Omnibus of Practice and Research, 9(7). 29-31.

Ross, E. P. (1989). How to use the whole language approach. Adult Learning, 1(2). 23-29.

Goal Setting and Motivation Section

Hayes, E. (1988). A typology of low-literate adults based on perceptions of deterrents to participation in adult basic education. Adult Education Quarterly, 39(1). 1-10.

Meyer, V. (1987). Lingering feelings of failure: An adult student who didn't learn to read. Journal of Reading, 31(3). 218-221.

Meyer, V., Estes, S. L., Harris, V. K., & Daniels, D. M. (1991). Norman: Literate at age 44. Journal of Reading, 35 (1). 38-42.

The Journal of Reading gives permission to reproduce articles used for educational purposes.

RM1

READING METHODOLOGIES

Descriptions of Sub-Menu Options

Language Experience - is an approach to teaching reading that uses text dictated by the learner as the basis for lessons. Comprehension already exists because the learner only dictates what is meaningful to him/her.

Phonics - is matching the printed or written letter or letter combinations with the sounds they make. The phonics approach involves "sounding-out" words until they are recognized.

Word Patterns - COOK BOOK LOOK HOOK is an example of a word pattern. When -OOK is known and the c,b,l,h beginning sounds are known, a learner can be shown how more words can be easily recognized.

Sight Words - are words that are immediately recognized when seen. Many words that are not phonetically spelled must be taught as sight words. Trying to sound out many words will not aid recognition. Examples: said, dough, night.

Context Clues - are used when the meaning and pronunciation of a words can be guessed by using the other words around it as clues. Example: When each bomb fell, it _____. (exploded) Even if the reader could not read the word "exploded," he/she could probably guess what it was because it makes sense.

NR1

THE NON-READER

In the rare instance when you are asked to tutor a person that cannot recognize any words or any of the letters and the sounds they make, here are some things to do:

- 1) Even if your learner can not read, you can read to him/her. Be sure to find out what the person wants to read and spend 5 - 10 minutes of each lesson reading this to him/her.
- 2) One of the best places to start your lesson is with environmental words. These words appear on signs, food labels, and product labels.
 - a) Collect words from food or product labels along with the logo. Cut these out and paste them on index cards. Magazine ads may provide you with a good source. Examples: Jif, Crest, Tide, All, Dial, Prell, Corn Flakes, etc..
 - b) Have a stack of these cards and let the person see if he/she can read any of the words. If he/she recognizes any of the words, ask him/her how he/she knows the word. He/she will probably mention the colors or other clues that helped. Point out that this is called using context clues to figure-out words and that this is one of the things good readers do to help if they get stuck.
 - c) Take the stack of unknown wordcards or have the learner choose favorite products and use the words for a handwriting lesson.
- 3) **Handwriting** [Be sure to go through the module on Handwriting offered in your training program. If you have not done this yet -- you may want to do it next.]
 - a) On a yellow legal pad, print one word at the top. Say each letter as you write it. [A...L...L...] then say the word "all."

NR2

- b) Have the learner trace a letter with the index finger while saying it. Do all of the letters in the word this way.
 - c) Have the learner write each letter with a black felt-tipped pen, saying each letter and then the word.
 - d) You should make a small word card with the printed word on it.
 - e) Repeat this process with one or two more words. (Spend only about 10 - 15 minutes on this task.)
 - f) Mix up word cards and label cards. Have learner match and read words.
 - g) Put these cards into an envelope and then into a folder.
 - h) At the very end of the lesson, do (f) again. The learner should go home knowing that he/she can read something after the very first lesson.
- 4) After a few weeks of using environmental words, try mixing some of the sounds up and doing a word pattern exercise.

Example: You know this is "all."

What if we take the "T" from the beginning from Tide and put it in front of the -all. T-all. What new word do we get?"

Make a small word card for tall. Try a few other combinations or locate an -all word in the selection you read aloud during today's lesson.

GSI

Source: Literacy Volunteers of West Central Illinois
Quincy, Illinois

DATE _____
SECTOR _____ AVAILABLE DAY _____ TIME _____

STUDENT BIOGRAPHY

NAME _____ M _____ F _____

ADDRESS _____

PHONE (HOME) _____ (WORK) _____

BIRTHDATE _____ SOCIAL SECURITY NUMBER _____

OCCUPATION _____ P.A. _____ G.A. _____ A.D.C. _____

CHILDREN _____ MARITAL STATUS _____

CHILDCARE NEEDED? _____ MODE OF TRANSPORTATION _____

PARTICIPATION IN OTHER PROGRAMS? REHAB _____ AD ED _____

OTHER _____

What are your reasons for coming? Referral to this program?

Last grade completed: School attended:

Were you in any special classes? Speech _____ Remedial Reading _____

Special Education _____ Other _____

Recent eye exam? _____ Hearing screening _____

Can you identify: ___product labels ___read the newspaper ___read a map

___write a check ___job applications other _____

What would you like to accomplish in a year?

If you could read anything you wanted to right now, what would you choose to read?

What is the hardest part of reading for you?

Do you have difficulty understanding what you have read?

GS2

Do you seem to have difficulty with memory (remembering) in general?
in reading?

Do you have difficulty sounding out unknown words?

Do you have difficulty with spelling? handwriting?

Do you tend to skip lines, lose your place, or tire easily?

Are there any special reasons or problems that keep you from learning to read?

Sight? _____ Hearing? _____ Physical problems? _____ Other _____

How do you rate your math skills? Can you tell time? _____ Measurement _____

+ - x - fractions

What things are you good at? (working with hands, cooking, sports, math)
Do you have any hobbies?

If you had to put a child's toy together, how would you do it?

By someone showing you _____ By seeing picture directions _____
Someone telling you how _____ By reading _____ Just start it _____

RESULTS OF SCREENING _____

Approximate Reading Level _____

SORT Score _____

Material Suggestions _____

MaryAnn Nickel, Director of Literacy Volunteers, John Wood Community College at Quincy, Illinois.

PLEASE NOTE

Copyrighted materials in this document have not been filmed at the request of the author. They are available for consultation, however, in the author's university library.

Appendix E, Adult Reading Interest Inventory,
253-254

University Microfilms International

APPENDIX F

TRAINER'S MANUAL



Trainer's Manual

Adult Literacy Tutor Training Program

This Manual accompanies the Adult Literacy Tutor Training
Materials Packet

Training System © 1992 Mary Jo Parish



TABLE OF CONTENTS

| | |
|-----------------------------------|---|
| Equipment Requirements and Set up | 1 |
| Getting the Tutor Started | 2 |
| Computer Literacy Lesson | 3 |
| Troubleshooting | 5 |
| Tutor's Notebook | 6 |

EQUIPMENT REQUIREMENTS AND SET UP

The following hardware and software are needed to set up a workstation for this training program.

- * IBM PS/AT Computer with a BCD Interface Board Installed.
- * CGA Computer Monitor
- * Two-Channel VHS VCR
- * Television Monitor
- * Cables necessary to connect the equipment
- * Framedcoded Videotapes from Literacy Volunteers of America, Inc.
- * Disk containing the training program

Technical Assistance is available from the interactive video lab at Illinois State University or from the program designer. Call (309) 438-5912 or (309) 444-2280 for assistance.

GETTING THE TUTOR STARTED

After the workstation has been set up, training may begin.

| <u>Trainer Action</u> | <u>System Response</u> |
|--|--|
| Turn on the computer. | C:> appears |
| Type CD PILOT Then hit the <Enter> key | C:\PILOT> appears |
| Type A:PI TRAIINTTR | 'The System Is Initializing' will appear on the screen |

The designer strongly suggests that trainers go through the entire program so that they are familiar with it before the first tutor arrives.

Tutors do not need to be computer literate. If tutors appear afraid to use the computer, go through the computer literacy lesson with them.

Be sure that tutors have been given a Training Materials Packet. Tell participants to bring back the Packet each time they work on the program.

Stress to the tutors that they decide how long they feel comfortable working on the program. Reassure them that they "know best" when it comes to their own learning and the system was designed to adapt to their individual needs.

Now stand back and let them get started!

Computer Literacy Lesson

If a tutor has never used a computer before, he/she will need your help at the beginning of the program.

You will be asked to point out certain keys on the keyboard, explain what they do, and test the tutor to see that they understand.

Follow the steps listed below:

[Point to the keyboard. Say –]

This is computer keyboard. It is set up like a typewriter, but it has many extra keys. You do not need to know how to type to continue. The "hunt and peck method" is fine.

There are a few special keys that you will need to know.

The first is the Escape Key <ESC> It is located here. [Point to the ESC key.] This key will usually get you out of something you do not want to be in.

This is the Enter Key. [Point to the Enter or Return key.] This is the key that you will probably use the most. When the directions tell you to press <Enter> this is the key that you will press.

These are the F or Function Keys. [Point to the F Key area.] There are ten of them. Notice that each key has a number. When the directions tell you to press an F key, a number will follow the F. Example: This is the F1 key. [Point to the F1 key.] Do not type the letter f and then a 1 when the directions tell you to press F1.

You only use these keys a few times during the training program.

4

This is the Space Bar. [Point to the Space Bar.] You use it anytime you want to type a space between letters or when the directions ask you to hit the space bar.

Here are the Letters and Numbers . [Point them out.] These are the same as the one on a typewriter. For this program it will not matter if you use capital or lower case letters.

This is the Backspace Key. [Point to the backspace key.] This key will erase a typed letter or number. If you make a mistake, you can erase it by using the backspace key. It will only work before you hit <Enter>.

Test for Understanding.

Now when I call out the name of a key, point to it on the keyboard. Do not actually hit it - the computer is still on.

| | |
|-----------|-------------|
| Space Bar | Enter |
| F3 | 1 Backspace |
| Enter | D |
| ESC | F4 |
| F2 | A |
| B | 7 |

[Continue this until all the basic keys are mastered.]

Do you have any questions?

[Answer these. If the tutors asks about the number pad or direction keys, tell them what they do, but mention they will not need these during the training program. Direct the tutors to look back at the computer screen and have them follow the directions that appear on the bottom. Sit with them for a few screen, until they fell confident to continue on their own.]

TROUBLESHOOTING

| SYSTEM ACTION | SOLUTION |
|---|--|
| The VCR keeps clicking back and forth | <p>Check all of the cables and be sure that they are inserted tightly.</p> <p>Turn off all of the equipment and start it up all over again. Be sure to rewind the videotape, turn the VCR off and turn it back on again so that it reads the first framecode as 1.</p> |
| The computer monitor or the TV does not have a picture. | (Same as above) |
| The system will not initialize. | (Same as above) |
| No sound from the TV. | Check the volume control on the TV to see if it has been turned down. |

These are some of the most common problems. If you have others, do not hesitate to call the interactive video lab (309) 438-5912 or the program designer (309)444-2280.

Be sure to note any problems so that subsequent designs and manuals can do a better job of making this a problem-free learning system.

APPENDIX G

ADULT LEARNER MODULE - COMPUTER LESSON

Screen 1:

TIP 1

Respect the past experiences of adults and incorporate these experiences into the learning process.

Turn to THE ADULT LEARNER section of your Notebook. On page AL1 copy down Tip 1.

Screen 2:

Every adult is a successful learner. Every adult has learned how to do new things over the years. Many have even taught themselves how to do these things. Examples might be cooking, sewing, gardening, operating a machine or appliance, a hobby, or any other process required in day to day living.

On page AL1 in your Notebook, jot down something you have learned to do or taught yourself since you've "grown-up."

Screen 3:

Most adult non-readers fail to see themselves as successful learners because they think you only learn in school. Your job as a tutor will be to help learners recognize their former learning successes and begin to feel good about their ability to learn.

Screen 4:

You will also need to show your learner that you respect their past experiences and special abilities.

Example: John has told his tutor that he loves to take his grandson fishing. His tutor asks him questions about this -- Where? When? What equipment? How does he show his grandson what to do? Etc. The tutor's interest shows respect for John's ability and leads John to understand that he is also a teacher.

Screen 5:

The tutor writes down the steps John takes when showing his grandson something and turns this into the text for the reading lesson. These steps could then be followed by the tutor to teach John a reading skill.

Screen 6:

Example of dictated steps:

I get the fishing gear out of the tackle box. Then put it together. I like to be sure everything works right. I bait both our hooks, then put my line in the water. I help Tom put his own line in. Soon he don't want any help.

The tutor then points out to the learner that this is the way a good teacher presents a lesson-- by getting things ready, showing the student what to do, helping the student practice it, and then letting the student try it alone. The tutor, then, presents a small lesson following John's steps.

Screen 7:

TIP 2

Adult learners respond best when their learning is relevant to their jobs or personal lives.

Turn to page AL1 in your Notebook.

Copy down Tip 2.

Screen 8:

Adults who seek help for illiteracy usually have a very compelling reason for doing it. Maybe they need to read something on the job; they want to read The Bible; or they want to read to a grandchild. Your job as a tutor is to find out what your learner wants to read, then help him/her learn to read it.

Screen 9:

If you need some help coming up with a way to start this discussion, you may want to use the READING INVENTORY found on pages 16 and 17 in the book TUTOR. TUTOR is in the Training Materials Packet.

You do not need to use the form just as it is printed. Use only the sections of questions that seem appropriate and will "get things going."

Screen 10:

Example: Anna needs to read the manual for her Certified Nurse Assistant's course. If she can't pass the course, she will lose her job as a nurse's aide at a retirement

home. Anna has some reading ability, but is frightened by the big words in the manual.

The tutor now recognizes that the manual is their reading textbook, and part of each reading lesson should come from the manual.

Screen 11:

Anna probably knows how to do all of the things in the manual; she just needs help to read it. Point this out to her. If a section of the manual is about giving a bed-bath, first have her describe how she does this and write it down. Compare her process to the book's version. A good way to do this might be to alternate reading sentences with Anna, or to have her read her version and you read the book's version. Do this until most of the text makes sense to Anna. Then work on the tough words with small flash cards.

Screen 12:

TIP 3

Adult learners respond best when the lesson requires their active involvement.

Turn to page AL2 in your Notebook, and copy Tip 3 down.

Screen 13:

Do not lecture on and on to an adult learner.

It's like the old adage -- Never try to teach a pig to dance. It wastes your time and annoys the pig.

You are not a fifth grade teacher, and your learner is not 10 years old.

If you talk, talk, talk, you will be tuned-out":
and your learner will become annoyed with you.

Screen 14:

Instead, develop an atmosphere where you
seek information, respond, listen, help,
praise, and enjoy the company of your learner.

Always provide situations where your
learner can DO something.

Screen 15:

Examples of activities that actively
involve the learner:

Ask learner to tell you about an event
or situation that is important to him/her.

Ask learner to practice printing difficult
key words or sight words from sentences.

Ask learner to read along with you or read
every other line.

Ask learner to choose between 2 tasks or
activities.

Screen 16:

TIP 4

NEVER treat an adult like a child.
Choose materials and activities appropriate
for adults.

Turn to page AL2 in your Notebook. Copy
down Tip 4.

Screen 17:

Materials with simple reading levels do not have to look like children's books.

Good sources are the newspaper, magazines, travel brochures, pamphlets, and large print Bibles written in modern language.

Screen 18:

If the actual text is too difficult, or the print too small, copy a section of the piece on a legal pad and re-word if necessary.

Always show the reader the original and explain that it is easier to work with a reprinted version.

Screen 19:

Note: IF a learner wants to read to a child, THEN you can work with children's books. This is an ideal situation for everyone. Dr. Seuss books are great to start with.

Screen 20:

TIP 5

Adult learners require a great deal of emotional support and sincere praise for their efforts.

Turn to page AL3 in your Notebook.
Copy down Tip 5.

Screen 21:

It is typical for an adult low-level reader to have low self-esteem. A lifetime of illiteracy can destroy a person's dignity.

Your job as a tutor is to point out all of the good things a learner does.

Screen 22:

You can always start with attendance. Let the person know you are very glad they came, and that you realize how hard it is to show up the first time.

Walking in the door the first day may be the toughest thing s/he ever had to do. Let your learner know you understand that, and respect her/his efforts.

APPENDIX H

READING METHODOLOGY MODULE

Introductory Screens, Video Preview and Review Screens,
and Directions for Reading Selections

Module Introduction Section:

Screen 1:

This module is the most complex in this training program. It has been broken down into three sections to help you. Because this is such a complex topic, it would be difficult to teach you everything you need to know during your initial training.

For that reason, a selection of additional readings can be found in your Notebook in the section ADDITIONAL INFORMATION ON READING METHODOLOGIES.

Screen 2:

Once you begin tutoring, you may find that you would like more information on a particular process. At that time, you can look at the special section of the Notebook and see if there is an article there to help you.

Screen 3:

This module has 3 sections.

- A. The Language Experience Approach
- B. Phonics and Word Patterns
- C. Sight Words and Context Clues

For more information on the content of each section, look in your Notebook in the section on Reading Methodologies. Page RM1 has descriptions to guide your choices.

Introduction to the Language Experience Approach:

Screen 1:

THE LANGUAGE EXPERIENCE APPROACH is the cornerstone of adult literacy education. It will be the strategy you come back to again and again when you tutor.

It is probably not the way you were taught to read.

Screen 2:

People who can read tend to think of the reading process in a "building block" way.

Example: "First we need to learn the letters, then the sounds they make, then string the letters/sounds together to make words. Finally, we pronounce the words in order to read sentences. Voila! Reading!"

Screen 3:

Even though you may have learned to read that way as a child adult literacy learners are different. They are ADULTS!

Adults tend to prefer different educational strategies. They need a more holistic approach to reading instruction. The Language Experience Approach is a big part of holistic reading instruction.

Screen 5:

The video segments on The Language Experience Approach are divided into sections.

- A. Information on The Language Experience Approach
- B. A demonstration of the use of The Language Experience Approach.

Video Preview Screen:

In this video segment The Language Experience Approach will be presented as the basis for teaching an adult to read.

Watch for the explanation and demonstration of the six steps to The Language Experience Approach.

Place Tape 2 in the VCR and follow the instructions on page 9 of your Notebook.

Video Review Screen:

Remember:

The Six Steps to The Language Experience Approach are . . .

Converse, Record, Read, Discuss, Expand, and then Plan, together, what to do during the lesson from that point.

Video Preview Screen:

This video segment shows a tutor with an advanced literacy learner. The tutor has been asking the learner about a craft show that is taking place in the basement of the building where they meet. The learner has mentioned that she enjoyed looking at the quilts and would like to learn how to make them.

Watch how the tutor uses this to start a Language Experience lesson . . .

Video Review Screen:

Remember:

Anything can be used to start the discussion for a Language Experience story.

A tutor that is an interested listener will have no problem finding a topic for a story.

Open questions encourage more conversation.

Phonics and Word Patterns Section Introduction:**Screen 1:****PHONICS AND WORD PATTERNS**

The Phonics Approach to reading is the way most adults learned to read when they were children.

It is NOT the best way to teach adults how to read!

It will become ONE of MANY tools you will use to help your learner read.

Screen 2:

It has been estimated that only about 50% of the words in the English language actually sound the way they are spelled.

Note the many sounds made by HO in:

HOT
 HOOT
 HOOK
 HOUR
 HOUSE
 HOPE
 HONEY
 HOIST

Relying only on phonics to decode words will cause problems.

Screen 3:

Phonics instruction works best for adults when it is used only to introduce consonant sounds. The consonants in our alphabet are B C D F G H J K L M N P Q R S T V W X Y Z.

These letters generally represent only one sound.

Phonics instruction using vowel sounds can get very complicated. The vowels in our alphabet are A E I O U and sometimes Y and W. These letters can represent many different sounds, or change the sounds of letters around them.

Video Preview Screen:

In the following video segment, you will see how to teach consonants and consonant clusters (two letters that are pronounced as one sound--like SH).

Note the way key words are used and the order in which consonants should be taught.

Video Review Screen:

Remember consonant sounds and the letters that represent those sounds are easier to remember when the learner has a key word.

Help the learner make a key word page or card for each consonant and consonant cluster.

Reading Selection:

TUTOR, in your Training Materials Packet, has a section on Phonics on pages 29 - 35 and pages 42-43.

Also, there is an audiotape in the Training Materials labeled "VIDEO - SEG. 4 PHONICS." Use this tape to help you master the sounds for yourself, or to help your learner.

Nonreader Section:

If your learner cannot read AT ALL, (it is estimated that only 3% of the illiterate population falls into this category) you will need to start with word recognition exercises that can introduce letter-sound associations. THE NON-READER section in your Notebook has lesson ideas for learners with no reading skills.

Word Patterns Introduction:

Screen 1:

WORD PATTERNS

Using word patterns to expand an intermediate or advanced learners reading vocabulary represents a natural progression by using what is known to figure out what is unknown.

After a learner has mastered 2 or 3 specific words from the reading selection, spend 5 to 10 minutes experimenting with word patterns derived from these words.

Screen 2:

As the learner becomes more accomplished, you can change ending sounds or work with prefixes or suffixes. See page 87 in TUTOR for the sections marked "Useful Prefixes" and "Suffixes" for ideas.

Screen 3:

Word pattern exercises work best when the learner writes things down. Use this time for a short handwriting lesson if the learner needs the practice.

Also, word pattern exercises can help develop spelling skills. TUTOR has word pattern lists to help you on pages 88 - 98.

Video Preview Screen:

The following video segment shows how to teach the sounds that vowels (A E I O U) make when they are combined with other letters.

Watch to see how to use phonograms in word patterns.

Video Review Screens:**Screen 1:**

Did you notice how the tutor used the knowledge the learner already had, and then built upon it.

Phonics instruction through word patterns will help expand a learner's reading vocabulary. Use it to build upon concepts already mastered.

Screen 2:

In review:

A phonogram such as -an- can be used to teach many words.

Examples:

CAN, FAN, DAN, MAN, RAN

OR

ANT, AND

Reading Selection:

The book TUTOR, in your Training Materials Packet, has readings on phonics and word patterns on pages 29 -43.

Sight Words Introduction:

Screen 1:

SIGHT WORDS

Sight words are words that a reader can recognize immediately--by sight. Eventually, the goal of reading instruction is to have a very large sight vocabulary so that reading can be quick, easy, and meaningful.

Mastering a sight word vocabulary is one of the most difficult and frustrating tasks for the new reader.

Screen 2:

Because only about 50% of English words are actually pronounced as they are spelled, many words can only be taught as sight words.

Video Preview Screens:

Screen 1:

The following video segment will show what words a reader needs to be able to recognize immediately--by sight, and how to teach these words to your learner.

Screen 2:

Watch for the four types of sight words. Put Tape 3 in the OVCR. Follow the instructions on page 9 in your Notebook.

Video Review Screen:

Remember:

The 4 types of sight words are:

- Survival Words
- Service/Utility Words
- Irregularly spelled Words
- Introductory Words

Sight words will need to be practiced many time before they can be quickly recognized.

Video Preview Screens:**Screen 1:**

This video segment shows a demonstration of a tutor helping a learner with sight words from a language experience story they are working on.

Screen 2:

Watch how the tutor keeps referring to the sentence the words appear in to help the learner memorize the words. It is easier to learn words when they are part of a meaningful sentence.

Video Review Screen:

Remember:

Choose words that are giving the learner difficulty. Underline them. Make words cards. Match cards to words in the sentences. Practice word cards until mastered. Refer back to story as many times as needed.

Context Clue Introduction:

Screen 1:

CONTEXT CLUES

When you do not know what to do next, it is often natural to just guess -- then move on. That is how using CONTEXT CLUES works while reading.

When a good reader comes upon an unknown word, that person usually makes an "educated guess" about what the word is and then keeps reading.

Screen 2:

Literacy learners need to know that this process is OK. It is OK to guess! This fact surprises many non-readers.

This process of making "educated guesses" is known as using the context clues to assist reading and comprehension.

Screen 3:

An Example:

Your learner wants to write down his grandmother's recipes into a cookbook for his family. At each lesson he dictates another favorite and that becomes the reading selection for the lesson.

Screen 4:

During the lesson he is practicing reading the recipe aloud. He hesitates, "Boil the noodles until . . ., about 10 minutes." He cannot read the word "tender," but with a little encouragement from the tutor, it can be easily guessed.

Screen 5:

Some good context clues would be:

"If you boil noodles for 10 minutes, what might they be like?"

"Notice the word starts with a T. Your key word for T is top. What word begins like top and makes sense?"

"Does tough make sense? What word begins like top and tough, but makes sense?"

Video Preview Screen:

This video lesson has 2 very short segments. The first segment will define what context clues are and how they are used to aid comprehension.

The second segment will give some hints on how to teach and practice the use of context clues.

Video Review Screen:

Remember:

Using context clues means using the other words around an unknown word to help predict or guess what that word is and its meaning.

Fill-in-the-blank drills may help your learner to develop the ability to use context clues when encountering unknown words.

Reading Selection:

The book TUTOR, in your Training Materials Packet, has a reading selection on teaching and using context clues on pages 28 - 29.

APPENDIX I

EFFECTIVE COMMUNICATION MODULE

Nonverbal Communication Computer Lesson

Screen 1:

The world of the non-reader is a very different place. Imagine only getting information from what you hear and observe -- not from the many words that are printed everywhere.

Screen 2:

Such a person becomes very "tuned-in" to hints and clues that are not written down.

These are the coping skills that non-readers develop.

Screen 3:

Non-readers are very good at "reading" nonverbal communication, or body language. You will be expected to "learn to read" from their "book" if you want to send and receive messages effectively.

Screen 4:

What are the "pages" where you can find this information?

The Face
 The Hands
 The Body's Posture
 The Body's Proximity

Screen 5:

THE FACE

A non-reader will be able to "read" your facial expressions better than you can read any book. Your actions must be sincere and your reactions positive and compassionate.

You, too, must watch for your learner's facial expressions. These will speak louder than any words. Try to understand these responses and support them.

Be "tuned-in" or you will quickly be "tuned-out."

Screen 6:

The face and hands also exhibits what communications experts call "adaptors." These are actions that a person does in a stressful situation without even knowing it. The subconscious adaptors help the body deal with the tension.

Screen 7:

Some examples are:

Rapid blinking, lip licking, touching or patting hair, coughing, tugging on ears. . .

Watch for such repeated behaviors -- if you see them, know your learner is uncomfortable and nervous.

Screen 8:

THE HANDS

When someone is nervous, it often shows in their hands. They fidget, pat, tap, or perform the same little task over and over again.

Recognize these adaptors as signs of discomfort and do what you can to make things easier and more pleasant.

Screen 9:

THE BODY'S POSTURE

Controlling one's posture is an excellent way to "act" the way you want to feel.

Rigid = In Control

Relaxed = At Ease

Screen 10:

Sudden changes in posture signal a breakdown of "the act."

If a person slumps down in response to a question --that is a negative response.

If a person stiffens up - that, too, is probably a negative response.

Screen 11:

Changes in posture will be the clues you need to "read" a person's actual reaction or mental state.

The more two people work together, the less need there will be for "acting."

Screen 12:

As a tutor, be sensitive to the learner's real feelings. Have no doubt the learner is sensitive to yours.

Screen 13:

THE BODY'S PROXIMITY

This is the hardest category to "read." Generally, closeness (up to a point - usually 18 inches in our culture) is a positive sign and distance is a negative sign.

Screen 14:

Generally, when a person leans forward -- s/he is showing interest and is engaged in what is happening.

OR

When a person leans away -- s/he is trying to distance himself/herself from the situation. S/he is not reacting positively to it.

Screen 15:

As with posture, you should watch for changes in proximity.

Practice this in any social situation. You'll be surprised to find yourself seeing things you never noticed before.

Screen 16:

Next, you will be shown two video segments.

Watch carefully for the nonverbal messages the learner sends and see if the tutor is able to "read" them.

Notice facial expressions, hand movements, posture, and body proximity.

APPENDIX J
GETTING STARTED MODULE
Introductory Screens

Screen 1:

GETTING STARTED

After you have completed training you will be assigned a person to tutor.

You will have many questions at that point:

How am I supposed to act?

Where will we meet?

What is the person like?

Will we "hit it off?"

Can this person read at all?

BUT MOST IMPORTANT . . .

What will we do during our first tutoring session?

Screen 2:

Your local literacy organization will help you with a few of the questions.

Where will we meet?

The organization will provide a place to meet or a process to find one. On page 4 of your Notebook is a list of names. These people can help you answer the question.

Can this person read at all?

Each organization has an initial testing process to establish a new person's

reading level. If your organization expects you to do the testing, you will

be trained in the proper procedures in the Testing and Assessment module of this program.

Screen 3:

What is this person like? and
Will we hit if off?
These two questions will have to be
answered by you.

Although there are no guarantees, and in some cases (very few) things don't work out, most tutors and learners gradually develop a mutually fulfilling relationship.

You are obviously a "people person" or you would never have volunteered to tutor. Your "people skills" will get you past this hurdle.

Screen 4:

How an I supposed to act?
The best answer to this question
is DON'T ACT! Just be yourself!

Relax and be sincere. Everything
else will fall into place.

One of the best things about working with adults is that you can admit your mistakes and your imperfections. It makes you seem more of a "regular guy" to your learner, and it helps take the pressure off.

Nobody expects you to be perfect. Nobody even wants you to be!

Screen 5:

In your Training Materials Packet is a book STUTOR.

Read pages 8 - 10 to reassure yourself that tutoring is for you.

Screen 6:

Now for the BIG QUESTION --
What will we do during our first tutoring session?

Well, what do you do the first time you meet anyone? You spend some time chatting and getting to know each other.

Spend a lot of time listening, but also give a little information about yourself, too.

Let the person know you understand how hard it is to walk through the door the first day --Let her/him know that you are very glad s/he did.

APPENDIX K
HANDWRITING MODULE
Introductory Screens

Screen 1:

HANDWRITING MODULE

Writing is as much a part of literacy as reading.

In fact, when a learner writes as part of the reading lesson, learning is enhanced.

We have all experienced how much easier it is to recall things when we jot them down.

Screen 2:

This module will serve two purposes.

- 1) It will help you, the tutor, develop legible manuscript printing to use during your lessons.
- 2) It will help you help the learner that does not know how to write manuscript or cursive letters.

Screen 3:

The Alphabets chosen for this training program are from the D'Nealian Handwriting program.

Literacy Volunteers of America suggests this form of writing.

Screen 4:

D'Nealian Handwriting works well for adult tutors trying to master legible printing because its natural flow is like cursive writing.

Screen 5:

Also, D'Nealian Handwriting works well for adult literacy learners because the progression from manuscript to cursive is much easier than with the alphabets we were introduced to as children.

Screen 6:

Some people with learning problems actually read easier from cursive script because the letters in a word are connected together.

You may need to experiment with your learner to see if this fact applies to him or her.

Screen 7:

In your Training Materials Packet you will find workbooks for manuscript and cursive alphabets in two sizes: 1/3 inch lines and 1/2 inch lines.

Different sizes are more comfortable for different people. You will need to experiment to find the size most comfortable for you and/or your learner.

Using the workbooks is optional. They are published for children, so you may want to practice with them, but the learner might find them offensive.

Screen 8:

You may want to progress through the workbook of your choice, or you may want to just practice the alphabets that appear on the back cover of each workbook.

Screen 9:

Along with the workbooks, you will find lined transparencies and a special felt-tip pen for the transparencies.

Screen 10:

You may want to . . .

Trace letters using the lined transparency over the workbook's back cover.

OR

Write letters on the transparency and then slide them over the back cover to see how well they match.

Screen 11:

When you begin tutoring, your learner will enjoy practicing with either of these methods because they are different and appear more "grown-up" and "scientific."

The pen markings easily wipe off with a damp sponge followed by a paper towel.

Screen 11:

There is no trick to mastering
handwriting.

It just takes practice.

APPENDIX L

FIELD TEST DIRECTIONS

Welcome to Adult Literacy Tutor Training with Computer Assisted Interactive Media: The Field Test

Thank you for agreeing to take part in this field test. Today you will be working on a newly designed training program. This program contains the information a person might need to help another adult learn to read. Most of this training program is delivered by the computer and the television; but there is also a Media Packet containing many items, that accompanies the program. At this time please look through the Media Packet and locate the Notebook.

Frequently you will be directed to locate something in the Notebook and in the book Tutor. Take a few minutes to look at the Notebook at this time.

Basic Directions

1. Turn to Notebook page 5. This page lists the various sections of the training program.

Choose one or two sections that look interesting to you. Jot down the titles here:

[There will be some introductory work in the program, then you can choose the section you would like.]

2. While you are working, please share your thinking processes by "talking aloud."

3. Work as long as you like. Stop whenever you are ready.

4. If you have questions -- just ask!

5. Please remember to fill in the questionnaire when you are done.

Thank you!

APPENDIX M

FIELD TEST QUESTIONNAIRE

Adult Literacy Tutor Training Program

Field Test Questionnaire

Please answer these questions honestly and completely.

1. Have you ever worked with this type of an instructional system before today?

_____ Yes _____ No

2. To what degree do you think you were adequately prepared for today's session?

3. Was this experience similar or different from what you expected?

If different, in what way(s)?

4. How difficult did you find the equipment and materials to use?

___Very Easy ___Easy ___Mid-Range
___Difficult ___Very Difficult

5. How would you rate the level of difficulty of the content used in this program?

___Very Easy ___Easy ___Mid-Range
___Difficult ___Very Difficult

6. What do you think the purpose of this program is?

7. To what degree do you think the purposes of this program have been accomplished?

8. In what way, if any, did you benefit from this particular learning experience?

9. What do you think of this type of instructional system?

Bad Points

Good Points

10. Was there anything about this program that you really liked?

11. Are there things in the program that should be . . .

Added?

Taken Out?

12. Would you consider participating in a training program using this type of a system again?

_____Yes _____No

13. If yes, what content related to adult literacy tutoring would you like to see presented?

14. What types of people, students or tutors, do you believe would be attracted to this mode of instruction?

15. What type of people, students or tutors, do you believe would react negatively to this mode of instruction?