The Development and Field Testing of a Semi-Programed Text for the Establishment of Reading and Writing Repertoires with Mexican-Illiterate Adults

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THE DEVELOPMENT AND FIELD TESTING OF A SEMI-PROGRAMED
TEXT FOR THE ESTABLISHMENT OF READING AND WRITING
REPERTOIRES WITH MEXICAN-ILLITERATE ADULTS

by

Marco Wilfredo Salas Martinez

A Dissertation
Submitted to the
Faculty of The Graduate College
in partial fulfillment of the
requirements for the
Degree of Doctor of Philosophy
Department of Psychology

Western Michigan University
Kalamazoo, Michigan
April 1988
THE DEVELOPMENT AND FIELD TESTING OF A SEMI-PROGRAMED TEXT FOR THE ESTABLISHMENT OF READING AND WRITING REPERTOIRES WITH MEXICAN-ILLITERATE ADULTS

Marco Wilfredo Salas Martinez, Ph.D.

Western Michigan University, 1988

The purpose of the present study was to design and evaluate the effectiveness of a Semi-Programed text for establishing reading and writing skills for Spanish-speaking illiterate adults, and to compare it with the Mexican Secretariat of Public Education Reading and Writing program. Thirty-two male prisoners incarcerated at the Regional Prison of Jalapa, Veracruz, Mexico, were randomly assigned to one of four groups: (a) Semi-Programed I; (b) Semi-Programed II; (c) Conventional I; and (d) Conventional II. Subjects of the Semi-Programed Instructional condition groups were taught to read and write with a Semi-Programed text, which was based on the behavioral principles and the characteristics of programed instruction. Subjects of the Conventional groups were exposed to the Mexican Secretariat of Public Education Reading and Writing program which taught literacy skills in a traditional way. A multiple baseline across four sets of textual stimuli (syllables and words) was utilized to assess the reading and writing skills of the four groups during Baseline, Instructional Texts, and Follow-up Conditions. Additional Generalization Pre and Post-test evaluations were taken for the 32 subjects. The data indicate that the Semi-Programed Reading and Writing text was more effective for teaching
adult illiterates to read and write than the text recommended by the Secretariat of Public Education. The results show also that the Semi-Programed text promoted not only the acquisition and retention of syllables and words, but facilitated the generalization of these textual repertoires to new reading materials.
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The development and field testing of a semi-programed text for the establishment of reading and writing repertoires with Mexican-illiterate adults

Salas-Martinez, Marco Wilfredo, Ph.D.
Western Michigan University, 1988

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Marco Wilfredo Salas Martinez

ii
TABLE OF CONTENTS

ACKNOWLEDGEMENTS ................................................................. ii
LIST OF TABLES ............................................................................. v
LIST OF FIGURES .......................................................................... iv
I. INTRODUCTION ................................................................. 1
   The Problem ........................................................................... 4
   A Profile of the Adult Illiterate ........................................... 8
   Instructional Activities for the Adult Illiterate .................. 15
   Programs for Establishing Textual Repertoires ............... 21
   Summary ............................................................................... 42
   Purpose of the Present Research ....................................... 44
II. METHOD ................................................................................. 45
   Subjects ............................................................................... 45
   Settings ............................................................................... 45
   Materials ............................................................................... 45
      The Structure of the Semi-Programed Text .................. 48
   Independent Variables ...................................................... 52
   Dependent Variables ............................................................ 54
   Procedures and Experimental Design ......................... 55
      Experimental Design ....................................................... 56
      Generalization Pre-Test ................................................... 56
      Baseline ............................................................................. 57
      Conventional and Semi-Programed Texts Instructional Condition .... 58
Table of Contents—Continued

Generalization Post-Test ............................................ 58

Follow-Up ................................................................. 58

Reliability ..................................................................... 59

III. RESULTS ............................................................................. 61

IV. DISCUSSION AND CONCLUSIONS ................................. 74

APPENDICES ...................................................................................... 82

A. A Pre-Requisite Exercise ......................................... 83

B. Discrimination Exercises ........................................ 85

C. Pre-Requisite Reading Behavior Test ...................... 88

D. Straight Lines Exercise .......................................... 90

E. Curved Lines Exercise ............................................. 92

F. Drawing Lines Similar to Letter Exercise ................ 95

G. Drawing Main Letters Forms Exercise .................. 98

H. Vowel Acquisition Exercise .................................. 101

I. Direct or Single Syllables Acquisition Exercises .... 105

J. Compound Syllables Acquisition Exercise ............ 108

K. Sentences Acquisition Exercise ............................ 110

L. A Lesson Exercise .................................................. 112

M. Generalization Test ............................................. 114

N. Document of the Veracruz State Government .... 117

BIBLIOGRAPHY ................................................................. 119
LIST OF TABLES

1. Mean Percent of Correct Reading and Written Responses During Pre-Test and Post-Test Generalization Conditions .............................................................. 70

2. Mean Percent of Correct Reading and Writing Responses on Acquisition Probes During the Follow-Up Condition for the Subjects of the Four Groups ........................................................................................72

3. Analysis of the Reading and Writing Mean Percent Differences Between the Semi-Programed and Conventional Groups During the Pre-Test and Post-Test Generalization Conditions ................. 73
LIST OF FIGURES

1. Mean Percent of Syllables and Words correctly read by Subjects of Semi-Programed Text Groups 1 and 2 During Base Line, Instructional Condition and Follow Up Phases ........................................... 62

2. Mean Percent of Syllables and Words Correctly Read by Subjects of Conventional Text Groups 3 and 4 During Base Line, Instructional and Follow Up Phases ................. 64

3. Mean Percent of Syllables and Words Correctly Written by Subjects of Semi-Programed Text Groups 1 and 2 During Base Line, Instructional Condition and Follow Up Phases ........................................... 66

4. Mean Percent of Syllables and Words Correctly Written by Subjects of Conventional Text Groups 3 and 4 During Base Line, Instructional Condition and Follow Up Phases ........................................... 67
CHAPTER I

INTRODUCTION

Literacy has been considered a social phenomenon. It has developed as society's members have needed a communication instrument across time and space. As society, science, and technology become more complex, literacy has become a real necessity to perpetuate history, education, economy, literature, religion, scientific achievements, survival rules, etc. This social phenomenon has also raised the expectations about the basic skills needed for participating in the society.

Since literacy is one of man's most worthwhile skills, the authorities responsible for providing educational programs have attempted to implement several programs to make every individual literate. Aukerman (1984) mentions that the decade of the 1970's was designated for major emphasis on the processes of reading, with an expressed hope that a massive federally funded effort would result in the discovery of the optimum materials, methods, and conditions for universal success in beginning reading. Thousands of people became involved in literacy campaigns. However, large numbers of people were not and have not yet been reached with the literacy benefits. Before continuing with the discussion of the problem, it would be appropriate to review the literacy concept. For Bormuth (1973-1974), the term literacy may be used to refer to a
number of different kinds of behaviors, ranging from the ability to employ basic reading or writing skills to the knowledge of some body of literature. However, he prefers to apply the term to "the ability to respond competently to real-world reading tasks" (cited in Bormuth, p 10). According to the author, man has used writing (one of the literacy skills) to record, accumulate and store his knowledge in an easily used form. According to Stitch (1978) the United States Office of Education (1975) in its study, Adult Performance Level (APL), provides a more wide description of literacy: "Literacy is composed of an application of communication (reading, writing, speaking and listening) computation, problem solving and interpersonal relation skills to knowledge of occupations, consumer economics, community resources, government, law and health" (cited in Stich, p 4). Stich himself (1978) narrows the literacy concept to the following types of learning: (a) the learning of the knowledge and skills required to decode printed words into language, and the subsequent practice of this skill until automaticity is acquired, and (b) the learning of the new vocabulary and concepts found in the printed materials one uses in learning to read, and includes the learning of new skills for processing information from printed displays (p. 7).

Freire (1973) emphasizes conscientization as an integral part of the process of literacy attainment. For him, to acquire literacy is more than to psychologically and mechanically acquire reading and writing techniques. It is to acquire these techniques in terms of consciousness—to understand what one reads and to write what one
understands; it is to communicate graphically.

Some authors complain that the definitions of literacy are relative and incomplete. The way they deal with this problem is by subdividing the literacy concept. Thus, Hunter and Harman (1979) classify literacy into two groups, Conventional and Functional. Conventional literacy involves the ability to read, write and comprehend texts on familiar subjects and to understand whatever signs, labels, instructions, and directions are necessary to get along within one's environment. On the other side, Functional literacy is considered as the possession of skills perceived as necessary by particular persons and groups to fulfill their own self-determined objectives as family and community members, citizens, consumers, job holders, and members of social, religious, or other associations of their choosing. This includes the ability to obtain information they want, and to use that information for their own and other's well being; the ability to read and write adequately to satisfy the requirements they set for themselves as being important for their own lives—the ability to deal positively with demands made on them by society and the ability to solve the problems they face in their daily lives.

In a similar way the United Nations Educational, Scientific and Cultural Organization (UNESCO), in 1970, differentiated Functional literacy from Traditional literacy. For them Functional literacy means any literacy operation conceived as a component of economic and social development projects, and it treats the illiterate as an individual in a group context, in relation to a given environment.
and with a view to development. They consider that Traditional
literacy only involves establishing sufficient skills for reading,
writing and elementary arithmetic.

The Problem

An increasing number of countries are still promoting literacy campaigns in order to provide the citizens with the basic reading and writing skills. The governments of these countries have been investing an enormous amount of time, effort and money in the planning, development and implementation of various literacy programs. One example of the above mentioned is the Experimental World Programme which was coordinated by the UNESCO in 1970. Fifty-two countries attempted to participate in this program. Unfortunately these efforts did not produce the expected results, and large numbers of people are not yet being reached with the benefits of the implemented literacy programs. This situation has created a terrible social problem: Illiteracy.

Illiteracy is not an exclusive problem of the Third World or under developed countries. Even the United States, a country recognized as an industrialized, developed and educated nation still has a significant degree of illiteracy. Hunter and Harman (1979) discussed United States literacy statistics, stating that despite the universal free education available and the academic and scientific achievements in the country, a disproportionately large section of the adult population—well over a third—still suffers some educational disadvantage. According to the authors, among
these millions of adults are functionally illiterate, but the exact number is not known. Kozol (1985) mentions there are 60 million illiterate American adults, a figure taken within the range of "functional" and "marginal" illiterates identified in the Adult Performance Level (APL) study of the early 1970s. But according to most studies, including the APL, only a small fraction of these 60 million adults are "illiterate" in the sense of being unable to read a word. Unfortunately, Kozol failed to adequately differentiate between truly illiterate adults and the under-educated adults who have problems with certain "high level" skills of literacy. The preceding statement is supported by Jones (1981) who mentions that the numbers of persons who appear in Adult Basic Education enrollment tabulations might suggest inflated estimates of those who actually are helped in functional literacy terms.

Among the Third World countries or countries in the process of development, which have made huge efforts to increase literacy among their population in the last sixty years, is Mexico. In May of 1981, the Mexican federal government created el Programa Nacional de Alfabetizacion (the National Literacy Program) with the objective of decreasing the number of 6,600,000 illiterate adults. In September of the same year, el Instituto Nacional para la Educacion de Adultos, INEA (the National Institute for the Adult Education), was created by Presidential decree.

INEA (1982) estimated the existence of 15,000,000 of the adult population who did not complete elementary education and 7,000,000 of the adult population who did not complete high school. According
to Epstein (1986) the illiteracy rate in the Mexican adult population declined from 26% to 18% in 1980, representing an increase in the literate population of 64 percent.

Although the overall rate of illiteracy is apparently declining, a large population growth rate, which matches or even outpaces the decline in the illiteracy rate, and a large migration of illiterates from rural to urban areas has increased the significance of the illiteracy problem for the nation as a whole. The same author also states that the illiterate population of adult females actually increased from 1960 to 1980, a fact that has ominous implications for the future.

This illiterate female rate problem could be a true fact, because in the past traditional parents used to motivate their sons to obtain a professional career but they discouraged their daughters to attend school. They preferred to train their daughters to become good housewives. However, this situation has changed today and the female enrollment at all educational levels has increased.

It is believed that illiteracy tends to be regarded largely as a rural problem. Gill in 1969 provided a dramatic example about education in the Mexican rural areas. He stated that the quality of the education provided in rural schools was very poor—that many children had no schools to go to. He said when new schools were created they offered instruction at the first grades, but teachers were not available for the higher grades, and sooner or later children dropped out. Today, the educational situation in the rural area has improved. Both the federal and state government have built
schools; roads have been constructed to have access to most of the rural communities, and they have trained and hired more teachers for those schools. Unfortunately, those peasants and workers who did not have the educational facilities in the past are still illiterates.

Now when they are invited to participate in the literacy programs, many of them refuse to attend school or go to the literacy centers. They try to justify themselves with excuses such as: "I am too tired after coming back from work"; "I feel ashamed for going to school, just like a child"; "I do not need to learn to write and read to do my work"; "My husband does not allow me to go to school at night"; and "I do not have time," etc.

In addition to this apparent lack of motivation, another factor that has contributed to the illiteracy in the rural areas is the objective of the government literacy program. Pescador (1984) mentioned that the objective of this program was to reach first the urban illiterate population and later the rural one.

Literacy programs are considered to be the instruments for establishing the basic academic skills in adults. When they function in this way, they help to decrease the illiteracy rate. But sometimes they work in the opposite way, specifically when the programs lack the essential characteristics for teaching effectively and maintaining the students' motivation to constantly participate in the learning-teaching process. When this situation happens, the adult will have the best justification to drop out of school, and it will be very difficult to make them come back again to school, even
If new programs are offered to them. Darkenwald and Knox (1984) stated that the consequences for the individual of dropping out of school and for not having adequate literacy and computational skills can be devastating. The authors said that many drop-outs having faced repeated failures in school consider themselves less knowledgeable than others and incapable of learning. They are reluctant to risk exposing their lack of skills and refuse to become involved in activities that may remind them of the frustrations and embarrassment that they faced in school. Harman (1970) considered attrition as a plague of adult education programs.

A Profile of the Adult Illiterate

In order to be in a position to discuss and determine the kind of instructional programs that should be designed and implemented to teach basic literacy skills to the adult illiterate, it seems convenient to possess certain knowledge about the needs, skills, handicaps, attitudes, expectations, motivations and other characteristics of the adult illiterate.

Answering the question: Who is the adult illiterate? requires defining the term illiterate. Illiterate, as the term is commonly understood is a person who is unable to read and write. However, anyone using this definition, should specify: unable to read and write what, or to what extent? In other words, a minimum criterion of reading and writing performance must be specified. UNESCO (1962) described the literate as a person who has acquired the essential knowledge and skills which enable him to engage in all those
activities in which literacy is required for effective functioning in his group and community, and whose attainments in reading, writing and arithmetic make it possible for him to continue to use these skills toward his own and the community's development. As one can see, this is a very broad definition, which leaves the literacy program's author the responsibility of defining terms, identifying behaviors and specifying skill criteria. Stauffer (1975) mentions that in 1969 the Bureau of Census of the United States defined illiteracy as "the inability to read and write a simple message either in English or any other language" (cited in Stauffer, 1975, p. 253). This definition falls in the extreme of narrowing the skills range involved in literacy. Harman (1970) states that the Office of Education uses grade equivalencies ranging from the fourth to eighth grades to classify the adult literacy level. This is another wide criterion to evaluate literacy.

Latapi (1980) considers that the illiterate is not only the subject who is unable to read and to write, but also the individual who is ignorant about his basic rights, who does not know how to use the public services, who is unfamiliar with the information resources which can help him to solve his problems, the person that is unable to express himself, and to have some practical experiences of popular organization and political activities. As one can see, Latapi requires for the literate a criterion that even some educated people would not reach.

It is very difficult and risky for anyone to provide an adult illiterate definition which can be applied and accurately adjusted
to adult illiterates with different backgrounds and different characteristics. The safest way to proceed in the elaboration of a literate or illiterate definition is by providing the following minimum elements: (a) The adult illiterate population characteristics which are more related to the acquisition of literacy skills, (b) the definition of the behaviors which identify the illiterate or illiterate person, (c) the criterion level of performance we expect a literate person should demonstrate on testing those behaviors, and (d) the context in which we test the behaviors.

Many authors have attempted to provide a portrait of the adult illiterate through the identification of his characteristics.

Lanning and Many (1966) are some of the first authors who described the adult illiterates with the following characteristics: (a) They have the problems of adults (family pressures, financial problems, strongly ingrained customs and habits), (b) they have the need to cover up their deficiencies, (c) they have an impatient desire to see an immediate tangible return for their investment in time, (d) they have a greater speaking and listening vocabulary than children, (e) they have a broad range of experiences, (f) certain adults will show unusually dramatic gains in reading proficiency, and (g) their behavior seems influenced by the idea that it is better to act. Unfortunately, these authors used subjective constructs in the definition of the behaviors which supposedly describe the under-educated adult.

Other authors describe the illiterate in a very pessimistic way. Houghton and Neef (1968) state that a person who cannot read
or write is ill-equipped to obtain a good job or fulfill his responsibilities at home and in the community. The authors describe the illiterate as a dropout in society, unreliable, unproductive, unresponsive, a jobless father that has difficult maintaining his self respect as the head of the house.

A similar description is given by Darkenwald and Knox (1984) for the adult dropouts. They characterize them as individuals who possess a low self concept, poor social adjustment, an inability to relate to authority figures, a lack of future orientation and an inability to tolerate structured activities.

The above mentioned authors seem to attribute to literacy not only the benefits of establishing academic skills but also the property of providing to the individual some positive virtues. UNESCO (1976) mentions that in industrialized as well as Third World countries there is somewhat of a stigma attached to adults who take part in education which is normally felt to be reserved for children.

For Bowren and Zintz (1977) the main characteristics of the illiterate adults are the following: (a) They have specific instructional needs, (b) each of them possess different personality features, (c) they want to learn to read in order to improve their lives, (d) they have practical objectives for learning. Some adults have a hostile attitude toward the school world, and (e) they have a tremendous amount of courage.

The Office of Education of the U.S. Department of Health, Education and Welfare (1979) mentions that candidates for adult
literacy programs possess characteristics that include the follow­ing: (a) They have already formulated self-images, (b) they have had a wide range of experiences, (c) they have generally developed a readiness to learn, (d) they generally have the ability to learn, (e) they are motivated to learn by personal and practical needs, and (f) they are more successful in learning when instruction is related to problems they face and relative to their personal experiences.

For Hunter and Harman (1979), the adult illiterates in the United States are found in huge numbers wherever there are poor people, congregated racial and ethnic minority groups, ghettos, and hard physical labor to do. They also add to the list the unemployed, the person that appears on the public welfare rolls, persons who have been imprisoned, and Black and Hispanic women. Jones (1981) compared the functional illiterate with the child beginning reader. He identified in the illiterate the following characteristics: (a) They have a more extensive speaking vocabulary, (b) they are able to relate to many concepts discussed in print, (c) the adult's motivation for reading is directed toward specific materials which are important in their personal lives, (d) they are apt to be more dedicated and industrious since they are in a position to make immediate application of what they learn, (e) they may suffer from an extremely negative view of themselves as a learner, (f) they have an extreme lack of confidence in their ability to succeed in learning situation, (g) adults are more stable as they have learned impulse control and have a more identified personality, (h) the typical disadvantaged adult lives in a home which is not conducive
to their school work, (i) they do not have educational models which encourage them to learn, (j) the employment of illiterates is insecure, and (k) they are disproportionately high in both number and severity of health problems.

Stavenhagen (1981) describes the Latin-American adult illiterates as passive individuals who do not participate in solving the social problems, who do not have access to the benefits of social wealth (education, health and housing), and they do not have access to the economic, social and political decisions either. This author also says that they are peasant or unskilled or semi-skilled workers who are performing "marginal" or under-paid jobs, such as newsboys, street hawkers, maids, servants, shoeshine boys and other activities which cannot be considered as jobs.

An analysis of all the illiterate adults' characteristics provided by the authors mentioned above allow us to present the following conclusions:


2. Most of the authors tend to generalize the characteristics or to apply them totally to all adult illiterates.

3. For some authors (Houghton & Neef, 1968; & Darkenwald & Knox, 1984), being an illiterate is equivalent to being a person with undesirable attitudes and social behaviors.

4. Different authors provide different characteristics of the
Some of them agree in very few similar characteristics. This situation seems to indicate that all adult illiterates do not have the same characteristics.

5. Therefore a profile of the illiterate adult should start with a statement which indicates that the adult illiterate could have some of the following characteristics: (a) They do not have the basic reading and writing skills, (b) they want to acquire verbal repertoires as a means to meet the literacy demands of their daily living and working environments, and therefore to improve their economical and social status, (c) they prefer to engage in academic activities which are related to practical circumstances of their lives, (d) they have a broad range of experiences, (e) they could be unemployed or they could be performing under paid jobs, (f) they are persons with a very low income, (g) they could belong to any ethnic minority group (native Indian, Black or Hispanic), (h) many of them do not have access to social benefits (education, health, etc.), (i) they may have poor social adjustment, (j) for many adults, the school is not a reinforcing environment, (k) they can concentrate on academic activities, better than children, (l) they have a broad, extensive vocabulary, (m) among older adults the likelihood of having hearing, visual or other health problems is increased, (n) they have little time to devote to formal learning activities, (o) they exhibit a high academic response rate when they are achieving successfully, (p) the physical environment of their home does not help them to reach their academic objectives, (q) their work environment does not often provide motivation for
educational achievements, and (r) they participate in several activities (family, work, and social events) which interfere with their education.

Instructional Activities for the Adult Illiterate

As was mentioned earlier, adult illiterates have a number of distinctive characteristics which need to be considered in any activity or instructional program designed to meet their needs.

Many times the instructional tasks are planned on the basis of the philosophies and literacy concepts of their originators, or of the authorities who finance the programs' authors. Therefore, one finds a great diversity of activities and literacy programs' objectives. For instance, Freire (1970) considers that the objective of literacy should be providing an opportunity for men to know what speaking the word really means: A human act implying reflection and action, and consequently a primordial human right and not the privilege of a few.

Freire in 1970 stated that the education provided to society would have to include a critical education which could help to accomplish the following: (a) Forming attitudes, (b) facilitating the passage from naive to critical transitivity, (c) increasing people's ability to perceive the challenges of their time, and (d) preparing the people to resist the emotional power of transition. For this author, literacy is viewed as a medium for the freedom of man, and the concept of freedom is understood before or along with the acquisition of reading and writing.
Postman (1970) sees a predominantly literacy-based curriculum as obsolete and reactionary in the context of recent advances in today's technology. In certain ways he shares Freire's philosophy saying that the main objective for teaching reading is making "good citizens," but according to him, being "Good Citizens" meant people who could follow the instructions of those who govern them and who are enthusiastic consumers.

For Harman (1970) the objectives of literacy programs take a number of different forms. Some countries just use them to teach reading and writing. Others are tied in with vocational training, rural and agricultural extension programs, and industry. Other countries are teaching literacy in native languages.

According to Whitt and Cyzyk (1975) learning to write and read is the primary objective of the adult basic education student. For Ilsley (1985) the goals of adult literacy programs are the following: (a) Provide practices which avoid specialization that excludes people from learning and knowing, (b) to open opportunities for people to participate in the decision-making process, and (c) to provide the adult with a more holistic and unified view of human experience. While some authors consider the establishment of reading and writing skills as the main objective for the literacy programs, others believe that the principal objective should be the acquisition of social repertoires which permit the individual to participate in political activities. Actually I believe that the best literacy objective is the one which allows the individuals to improve the quality of their lives on aspects such as: economic,
familiar, educational, social, psychological, etc.

The achievement of any literacy objective involves carrying out a series of instructional activities. Various authors working in this field, provide recommendations about the activities which should be implemented in the teaching of the illiterate adult. The U.S. Office of Education (1966) gave the following recommendations: (a) The training plan should integrate both basic literacy skills and job skills in comprehensive programs; (b) illiterate adults should be motivated to participate in the instructional programs; (c) methods of instruction should be highly individualized with special emphasis on tutorial, remedial, small group and team-teaching methods; (d) all the program's stages should be evaluated; (e) supporting services should be provided (transportation, recreation, nursery care for trainees' children, etc.). The same institution in 1979 added other recommendations: (f) After establishing rapport with the student, the instructor needs to estimate the student's instructional reading level; (g) the teacher should talk with the new student regarding his personal goals and objectives; (h) a reading approach must be selected which matches the student's level of skill development, his willingness and ability to work with others and his interests; and (i) the instructor should help the student develop life-coping skills through the reading material.

Torrey (1970) suggests taking into consideration the implications of dialect differences because the phonological, grammatical, semantic structures might lead to confusion and
misunderstanding, complicating the already difficult reading process.

Jones (1981) recommends the following actions to be conducted in the teaching of the illiterate: (a) Teachers should explain to the learners the nature of the program; (b) the learning experiences should be individualized; (c) the learner should be involved in the teaching process; (d) the teacher should ask students to commit themselves to a specified period of instruction before they begin; (e) the teacher must help the student to achieve some satisfaction in the direction of his goal while he learns to read; and (f) the program should allow enough time for students to read uninteruptedly.

For Rachal (1985) the first teaching session plays an important role to insure the future attendance of the adult; therefore, he recommends to the teacher several specific activities: (a) Where possible, meet them at the door, shake hands and try to learn their names; (b) if not at the door memorize their names when they have taken their seats; (c) organize some structured socialized time; (d) inquire with the students about what they expect to get out of their learning experience; (e) to the extent possible avoid all other vestiges of the adolescent school experience, and (f) try to insure that the student learns something useful.

Briggs (1986) considers motivation as the essential factor for making the student succeed in learning to read. He proposes the following recommendations, which will motivate the illiterates to participate in the instructional activities: (a) help the student
to be successful, get recognition and have a feeling of belonging; (b) teachers should give praise rather than criticism; (c) the physical environment should be conducive to productive learning; (d) teachers should record the progress made by students, and this information should be readily available to the readers; (e) students should be provided with the opportunities to develop the needed skills; and (f) students should be given the opportunity to make a practical use of the learned skills. Darkenwald and Knox (1984) were concerned about young adults' education. They consider that the educators may meet the needs of the student through the implementation of the following suggestions: (a) Be sensitive to the fact that adolescents are going through a period of internal turmoil as they negotiate the difficult passage to full adult status; (b) provide a warm and flexible learning environment; (c) to the extent possible, provide an individualized instructional program for each student; (d) do not expect instant, positive adjustment to a more learner-centered environment; (e) make clear what you expect from the students and what they can expect from program staff; (f) provide a curriculum relevant to the distinctive needs of this population; (g) in addition to on-going informal counseling on an individual basis, consider providing group counseling for both emotional support purposes and as a means of identifying and resolving existing or potential problems; and (h) avoid age-segregated instruction.

Buckingham (1984) is probably the one who best describes most of the instructional activities to be conducted with adult illit-
erates. The author implemented a reading program with adult dropouts and they found that the following factors were effective for teaching them to read: (a) Furnish a flexible environment and program structure to accommodate individual needs and schedules; (b) expect students to behave as adults but not impose on them unreasonable rules or codes of conduct; (c) individualize instruction so that students could work at their own pace and not compete with other students; (d) base instruction on a student's abilities, not on his or her deficiencies; (e) explain concepts step by step and expect to repeat them until a student thoroughly understands them; (f) base expectations for a student's performance on his or her abilities and potential; (g) respect students as adults and not deride them for what they do not know; (h) control class size so that students receive ample attention; (i) encourage open discussion on any topic that was of concern to the students; (j) encourage the students to know and respect the staff as human beings and not as authority figures; (k) provide alternatives to students who cannot cope with academic assignments or have a bad day; and (l) provide as much support and human concern as possible for a student's academic, vocational and personal development.

From the analysis made about the instructional activities recommended by the authors mentioned above, I would suggest the following two recommendations:

1. Because some of the instructional activities recommended are more utopic than authentic facts, and consequently cannot be applied to real teaching situations, these authors should use
statements such as the following: "To the extent possible, try to . . . or . . . whenever possible do . . . ."

2. Since many of the instructional activities are subjectively defined, the authors should behaviorally define the behaviors which make up such activities. A description of both, a program and instructional activities to be implemented with the adult illiterate will be provided in the discussion section.

Programs for Establishing Textual Repertoires

Planning and conducting educational activities for adult illiterates usually requires the selection and use of an effective reading and writing program.

Many methods have been used to teach literacy skills to the adult. Each reading program author claims full-scale success in teaching the student, over the other reading methods. Unfortunately the lack of data research has made it difficult to compare and determine the effectiveness of one or another method for teaching reading and writing to the adult.

Most of the studies conducted with the objective to evaluate the effectiveness of various reading programs has used children as subjects. Bordeaux and Shope (1965) compared the effectiveness of three approaches to teaching reading: the Basal Reader Approach, the Basal Reader plus an Intensive Phonic Approach, and the Sensory Experience Approach. Scheneyer, Schultz and Cohen (1966) compared two programs: The Fries Linguistic Approach with the Scott Foresman Basal Reader Approach. Haddock (1976) conducted an experiment to

The literature regarding the teaching of adults to read and write has plenty of descriptions of programs and procedures for establishing textual repertoires. Some of the programs that have been utilized more frequently in the United States are the following:

1. The Language Experience Approach. Houghton and Neef (1968), Brown (1979), and Jones (1981), recommended the use of this program for teaching reading and writing skills to illiterate adults. The proponents of this program believe learners' ability to deal with language in reading is directly related to their capacity to speak and write. The Language Experience Approach utilizes the student's own experience and language as the content for reading materials. A student may dictate a story to the teacher for transcription. The story is printed and returned to the student for study and practice of skills in word recognition and analysis. Sometimes, a series of stories is collected to make a small booklet. With the experiences of the student, a chart is elaborated. This chart may be used with the entire group, or with an individual. Teachers often help the student develop a "word bank" of words they want to use again. With this material, a file box divided by alphabet cards can be formed. The charts are used for teaching comprehension skills, phonics, etc. to the whole group and
later to small groups or individuals. Later each student is asked to react to the chart personally.

The advantages of the Language Experience Program include:
(a) Each adult begins learning to write and read from language with which he/she is already familiar; (b) the reading experiences are more meaningful to the students because they are closely related to their personal interests; (c) it provides success experiences that in turn provides motivation for reading; (d) language development is encouraged; (e) students acquire a basic sight vocabulary, become aware of general sentence structure and the significance of words and sentences; (f) they also develop a left-to-right habit of sequence in writing and reading; and (g) a great amount of reading material can be elaborated.

Some disadvantages of this program are: (a) No printed planned sequence of reading skills has been developed; (b) the program uses rote memorization for acquiring reading responses; and (c) the approach requires more skill on the part of the teacher than most other programs. Some students can get tired of this approach and want to read printed material.

2. Houghton and Neef (1968), and Jones (1981), consider the Phonetic Approach as the most highly specialized program used for teaching reading to beginning readers. The promoters of this program argue that once the sounds of the 26 letters are learned the student merely has to use those learned sounds to unlock the sounds of words which appear in print. They assume that comprehension will automatically result from pronunciation. Most phonetic systems
introduce the vowel sounds first, associating them with their graphic symbols. Other systems require a memorization of the alphabet as a pre-requisite to learning any pronunciation of any single letter. Usually students start using the short vowel sounds and they make combinations with final consonants. Then initial consonants are added. From the simple two-letter or three-letter syllable, the adult is then led to the building of four and five letter words (word families). The use of "key words" is common; they are used to reinforce the learning of each basic letter sound. The adult students' basic sight vocabulary is utilized to learn the component parts of new words. Phonetic approaches have the following advantages: (a) They are effective teaching systems, especially for the English language which is phonetically regular; (b) an appropriate sequence for establishing the different reading units is built in the teaching procedure; and (c) a mature beginning reader will recognize a vast number of words when they are spoken orally. The disadvantages of these systems are: (a) The use of the phonetic system to the exclusion of other means or procedures of teaching and learning reading may be highly impractical; (b) sometimes the establishment of the numerous complicated generalizations or rules cannot be accomplished because adults spend only a few hours a week at the school; and (c) this system uses too much rote memorization for teaching reading.

3. Brown (1979) provides a description of another frequently used program: The Individualized Reading Approach. This program is based on the concept that if beginning adult readers are able to
make their own selections of reading material with the guidance of a tutor or reading specialist, they will obtain greater gains.

The teacher guides the adults toward choice of reading materials. They are also grouped to share their reading experiences with one another. The teacher, during the individual conference time, listens to a student read. As the teacher circulates around the room, the teacher consults, suggests, advises and encourages. The students can move through the materials at their own pace. The program also involves frequent tutor conferences and individualized record keeping. The conferences allow the teacher to identify areas for needed skill development. In order to ensure the success with this program, some actions must be implemented: (a) Reading materials must be very short and simple; (b) stories must be individually tailored for each student; and (c) classes must be small enough to allow the teacher to provide individual attention.

The advantages of the Individualized Reading Approach are the following: (a) It takes into consideration individual differences; (b) there is a wide and varied collection of reading materials; (c) the materials selected by the student result in greater motivation for them; (d) pacing progresses at the students' own rates (e) there are very useful student—teacher interactions; (f) the small group instruction on skills is directly related to pupil needs; and (g) each adult is in a continuous progress plan with success and optimum development of goals.

On the other hand, the disadvantages of this method are: (a) A wide variety of teaching materials must be available; (b) it
requires an enormous amount of time; (c) the skill development program depends on teacher insight; and (d) the number of students who can participate in the program is limited.

4. Steck-Vaugn Adult Reading is another approach to beginning reading for adult non-readers. The authors, Dauzat, Dauzat, Otto and Burton (1978) developed this program with the aim to meet the needs of a large number of adults who were under educated because they lacked the reading skills to succeed academically.

This program is based on the principle that learning and materials should be vital and meaningful to the adult.

Teacher administered criterion—referenced and informal reading inventories are used to determine initial placement of a student in the program, specific skill needs, and mastery of program objectives. The books have a self-correcting feature which allows each student to progress at their own rate. Reading is taught in the following sequence:

A. The next prereading skills are established: (1) Left-to-right and top-to-bottom directionality; (2) visual discrimination of the physical orientation of similar letters; (3) detection of letter order in similar words; (4) ability to hear sounds in isolation and match them as they occur in words; and (5) ability to blend sounds into words.

B. High frequency words are introduced.

C. Three types of words are introduced: (1) High frequency nouns and pronouns; (2) high frequency function words; and (3) high frequency verbs.
D. Next, 162 high frequency words are presented to be learned by the adult.

E. Sound-symbol relationships are established.

F. Later, the students are trained on structural analysis and with four vowel generalizations. In the last stage of the program, the students are provided with the opportunity to apply the skills learned in many different books.

The main advantages of this program are the following: (a) The instructional material is arranged in increasing order of difficulty; (b) a program placement test allows the teacher to place the student at the appropriate level; (c) the self-correcting procedure permits students to obtain instant feedback; (d) the teacher can effectively work with a number of students at different levels simultaneously; (e) the students progress at their own pace; and (f) the students' individual differences are taken into consideration for the teaching. The main disadvantages of the program are: (a) the high cost of the program; and (b) the limited number of subjects that can benefit from this program.

5. Many teachers prefer to teach reading and writing using an Eclectic Reading Approach. When this approach is used, a variety of programs are implemented together to provide wide and varied instructional reading activities which satisfy the different interests and abilities of the adult illiterates.

The advantages of the Eclectic program are the following: (a) because several programs are used, the adults' individual needs are likely to be met; (b) teachers sometimes vary in their ability
to utilize a certain approach; and (c) students may become bored with one approach and the teacher may find it advantageous to switch to a different program to generate greater interest.

The disadvantages of an Eclectic Approach include: (a) teachers can be more easily trained in one approach than in several; (b) switching too frequently from one approach to another sometimes makes it difficult to follow the students' skills development.

6. Blau and Blau (1968), and Houghton and Neef (1968) described a method which can be used successfully with adults and disabled readers: The Kinesthetic Method. This approach involves four stages. In the first one, as the teacher writes a word on paper she spells it aloud, letter by letter. Then the student traces the word with his finger as he says each part. Next, he uses it in an experience story. This word is placed in his word file. The tracing process continues until the student is able to learn it. In the second stage, the tracing is eliminated and the student reads the words. Again, the student writes the word without referring to the original copy saying each part of the word as he writes it. He continues to use his words in increasingly complex experience stories and then files them. In stage three, the student spells the word orally before writing it. Then he reads from books and other sources of unknown words. After reading, the new words are reviewed and written as described above. In the last stage, the student begins to recognize new words. Another alternative is using the same procedure with letters instead of words. In this method, correct responses receive positive reinforcement and mistakes are
corrected immediately. Advantages of this method are the following: (a) Tracing and writing the letter or the word helps to build the habit of left-to-right; (b) a sort of shaping procedure is utilized for teaching to read and write; (c) it is based on techniques that have been effective in teaching to read; (d) skills in phonics and syllabication appear to be learned without formal training; and (e) the student is motivated to learn. The disadvantages of the Kinesthetic method are: (a) it can be time consuming; (b) it cannot be used with groups of students; and (c) it requires close supervision.

7. Schneiderman (1978) described a reading approach entitled the Active Reading Techniques System (ARTS), which consists of five techniques: Language Experience, Information Reading, Life Skills, Context Clues and Silent Reading. This technique was developed with the objective of teaching reading to adults with language disabilities, limited vocabulary or background in another language.

The basic technique used is the Language Experience, a technique that has already been explained. The Information Reading Technique deals with new information that is important to the learner. In this system, the student and the instructor discuss what information is needed and relevant material is identified. The student is exposed to concepts and questions. Then the material is read to the student by the tutor in small segments. The student then states what he has understood from the written material. This statement is written down and used for reading instruction. The other program, the Life-Skill technique also utilizes information—
Instructors give examples of how to use practical reading material (labels on canned goods, directions for using a product, bus schedules, telephone books, etc.) by comparing, evaluating, word recognition and following directions. The Context Clues technique attempts to develop a concept of acceptable substitutes for particular words. Here, decoding is seen as secondary to comprehension. Context Clue aids word recognition when the student learns how to use picture and verbal clues to context. It also helps the student check the accuracy of his other methods of word identification and should be employed in combination. The last program, the Silent Reading technique involves the following steps: (a) Developing expectancy and vocabulary; (b) silent reading of unknown words is requested by the instructor; (c) comprehension is checked through questions and discussion; and (d) the previously noted words are reviewed. One can see that ARTS is another eclectic approach to reading and writing and it has the advantages and disadvantages already mentioned for the Eclectic approaches.

8. Harman (1970), Bowren and Zintz (1977), considered the Laubach System for Beginning Reading as one method that had a great impact on mass literacy throughout teaching illiterates in more than 300 languages. This system uses letters and word configuration prompts as well as phonic analysis. From a series of pictures of familiar objects, the students learn to identify letters and associate them with both the name and the sounds of the letters. The drawings of objects are super-imposed on the appropriate
morphemes. Once the student learns the alphabet he is presented with a variety of written topics, in which the newly acquired reading skills are used. The advantages of this program are the following: (a) The adult can usually learn the alphabet in a few hours; (b) it is a highly effective in languages where the graphemes and phonemes have a point-to-point correspondence; and (c) it provides a solid basis for reading instruction.

Disadvantages of this reading system include: (a) Some students of the Laubach system tended to become expert word callers and code breakers without gaining comprehension skills; (b) it has to be combined with other approaches to be effective; and (c) it does not provide manuals with precise directions.

9. Witty (1966) describes the Army Reader Program utilized by the Special Training Units of the U.S. Army during World War II. In this program tests were employed to classify the illiterates in one of four groups. If a trainee started at the first level, he should finish the program in eight weeks; otherwise he was separated honorably from the service and returned to civilian life.

All subject matters dealt with familiar problems such as taking care of the barracks, keeping a budget, etc. Film strips and other visual aids provided additional, functionally-useful information about how to wear a uniform, how to salute, how to fire a rifle, etc. Basic words were introduced through the film-strip approach. Forty-six nouns of high frequency in the general vocabulary were employed. Series of pictures were presented as a continuous story of life. Under these pictures a printed story presented all the
words. These frames provided additional opportunity for reading in the natural context of words, phrases, and sentences repeatedly used by the soldiers in camp. Two other film strips—Introduction to Language—were designed to extend vocabulary and to introduce 31 verbs and 12 prepositions.

Once the soldiers were able to recognize the words presented in the first film strip, the textbook (The Army Reader) was introduced and instruction in silent and oral reading advanced rapidly. Attention was given to clear presentation of thoughts and ideas. Supplementary materials offered the adults additional reading experiences of direct usefulness. Many activities in the soldier's life contributed to his education. Three or four hours per day were given over to reading, writing and arithmetic. The effectiveness of the instructional materials was ensured by using them in classes which seldom exceeded twelve members.

Some advantages of this program are the following: (a) Reading and writing were taught in a few weeks; (b) instructors emphasized success and steady progress and specified what they expected from the illiterate; (c) reading repertoires were established with materials related to the goals of the adults; (d) instructional materials were especially elaborated to motivate the illiterate; (e) keeping enrollment in small groups permits better instruction to soldiers; and (f) the use of supplementary materials were a means of applying and reinforcing academic skills.

Disadvantages of this program are: (a) Reading instruction took place in a special situation; therefore, one wonders whether or
not the same results could be obtained in other circumstances; (b) much of the soldiers' performance was under aversive control (the fact of being separated from the service if they did not learn to read); and (c) in order to implement this program with other types of illiterate population, all the instructional material (whose content related to army life) should be substituted.

Some authors only provided a mere general description of other less-known reading programs. Burnet (1966) proposed a reading program integrated by two areas: word recognition and comprehension. For the author, word recognition includes: (a) The learner's mastery of a stock of sight words; (b) the use of context or meaning clues; (c) the ability to analyze words; and (d) the use of the dictionary to help with words unidentifiable through the other three types of skills.

The phonetic analysis (sounding) skills are acquired in the next sequence: (a) beginning consonants; (b) beginning consonant blends; (c) beginning consonant digraphs; (d) ending consonants and consonant blends; (e) middle consonants; (f) long and short vowels; (g) simple syllabication and accent principles; (h) vowel variants; and (i) vowel digraphs and diphthongs.

Comprehension skills include: (a) Recognizing and retaining main ideas; (b) finding and retaining details; (c) remembering the sequence of events; (d) following directions; (e) anticipating outcome; (f) understanding what is implied without being directly stated; and (g) judging the truth or falsity of what is read.

For Harman (1970) there are two main approaches to teaching
adult illiterates how to read: Synthetic method and Global method. The Synthetic method is based on the recognition of letters of the alphabet and their associated sounds. The Global method is based on the recognition of words or phrases with their meanings.

Mexico like other countries, has made enormous efforts to increase literacy among the millions of adults who have not benefited from the educational system. One way to deal with the illiteracy problem has been by providing reading programs to the adult illiterates.

The main Mexican reading programs that have been used most frequently are as follows.

1. The *Silabario de San Miguel* (The Saint Michael Spelling Booklet). (Anonymous)

   This program was used for many decades for teaching reading and writing to children and adult illiterates. It contains the following steps: (a) Learning to recognize the five vowels which are presented in different sequences; (b) learning to identify the sounds and forms of the consonants (b-f-m-p-v) and blending each of them with the five vowels; (c) the consonants (d-l-n-r-t) are blended with the vowels to form syllables; (d) the same procedure is repeated with the consonants (c-ch-s-z) and later with y-g- and h; (e) the rote memorization of the alphabet is required; (f) words with two syllables are presented; (g) lists of three syllable words are introduced; (h) words with inverse and complex syllables are presented; and (i) a lesson with religious content is presented at the end.
Advantages of this program include: (a) The simplicity of the method; (b) an inexpensive program; (c) any literate person can implement it.

The disadvantages of the program can be summarized as follows: (a) the program lacks many steps; (b) it is based on rote memorization; (c) no motivational factors for learning to read are built into the program; (d) behavioral objectives are not included; (e) there is no mastery criterion for reading and writing responses; and (f) the effectiveness of this program depends more on the teacher than on the program itself.

2. In 1938, the Mexican Secretaria de Educacion Publica (The Secretariat of Public Education) published a program which was implemented for teaching reading and writing to workers and peasants. This program used The Global method. According to Perez (1977), in this method, reading and writing are taught by means of whole words or complete sentences. For the promoter of this approach, the content of these units, which has meaning and interest for adults in the most relevant factor for learning. Practices which encourage sound-symbol relationship and syllabic structuring are avoided.

The reading lesson is usually introduced by encouraging the students to write some things which they can talk about. The teacher writes what the adults have said and then they are asked to copy it. Each day's lesson can be developed according to a particular theme and the vocabulary relevant to the day's theme can be presented. Items in the classroom environment are labeled for
students to see and to read. Major emphasis on both the visual and motor skills is made. Almost all of the content of the material is related to workers' and peasants' lives.

Some advantages of this method are the following: (a) The reading is more meaningful to the students because it is closely related to their personal interests; (b) the method provides the students with the practical realization that there is a functional relationship between what is said and what is written; (c) the method allows active and relevant participation of students; written feedback is given to the adult about his progress; and (e) a great amount of material can be elaborated.

Disadvantages of the Global method include: (a) There is little or no attention focused on the auditory dimensions of reading; (b) no sufficient review is provided to help students retain their reading vocabularies; (c) the method does not include all the necessary steps that a reading program should have; (d) the daily requirements of drawing and writing can prove difficult for some adult students whose visual-motor coordination may be minimal; and (e) it requires great effort and time on the part of the professor.

3. According to Barbosa (1985), from 1944 to 1965 the Mexican government was using the Cartilla de la Secretaria de Educacion Publica (The Secretariat of Public Education's First Reader) to teach reading and writing to the adult illiterates. The main steps of this method are: (a) Learning to identify and write the five vowels: a, e, i, o and u; (b) learning to recognize and write
single vowel combinations (ai, ei, oi, au, eu, etc.); (c) learning the name and the sound of each consonant; (d) learning to blend consonants with vowels; (e) learning to sound out syllables which had first the vowel and then the consonant (ai, ei, il, on, un, etc.); (f) learning to read and write syllables with three letters; (g) learning to read and write entire lessons. Advantages of this method include: (a) The instructional units to be learned are arranged in increasing order of difficulty; (b) it recommends a mastery criterion and a constant review of the skills taught; (c) the program includes an easy teaching procedure.

Some disadvantages of this program are the following: (a) It is repetitive and tedious; (b) the blending of isolated letters into syllables is frequently complicated by the retention of the letter names; and (c) like other programs, this method lacks many steps, which could facilitate teaching.

4. In 1966 the Dirección General de Alfabetización y Educación Extraescolar (The General Directorate of Literacy Training and Non-formal Education) implemented a new reading booklet, which was titled Yo puedo hacerlo (I can do it). The program used a synthetic-analytic approach. Reading and writing skills are taught simultaneously. The book includes exercises and evaluation tests for the learned skills. In this program the vowels are first presented and students are asked to discriminate the sound, the letter name and the handwriting skills needed to form the letters in both the lower and upper-case forms. Then the consonant sounds and their written forms are taught. Next, syllables, words and short
phrases are taught using the same procedure. The final textual units taught are the lessons. Each lesson includes a series of writing exercises and questions to test the comprehension skills.

The last lessons provide exercises for evaluating writing, dictation, the reading of labels and signs, and analysis and word synthesis.

Advantages of this approach are the following: (a) The fact that this program introduces first short and easy reading units and gradually moves to bigger units makes easy the teaching of reading and writing, (b) a functional relationship is established between graphemes and phonemes, (c) it uses visual prompts to establish textual responses, (d) the lessons' contents are closely related to the student's experiences, and (e) the procedure requires extensive participation by the students.

Some disadvantages of this program are: (a) Just like other programs, this approach lacks several steps; (b) task formats for prerequisite and final skills are not provided; (c) the program does not include correction procedures for incorrect responses; and (d) it does not specify how students should be organized in the classroom.

5. Barbosa (1985) mentions that in 1967 several private companies published a reading booklet under the title of Como Enseñar a Leer por el Metodo Laubach" (How to Teach Reading Through Laubach Method). This program was distributed among the workers of such companies. The procedure, advantages and disadvantages of this approach were previously explained.
6. The *Introducción a la Primaria Intensiva para Adultos* reading book (*Introduction to Intensive Primary School for Adults*) is another program published by the Secretaría de Educación Publica (Secretariat of Public Education) in 1975.

This program was implemented until the early eighties. The reading approach used in this program is a Global one. As we already mentioned, the main characteristics of this type of approach are: (a) the teaching of writing and reading is made by means of whole words or complete sentences without analyzing the component elements; (b) it utilizes the adult's own experience and language as the content for the reading and writing program; (c) the teacher uses drawings, talking, copying, reading and writing together so that lessons are personally interesting and reinforcing for each student. In addition to the advantages mentioned before for the Global approach, this book contains the following: (a) It attempts to establish a few pre-requisite reading behaviors; (b) the student is required to engage in a variety of instructional behaviors.

On the other hand, some additional disadvantages and deficiencies found in this program are the following: (a) No mastery criterion is specified for the few pre-requisite behaviors, (b) while some behaviors are provided with very few exercises, others are given an excessive number of them, (c) there is not an appropriate sequence of writing and reading exercises, (d) in some pages the printed stimuli do not evoke the required answer, (e) subjects are required to engage in much memorization for acquiring reading responses, (f) some responses required are not related to the
terminal reading responses, (g) no testing is given to determine whether the students are mastering the units' readings, and (h) no remedial activities are included for incorrect responses.

7. The reading program utilized today for teaching reading and writing to the Mexican illiterate adults is the Programa Nacional de Alfabetización (The National Literacy Program). This program was published by the Instituto Nacional para la Educación de Adultos (The National Institute for Adult Education) in 1983.

The method used for teaching and writing is called El Método de la Palabra Generadora (The Generated Word Method). Its main characteristics are the following: (a) It is based on the Freire Method (1973); (b) it utilizes the students' own experiences and language as the content for reading materials; (c) the words used contain all alphabet letters; and (d) it is a whole word approach. During the basic stage, 14 "generated" words are presented: pala (shovels); vacuna (vaccine); basura (trash); medicina (medicine); cantina (tavern); trabajo (work); guitarra (guitar); familia (family), leche (milk), tortilla (omelet); piñata; casa (house); mercado (market); educación (education). The presentation of each of these words is accompanied with the following activities: (a) discussion of related topics; (b) reading and writing activities; and (c) exercises to confirm the learned skills. In this program, the teacher presents the word for the students to see. He/she tells the adults what the words are and illustrates their meanings; the students are asked to pronounce them, and finally they are required to memorize the words. At this stage, the words are presented as if
they are entire textual units which cannot be divided. However, in the next stage the students identify the parts of each learned word. First the students identify the syllables and then the syllabic families. The sound elements of each syllable are learned. In this method the sounds and names of the consonants are ignored. When students have taken words apart and have been successful at an analysis of words in syllables, they are then taught to put the syllables back together and create new words. Finally they are taught to group words they have learned or created into phrases and sentences. In the last stage, the group is invited to write words, phrases and sentences.

The advantages found for this method include: (a) some general objectives are specified, (b) it provides the teacher with a manual which specifies both the activities to be developed in each stage of the procedure and the behaviors and attitudes to assume in different classroom situations, (c) the student begins learning to read words with which he is already familiar, (d) the difficulty of finding instructional material is decreased, (e) students could learn from one of the processes involved in the program: Analytic or synthetic, (f) different activities are promoted to motivate the student’s participation.

Some of the disadvantages found in the analysis of this method are the following: (a) an enormous amount of written whole words is elaborated before adequate skills in handwriting have had time to develop; (b) the practice of creating new words results many times in artificial expressions and words foreign to the repertoire and
interest of adults; (c) discussing topics may be reinforcing, but it demands a great amount of time, time that most adults do not have; (d) the students' success depends more on the teacher's performance than from the students themselves; (e) no prerequisite behaviors are specified; (f) pre- and post-test evaluations are not included; and (g) no remedial activities for incorrect responses are planned.

Estrada (1987) stated that the National Literacy Program is conservative and favors both the present social structure and the groups that hold the power and make the social, economical and political decisions that affect the Mexican nation.

Summary

Because Mexico is a country with a considerable population of illiterate adults, it would seem convenient to initiate the elaboration of a reading and writing program which could meet all the necessary requirements in order to establish effective textual repertories. In order to accomplish this objective, one must recognize the advantages or positive features of the programs already implemented, namely: programs that are simple and inexpensive; that are easy to implement; that have reading material which is related to the adults' interests; that promote active and relevant participation of the students; that have instructional units which are arranged in increasing order of difficulty; and that utilize the adults' own experiences and language as the content for the reading and writing program.

However, on the other hand it is also very important to
identify the deficiencies or disadvantages of the Mexican reading programs already described. Such identification would provide the basis for designing and implementing activities and materials with which such disadvantages could be overcome. The main deficiencies or negative features found in the programs mentioned above are the following: (a) they require rote memorization for learning to read; (b) no motivational factors are built into the program; (c) behavioral objectives are not included; (d) there is no mastery criterion for correct responses; (e) the effectiveness of the program depends more on the teacher's ability than on the program itself; (f) insufficient review is provided to help students to retain their reading repertoire; (g) they require great effort and time on the part of the professor; (h) pre-requisite skills are not defined or identified; (i) they do not include correction procedures for incorrect responses; (j) they do not specify how students should be organized in the classroom; (k) few exercises or an excessive number of them are provided in some lessons; (l) some activities demand a great amount of the students' time; (m) evaluation of the student's performance is not included in the method; (n) most of the reviewed programs lacked many steps in the teaching procedure. Perhaps many of the disadvantages mentioned above could have been overcome if the programs were previously evaluated and corrected before being implemented. To my knowledge, none of these programs presented any statistical reports or research data on the effectiveness or the advantages and disadvantages of their programs; also an analysis of these programs show an absence of those behavioral principles which
could make easy, rapid and effective the teaching of textual repertories.

Purpose of the Present Research

Because of the problems found with the Mexican reading and writing programs, the main purpose of the present study was to design and evaluate the effectiveness of a semi-programmed text for establishing textual repertoires for Spanish-speaking illiterate adults and compare it with the Mexican National Reading program for illiterate adults.

An additional objective was to design a program which could provide the basis for the elaboration of an effective reading and writing program for Mexican illiterates.

The hypothesis to be tested was that those individuals assigned to the Semi-Programmed book instructional condition (Groups A and B), would learn to read and write better and faster than the subjects that were exposed to the Conventional or Secretariat of Public Education's reading book (Groups C and D).
CHAPTER II

METHOD

Subjects

Thirty-two illiterate male prisoners were selected from two hundred and fifty-six convicts, that were incarcerated in the Regional Prison de Jalapa, Veracruz, Mexico. Most of the subjects were peasants, who were condemned for committing different crimes such as robbery, homicide and rape. The subjects ranged in age from 20 to 50 years, with a mean of 36 years. Their mean I.Q. was 15, with a range of 5 to 26 according to the Test de Matrices Progresivas of U.C. Raven (1971). For the purpose of this study, the author considered an adult illiterate as a person who was unable to write or read ordinary reading materials such as newspapers, labels and comic books.

Settings

The study was carried out at "Pancho Viejo" Regional Prison of Jalapa, Veracruz, Mexico. Two types of settings were utilized: one big room was used as a conference room or movie theater, and two classrooms, each with a blackboard and 25 desks.

Materials

The materials employed were the following: (a) The Semi-
Programed Reading and Writing Text (Salas, 1980); (b) the Introducción primaria intensiva para adultos Book (1975); (c) testing materials; (d) four Panasonic tape recorders; and (e) stop-watches, index cards and notebooks.

The ten main characteristics of the Semi-Programed Reading and Writing Text were the following:

1. It utilized several behavioral principles (discrimination, generalization, fading, chaining, matching-to-sample, and feedback) which were highly effective for the establishment of textual repertoires.

2. The instructional information was presented in an increasing order of difficulty (moving from pictures that the adult already knew to words that were unknown for him).

3. It permitted subjects to progress at their own rate, since each student's responses depended much more on the program than on the teacher.

4. It took into consideration the individual differences and could be used with children or illiterate adults.

5. It promoted each student's active and correct responding to the stimuli presented, which in turn reinforced their performance.

6. Reading and writing skills were taught one at a time by using a vocabulary with which he was already familiar.

7. The reading and writing skills were taught simultaneously and characteristics of the Spanish language were taken into consideration for the elaboration of the program.

8. From the beginning, left-to-right direction was taught.
9. Its teaching method was easy to implement and the teaching process could take place in any situation.

10. It allowed the establishment of a functional relationship between graphemes and phonemes and it demanded responses that allowed the illiterate to generalize the learned skills.

The Semi-Programmed Text contained the following seven elements:

1. A behavioral definition of the reading and writing concept and an objective criteria for correct responses.

2. A diagnostic evaluation to obtain information about the illiterate's specific behavioral deficits and a set of pre-requisite behaviors that were identified and established before teaching the basic textual units.

3. Tasks that promoted the active participation of the students and minimized their errors.

4. Instructions for the students about the kind of responses to be emitted in every step of the program and an instructor's manual with specific directions.

5. Feedback that permits the students to compare their responses against the standards required, and to get information of their correctness or incorrectness.

6. A record of the students' performance which was obtained in each session.

7. A set of pictures that provided the words, syllables and letters used in the program which were selected by illiterate adults.
The Structure of the Semi-Programed Text

This program was composed of the following general areas:

1. The pre-requisite reading and writing skills area: In this section of the program several pre-reading repertoires were established or confirmed: the attentional, discriminative, imitative and following directions. Ten pages included pictures and activities, which were used to control the student's visual contact (see Appendix A). Eleven pages were used to train the students in discrimination responses: the content of these pages involved situations in which the student should select one stimulus among several stimuli. In this part of the program the student started practicing the matching-to-sample exercises (see Appendix B). In most of the sections of the program the directions about how to perform each response were located at the upper-left corner of the page and the correct answer at the lower-right corner of the page.

The mastery of the pre-requisite behaviors was evaluated through two test pages (see Appendix C). The writing section included the following additional pre-requisite behaviors: (a) Straight Lines--the student was required to draw straight lines in each figure, and then the response complexity was increased (See Appendix D); (b) curved lines--the student was asked to draw continuous curved lines in a very wide space, and then the space available for drawing was gradually reduced forcing the subject to draw very fine lines (see Appendix E). Both motor skills (Straight and curved lines) were evaluated with two fine motor skills tests; (c) lines similar to letters--the student was asked to trace lines
which had the basic features of several letters of the alphabet, and then the lines were gradually faded-out, forcing the subject to draw these lines without any help (see Appendix F) and (d) Letter Forms—in this part, the student was required to trace and to draw letters which were super-imposed on the pictures of familiar objects and animals (see Appendix G). All the above mentioned writing exercises attempted to shape motor skills, moving gradually from the establishment of gross motor to fine motor responses.

2. The Vowels: Each of the five vowels of the Spanish alphabet were established in seven steps. In the first three steps the upper-case letters were taught and then followed by the lower-case vowels in the remaining four steps. Each frame contained the following elements: the directions; the feedback; a picture of an animal, object or person; the written word of the animal, object or person with the initial letter to be taught. During the first frames, this first letter was colored in order to make it more discriminative than the other letters of the word. The color of this letter and the non-verbal stimulus (picture) that controlled the verbal response (the sound of the vowel) was gradually faded out with the intent of transferring the stimulus control from the non-verbal stimulus (picture) to the verbal stimulus (word). The discriminative responses were also gradually increased in complexity. At the very beginning the student discriminated between two stimuli, but then he discriminated among a set of stimuli arranged in a matching-to-sample format (see Appendix H). The last frame was a test exercise which evaluated the acquisition of the vowel.
3. Direct or Single Syllables. The frames utilized for the establishment of direct syllables, contained the same features as the frames used for teaching the vowels: directions, feedback, a picture, and the word related to the picture, four steps for fading out of the pictures, words and letters. In addition some frames included chaining of consonants with vowels for sounding out the letters of the syllables. The syllables with the vowel were taught in seven steps. However the syllables formed with the vowels e, i, o and u were each taught with three steps only. In this frame no colored letter was included (see Appendix I).

4. Indirect or Inverse Syllables. The inverse syllables (syllables where the vowels are followed by consonants), were taught using chaining of vowels and consonants only. This step of the program included the eight frames but no visual prompts.

5. Compound Syllables. Each compound syllable (syllables that started with two consonants together and then one vowel). For instance: gla, tra, blo, etc.), was taught using five frames. Only the first frame had a picture, and the student was required to sound out the consonants, blend them together and then blend together the two consonants and the vowel (see Appendix J).

6. Sentences. This stage involved teaching 261 sentences. Each sentence was presented three times. The first time was accompanied with a picture, the second time this picture was faded-out and the third time the sentence was presented without any picture but was accompanied with other sentences of the same family (see Appendix K). The evaluation of the sentence mastery was
completed by reading the 26 sentences which included all the letters which the student was supposed to learn.

7. Lessons. This section contained nine lessons which were arranged in an increasing order of difficulty. They were selected from a set of sentences elaborated by adults who were studying in the second grade of various night elementary schools at Jalapa. Each lesson had the following titles: The Country, The Sea; The Workers; The School; Veracruz, my State; Cattle; Soccer-Football, The Agriculture and The Family. The lessons' mastery evaluation was done through the reading of the last lesson: "the family," in which the students were required to read it within 62 seconds. The lessons were also utilized to evaluate reading comprehension (see Appendix L).

All the reading and writing materials of this program were printed in 412 pages, each measuring 24 by 33 cm. The lessons were also utilized to evaluate reading comprehension throughout a set of questions related to the content of each lesson.

The program provided information to the teacher about the illiteracy problem, the program's objectives, the different parts of it, directions about the teachers' activities in each section of the program, and how to calculate the students' performance.

The Introduccion Primaria Intensiva para Adultos Book (1975), had the following materials: A teacher's manual (1975) consisting of 144 pages, and a student's workbook (1975) consisting of 287 pages. The teacher's manual had in turn two parts: the reading and writing subprogram and the mathematic subprogram. In this study
only the reading and writing subprogram was used; it contained four stages: (a) Activities that promoted oral communication, organization of the group and introduction to reading and writing; (b) summary of educational recommendations; (c) teacher's talks; and (d) students' compositions, creativity and students' expression.

The testing materials used were the next: (a) The Generalization Tests which were composed by the following reading materials: A paragraph from the local newspaper, a paragraph from a pediatric journal, and two pages from a comic book. All of these reading materials contained words and letters with different physical characteristics. This material allowed teachers to evaluate the students' abilities for reading different textual stimuli (see Appendix M), and (b) eleven pages (24 by 33 cm.) containing 90 syllables and 26 sentences with key words were used to test daily the learning of the students.

Independent Variables

The main types of independent variables implemented in this study were:

1. Two instructional conditions: The first one involved the use of the Semi-Programed Reading and Writing Text (which was previously described). In this condition, each instructor provided daily reading material to the eight subjects of his group. Then, the teachers instructed the student to make the responses indicated in the directions. They were responsible for teaching the sounds, the blending of letters, syllables, words, etc, and answering any
questions asked by the students regarding the reading material. All of the material solved by the student was kept in his file every day, which allowed the instructors to keep a record of the students' progress and to prepare the material that each adult would utilize the next day. The second instructional condition comprised the use of the *Introduccion a la Primaria Intensiva para Adultos* Reading Book (*Introduction to Intensive Primary School for Adults*).

The teacher responsible to implement this program performed a series of activities such as: (a) delivering the workbooks to the students; (b) organizing the students in the classroom; (c) providing information about the activities to be developed in the reading and writing material; (d) providing the students with cards containing names or labels; (e) writing on the blackboard the adults' home towns, dates, drawing figures, etc.; and (f) teaching how to read and write whole words and lessons. The reading and writing materials used by the students were maintained and reviewed by the teacher at the end of the sessions. Every teacher was helped by one literate convict who had been previously trained on the implementation of both types of programs.

2. Those convicts that learned to read and write were given a reduction of one hundred of the sentences from the Veracruz State Government through the Departamento de Prevencion y Readaptacion Social (The Department for Prevention and Social Rehabilitation) (See Appendix N), and a literacy diploma given by the Secretaria de Educacion Publica (The Secretariat of Public Education).
Dependent Variables

The main dependent variables of this study were: (a) The number of syllables and the number of words contained in short sentences correctly read on two test trials administered every day; (b) the number of syllables and words correctly written on two test trials daily administered. A correct response was defined as the audible vocal or observable motor response having a point-to-point correspondence to the presented printed or auditory stimulus and (c) the number of words and sentences of different colors, sizes and styles correctly read during the Generalization Tests. The measure of reading and writing performance was stated in terms of the percentage of syllables and words read or written correctly during each assessment session.

Other responses emitted during the use of the semi-programed text in the sessions were the following: (a) In the pre-requisite reading and writing section, the adults were required to establish visual contact with the printed stimuli, to describe the pictures, to cut paper figures with scissors, to select one picture among several, to color figures, and to trace and draw curves and straight lines; (b) In the vowel section the students were asked to describe the pictures on the pages, to repeat the name of the object or animal of the picture, to say the initial letter, and to identify the letter with a writing response. In the syllables part of the program, the adults were required to: (1) read and write syllables from left to right and from the top to the bottom of the page, (2) to identify and place a cross on the target syllables. During the
sentences section, the students were asked only to write and read each lesson. When the students were participating in the lessons part, they were required to read and write the lessons and to answer a series of questions related to the content of such lessons. The main responses emitted by those adults that were working with the Secretariat of Public Education reading and writing book were the following: (a) Verbally repeat printed or vocal stimuli presented by the instructor; and (b) to paint figures, to copy their names or their home town's names, to discuss themes presented by the instructor, to complete phrases or sentences, and to read and write words and sentences.

Procedure and Experimental Design

Two hundred fifty-six prisoners were interviewed and tested in order to identify the illiterates. After the screening, 32 illiterate adults were identified. In addition, the following subjects were selected for participating in the study: (a) Four high-school convicts who were trained to help the teacher of each group; and (b) ten third-grade adults who participated in standardizing the reading times for each lesson.

The 32 illiterate prisoners were randomly assigned to one of the following four groups: (a) Semi-Programed I; (b) Semi-Programed II; (c) Conventional I (subjects were exposed to the Secretariat of Public Education reading book); and (d) Conventional II.

Before starting the study, two teachers from the Secretariat of Public Education, six senior psychology students and eight literate
convicts received training on the specific activities in which they were going to participate.

**Experimental Design**

A multiple baseline (Baer, Wolf and Risley, 1968) across four sets of textual stimuli (syllables and words contained in short sentences) was used to assess reading and writing skills of the two groups during baseline teaching with books, and follow-up conditions.

The stages of this study were the following: (a) Generalization Pre-test; (b) Baseline; (c) Conventional or Semi-programed Texts Instructional Condition; (d) Generalization Post-test; and (e) Follow-up.

**Generalization Pre-Test**

During three consecutive sessions, each of the 32 subjects were tested individually on the reading of syllables, words and sentences with different physical features.

In each session of this stage, a psychology student or a high school literate convict seated facing the subject. Then they presented the three types of reading materials: paragraphs from both a newspaper and pediatric journal and two pages from a comic book. The subject was required to read each of the materials one at a time, while the testers were recording both the reading and writing response rates. During the sessions the subjects were questioned regarding why they were asked to read and to write, and
if it was already known that they could not do so. They were told that it was necessary to know how much they could read and write in order to start teaching them from their minimum level of reading and writing.

**Baseline**

After the generalization pre-testing the subjects were randomly assigned to four groups. Each group was composed of eight subjects.

In this phase, each subject was tested daily on the reading and writing of 90 syllables and 26 words which were representative of all the letters and syllables of the Spanish language.

Subjects were instructed to read and write each syllable and each word on the page as well as they could. For written probes, the tester verbally presented a syllable or a word and asked the subject to write it. For oral reading probes, the pages with the syllables or with the words were presented, and the subject was instructed to say the syllable or word audibly. Each written or oral reading probe was presented twice.

Mastery criterion was defined as a correct response in each of the two daily probes for any syllable or word over three consecutive sessions.

No contingencies were provided for correct or incorrect responses during the probe baseline. This type of evaluation was conducted not only during baseline, but during the instructional condition, and during the follow-up stage. Probe data were col-
lected daily, immediately prior to each teaching session. Tape recorders and evaluation sheets were used during the probe sessions.

**Conventional and Semi-Programed Texts Instructional Condition**

The teaching condition was first conducted with two groups: The eight subjects of Group A initiated their reading and writing activities using the Semi-programed reading and writing activities. The eight subjects of Group C performed their learning activities using the conventional or Secretariat of Public Education reading and writing book. When a stable performance was reached by these two groups, subjects of Groups C and D started their reading and writing activities with the semi-programed and conventional texts, respectively.

As it was mentioned before, one teacher and one assistant were responsible for implementing the instructional activities for each group. Each instructional session lasted approximately 90 minutes.

**Generalization Post-Test**

Once the instructional conditions for the four groups ended, the generalization test was administered again for all the subjects during three consecutive sessions. Two observers presented the reading material and recorded the subject responses in each group.

**Follow-up**

At the end of Generalization Post-test phase, all subjects were individually tested once per week during one month in order to
evaluate the retention of the reading and writing repertoire. Written and oral reading probes were conducted under the same conditions of previous phases of study.

Reliability

In order to avoid biasing the observers, prior to starting the study, several activities were implemented which attempted to increase the reliability of the data: (a) Testers were given an objective behavioral definition of both the reading and writing responses to be recorded; (b) four senior psychology students with experience in recording behaviors and four high school convicts trained by the experimenter were used as independent observers; (c) tape recorders were used by the observers who had problems in recording oral reading responses during the training stage; (d) observers were limited to recording activities; they performed their activities in the conference room at least one hour before the teaching session; and (e) they were not informed about the purpose of the study.

Simultaneous but independent observations were made at least once every seven sessions for two subjects randomly selected out of each group. Following a session, the data sheets from the experimenter and the tester were compared. The recording provided by the tape recorder was used as a third recorder for the reading oral responses. Reliabilities were calculated by dividing the number of agreements by the number of agreements plus disagreements and multiplying by 100. Inter-observer observations yielded agreements
of 100 percent for the written responses and 94 percent for the oral reading responses.
CHAPTER III

RESULTS

Figures 1 through 4 show data for subjects of Groups 1 through 4, respectively from reading and writing responses, across all experimental phases. Figure 1 shows the mean percent of syllables and words correctly read by subjects of Groups 1 and 2, who were taught through the Semi-Programed reading and writing text. During baseline, Semi-Programed Group 1 had a mean percentage of .22 syllables identified, but a mean percentage of zero words discriminated. During the same condition, subjects of Semi-Programed Group 2 had a mean percentage of zero words and zero syllables identified. A similar rate of response was shown during the first thirteen sessions of the Instructional condition. During these 13 sessions, the pre-requisite behaviors for reading and writing were established. A trend for a gradual but systematical increase started at the fourteenth session of the instructional condition of both groups sessions in which the syllable teaching procedure was introduced. The performance on the acquisition of words for both groups was characterized by very slight upward drifts. Once the word teaching procedure was implemented (session 69 for Group 1 and session 70 for Group 2), an almost vertical learning rate was displayed by both groups. Group 1 required 49 sessions in order to reach the 100 percent criterion for the syllables acquisition and 13
Note. Bl. = baseline; F.U. = follow up; P.R. = pre-requisite behaviors.

Figure 1. Mean Percent of Syllables and Words Correctly Read by Subjects of Semi-Progamed Text Groups 1 and 2 During Baseline, Instructional Condition and Follow Up Phases.
sessions for meeting the same criterion for the words' acquisition. Group 2 met the 100% criterion using 39 sessions, and its maximum level of performance was reached in only 15 sessions. During the follow-up phase, the overall performance of both groups was always lower than 100%, specifically the syllable rate of acquisition was higher than the word learning rate.

Figure 2 shows the mean percent for the reading of syllables and words for Groups 1 and 2, which were taught through the Conventional reading and writing book. The performance of these two groups during the baseline phase was the same: zero percent. However, when the instructional condition was implemented, their performance started to increase for both groups. The acquisition rates of syllables and words for the Conventional Group 1 were very similar. Their rates overlapped in several sessions and they remain very close to each other during this experimental phase. In contrast, the acquisition rates of syllables and words for Conventional Group 2 were a little different from one another. The mean percent of syllables acquired was higher than the mean percent of words learned.

These two groups never met the 100 percent criterion. The maximum percent of words and syllables read by Conventional Group 1 was 59%, and 55% respectively. The performance of Conventional Group 2 was slightly higher than Group 1: A maximum of 72% for syllables and a maximum percent of 66 for words was reached. During the follow-up condition, the rate of learning for syllables and words was lower than the maximum levels reached during the
Note. Bl. = baseline; F.U. = Follow Up.

Figure 2. Mean Percent of Syllables and Words Correctly Read By Subjects of Conventional Text Groups 1 and 2 During Baseline, Instructional Condition and Follow-Up Phases.
Instructional condition. By doing a comparison between the response rates of Semi-programed groups with the Conventional Groups, one can conclude the performance of the Semi-programed groups was higher than the Conventional groups.

The mean percent of correctly written syllables and words for Semi-Programed Groups 1 and 2 are displayed in Figure 3. The mean percentage for these written responses were zero for both groups. This responding rate was the same during the following twelve sessions corresponding to the Instructional condition of groups 1 and 2. When the syllables teaching procedure was introduced in the thirteenth session of this phase, the groups' performance consistently increased and eventually it stabilized when the 100% criterion was reached. Such criterion was reached for Group 1 after 59 sessions. Group 2 needed 60 sessions for meeting such stability. The words acquisition was very different for Group 1 and 2. Subjects of Group 1 could not reach 100% criterion. They got only to the 89% level. In contrast, Group 2 subjects were able to reach a 92 mean %. They were even able to identify several words before the Words Teaching procedure was implemented. It appears as though these subjects were using their skills learned during the Syllables Teaching procedure for writing some words.

Data on follow-up acquisition probes indicate that the writing of syllables and words of both groups was slightly lower than the maximum level reached during the Instructional condition.

Figure 4 shows the mean percent of correctly written words and
Figure 3. Mean Percent of Syllables and Words Correctly Written By Subjects of Semi-Programed Text Groups 1 and 2 During Baseline, Instructional Condition and Follow Up Phases.
Note. Bl. = baseline; F.U. = follow up.

Figure 4. Mean Percent of Syllables and Words Correctly Written by Subjects of Conventional Text Groups 3 and 4 During Baseline, Instructional Condition and Follow-Up Phases.
syllables during the acquisition probes for subjects of Conventional Groups 1 and 2. Both groups had a similar performance during the baseline condition: zero percent for syllables and zero percent for words.

There was, however, a marked difference between the performance of these two groups during the Instructional Condition. Conventional Group 1 extended its stable baseline rate to ten sessions of the Instructional Condition. A trend for a gradual but irregular increase for both the syllables and words started in session number 20. From this particular session to number 55, several overlapping data points between the two types of written responses rate occurred. Then the words acquisition performance started to increase slightly over the Syllables acquisition forming both a narrow but a parallel rate of learning until they reached their maximum levels of performance: 60% for words and 52% for syllables. In contrast, the performance of Conventional Group 2 was characterized by an immediate and gradual increase after the Instructional Condition was implemented. From session 13 to session 35, the Syllables acquisition rate was a little higher than the words acquisition rate. However, these acquisition rates became inverted starting at session 36. From this point up to session 70, the words acquisition rate was significantly higher than the syllables acquisition rate; and it was only until the last 16 sessions of this condition when the difference between the two rates became smaller. Nevertheless, mean percent for words still remained higher over the mean percent of syllables.
Two additional differences with Conventional Group 1 were found from the Conventional Group 2: (a) very few overlapping data points occurred; and (b) they accomplished higher levels of correct written responses: 67% for words acquisition probes and 63% for syllables acquisition probes. The performance of the two conventional groups during the follow-up condition showed the same features of those in the Semi-programed groups: lower acquisition mean percent than the maximum levels of performance reached in the last sessions of the Instructional Condition.

Other measurements were obtained with the objective of evaluating the subjects' reading and writing generalization responses to materials that were different to the one used during the acquisition probe trials. The results of these evaluations are shown in Table 1. This table summarizes the mean percent of correct reading and writing responses obtained by the subjects in the four experimental groups during the pre-test and post-test Generalization phases. The performance for all four groups during the pre-test Generalization phase was the same: zero percent. The subjects were unable to read or to write any textual unit during this condition. However, the different effects of the two instructional conditions were identified during the Post-test Generalization. Subjects from Semi-programed text groups achieved the greater mean percent of correct reading and written responses rates: 89 and 83 percent for Group 1 respectively; 91 percent of reading responses and 86 percent of written responses for Group 2. The lower mean percentages were performed by the Conventional Groups: 43% of reading responses,
Table 1
Mean Percent of Correct Reading and Written Responses During Pre-Test and Post-Test Generalization Conditions

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Responses</th>
<th>Pre-Test</th>
<th>Post-Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semi-Programed I</td>
<td>8</td>
<td>Reading</td>
<td>0.0</td>
<td>89</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Written</td>
<td>0.0</td>
<td>83</td>
</tr>
<tr>
<td>Semi-Programed II</td>
<td>8</td>
<td>Reading</td>
<td>0.0</td>
<td>91</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Written</td>
<td>0.0</td>
<td>86</td>
</tr>
<tr>
<td>Conventional I</td>
<td>8</td>
<td>Reading</td>
<td>0.0</td>
<td>43</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Written</td>
<td>0.0</td>
<td>35</td>
</tr>
<tr>
<td>Conventional II</td>
<td>8</td>
<td>Reading</td>
<td>0.0</td>
<td>51</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Written</td>
<td>0.0</td>
<td>42</td>
</tr>
</tbody>
</table>

Note. N = Number of Subjects Participating in Each Group.

and 35% of written responses for Group 1. Conventional Group 2 had a slightly higher performance than Group 1: 51 mean percent of correct reading responses and 42 mean percent for the written responses.

Perhaps one of the most important evaluations taken of the subjects' performance were the ones obtained when all or most of the independent variables implemented were withdrawn out of the experimental situation: the follow-up measurements. Table 2 provides information about the mean percent of correct reading and written responses during the Follow-up Conditions for the four groups'
Table 2
Mean Percent of Correct Reading and Writing Responses on Acquisition Probes During the Follow-up Conditions for the Subjects of the Four Groups

<table>
<thead>
<tr>
<th>Group</th>
<th>N</th>
<th>Textual Responses</th>
<th>Follow Up</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Syllables</td>
<td>Reading</td>
</tr>
<tr>
<td>S-Prog. 1</td>
<td>8</td>
<td></td>
<td>94.75</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Words</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Written</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Syllables</td>
<td>92.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Words</td>
</tr>
<tr>
<td>S-Prog. 2</td>
<td>8</td>
<td></td>
<td>94.50</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Reading</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Syllables</td>
<td>91.25</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Words</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Written</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Syllables</td>
<td>88.50</td>
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<tr>
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</tr>
<tr>
<td></td>
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<td></td>
<td>Words</td>
</tr>
</tbody>
</table>

Note. N = Number of students in each group; S-Prog. = Semi-Programed Text Group; Convent. = Conventional Text Group.
subjects. The data indicate that the higher acquisition rates were emitted again by the subjects of the Semi-programed Groups, specifically Semi-Programed Group 1 obtained the following mean percentages of syllables and words correctly read: 94.75 and 90.25 respectively. The mean percent of syllables and words correctly written were 92.00 and 86.75. Semi-Programed Group 2 achieved the following mean percentages of reading responses: 94.50 of syllables and 91.25 of words. The mean percentages of written responses achieved were 92.75 of syllables and 88.50 of words.

The lower mean percent of correct reading and written responses were emitted by Conventional Group 1: 45.25% of reading syllables and 51.75% of reading words; 41% of written syllables and 47% of written words. The performance of Conventional Group 2 was a little better than Conventional Group 1: 54.00% of reading syllables and 49.50 of reading words; and 53.00% of written syllables and 53.25% of written words.

The Student-T-Test (Lynch and Huntsberger, 1976) was used to determine whether there was significant mean difference between the Semi-programed and Conventional Groups, during the pre-test and post-test generalization conditions. This T-Test revealed that the Semi-Programed Groups were significantly superior at the .001 level of confidence and with a d.f. = 30, both the reading \( t = 19.53 \), and writing \( t = 16.88 \) (see Table 3).

All the data obtained confirmed the hypothesis stated in Chapter I: Those individuals assigned to the Semi-Programed Text
Table 3
Analysis of the Reading and Writing Mean Percent Differences Between the Semi-Programed and Conventional Groups During the Pre-Test and Post-Test Generalization Conditions

<table>
<thead>
<tr>
<th>Condition</th>
<th>Semi-Programed Group</th>
<th>Conventional Group</th>
<th>t</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X</td>
<td>SD</td>
<td>X</td>
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<tr>
<td>Reading Scores</td>
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<td></td>
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<tr>
<td>Gen. Pretest</td>
<td>0</td>
<td>0</td>
<td>0</td>
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<tr>
<td>Gen. Posttest</td>
<td>91</td>
<td>36.97</td>
<td>52</td>
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<tr>
<td>Writing Scores</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Gen. Pretest</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Gen. Posttest</td>
<td>86</td>
<td>41.07</td>
<td>44</td>
</tr>
</tbody>
</table>

*P 0.001

Note. X = Mean of the Groups; SD = Standard Deviations; Gen. = Generalization.

Instructional Conditions (Groups A and B) would learn to read and write better and faster than the subjects that were exposed to the Conventional Book instructional Condition (Groups C and D).
CHAPTER IV

DISCUSSION AND CONCLUSIONS

Results of this study indicate that the Semi-programed Reading and Writing text was more effective for teaching adult illiterates to read and write better than the Conventional text, recommended by the Secretariat of Public Education's reading group.

Subjects of the Semi-programed Groups 1 and 2 were able to read all the syllables and all the words that were presented during the last acquisition probes' session. Although these two Groups did not reach the maximum mean percents of correct written syllables and words (the exception was Group 1 who achieved levels of 100 percent in writing of syllables), they achieved mean percentages which were very close to the highest level. The accelerated acquisition of writing words for subjects of Semi-programed Group 1 seems to suggest that they would have reached higher mean percentages with some additional sessions. Unfortunately, the Veracruz State Government limited the study to 90 sessions for implementing my reading and writing procedures, due to a prior schedule for beginning, a basic mathematics program for the 32 subjects of the study.

The effectiveness of the Semi-programed text may be observed in the immediate increases in the percentages of textual responses read and written correctly, produced by the introduction of the syllables and words' teaching procedures. The fact that the subjects of the
two Semi-programed Groups were able to read and to write almost all the words that were taught in approximately 14 sessions may be attributed to the previous establishment of all the necessary pre-requisite skills in the appropriate sequence: attention, discrimination, following directions, vowels and syllables.

The implementation of the *Introduccion Primaria Intensiva para Adultos* (1975) book produced immediate and consistent increases in the mean percentage of textual responses read and written correctly for the Conventional Groups. However, they were not able to reach mean percentages higher than 72. Their performances were lowest when the teaching procedure was no longer implemented. A poor performance of the Conventional Group's subjects was also exhibited during the sessions in which they were required to read and to write from basic and common reading material. Most of them reached mean percents of correct reading and writing responses lower than 50 percent. Since the textual repertoires acquired by these adults at the end of the study would not allow them to read and write appropriately to obtain information and to use it to satisfy some basic daily life demands, they were given the Semi-programed reading and writing materials to improve their textual skills. The lower responding of the Conventional Groups' subjects could be attributed not only to the disadvantages already described for the Conventional Reading and Writing book, but also because the time requirement fact that the teaching of reading and writing with this book required one full school year.

The results indicated that the Semi-Programed text promoted not
only the acquisition but the retention of considerable numbers of words and syllables on post-teaching performances.

The data from the study showed also one of the most relevant effects generated by the text on the textual responding of the two Semi-Programed Groups: the generalization of functional reading and writing skills. When the subjects of the Semi-programed groups were asked to read or to write from ordinary reading materials (newspapers, comic books and magazines), they achieved mean percentages significantly higher than the subjects of the Conventional Groups. This result may be attributed to the fact that most of the parts of the Semi-programed text allowed the subjects to engage in generalization exercises.

Although the data showing the acquisitions' process for the different textual units taught are important, the author of the study considers that the assessment of the textual repertoires (such as reading and writing responses), under conditions that closely resemble the natural situations, could be the data with the most practical relevance, i.e., the evidence of the final repertoire acquired and to be utilized by the subjects in real life situations is the subjects' performance under those experimental stages in which the selected independent variables have been already withdrawn. Therefore, it would be advisable that any study attempting to establish textual responses should extend the experiment to both follow-up and generalization stages.

Two general findings of the study were: (a) the performance of the Conventional 2 and Semi-programed 2 Groups was slightly better
than performance of the Conventional 1 and Semi-programed 1 Groups. This could probably be attributed to some informal competition of subjects of groups number 2, who (according to anecdotal reports of the teachers) were frequently trying to demonstrate that they were more "clever" than the subjects of groups number 1; and (b) the acquisition of reading responses reached higher levels than the acquisition of written responses. One possible explanation for this could be that the printed stimulus is more discriminative than the auditory stimulus. When subjects are required to write from dictation, the physical features of the auditory stimuli presented by the teacher are more variable than the physical characteristics of the printed stimuli. The discrimination of verbal auditory stimuli for Spanish speaking illiterates is more complex. Some reasons for this auditory discrimination difficulty are: (a) the Spanish alphabet contains letters that have different names and different visual characteristics, however, when they are pronounced, the auditory stimuli produced are the same. For instance b and v; s and z; y and ll; j and g; q and k; and (b) when the letter h appears at the beginning of a word, it does not have a sound.

The results produced by the Semi-programed text could be assigned to among other factors, the utilization of several behavioral principles: discrimination, generalization, fading, matching to sample, shaping, visual prompts, feedback and chaining.

Previous studies have demonstrated that the behavioral principles mentioned above are effective for the establishment of different textual repertoires. Burns and Novak (1979), and Moore
and Goldiamond (1964), employed matching-to-sample and fading procedures to teach textual units to children. Nelson and Wein (1974), and Williams (1969), utilized matching-to-sample for teaching letter discriminations. Corey and Shamow (1972), and McDowell, Nun and McCutcheon (1969) utilized fading procedure to facilitate the acquisition of reading repertoires. McGee, Krantz and McClannahan (1986), and Monteiro (1980) implemented an Incidental teaching procedure which in turn involved the use of verbal prompts, stimulus fading, echoic primes and cumulative review over words mastered for promoting the acquisition, generalization and retention of sight words. Unfortunately these studies only utilized very few behavioral principles and they established one type of textual unit rather than a series of textual units which compose a whole reading and writing repertoire.

Although this study was implemented with convicts with different social-economic backgrounds such as peasants, semi-skilled workers and street hawkers, all of them were learning in a controlled situation. Therefore, it would be appropriate to conduct a similar study under more natural teaching situations.

Since the two Conventional Groups had the same teacher, and the two Semi-programed groups' subjects were taught by another instructor, it would be advisable that each teacher alternately work with both a Semi-programed and Conventional Group. This would control for any effect attributed to the teachers' performance on the learning subjects.

In addition to the advantages that can be found in the charac-
teristics and elements of the Semi-Programmed Reading and Writing text which were previously described in Chapter Two, other main advantages derived from the results of this study are the following: First, it is a simple program, easy to implement, requiring practically no training of teachers. Second, it teaches reading and writing in less time than the Conventional reading and writing books. Third, it facilitates not only the acquisition and retention of textual repertoires, but the generalization of these repertoires to new reading materials. Fourth, it permits the analysis and identification for determining which sections of the program have effect on the subjects' learning. Fifth, this program could probably be implemented with any Spanish speaking illiterate adult independently of his/her social, economic, cultural, or ethnic condition. Because the value given by our society on reading and writing skills, as revealed by the effect which the mastery of these repertoires has on an individual's success in life, it is convenient that researchers or other professionals interested in the designing and implementation of reading and writing programs could elaborate them in such a way that they could be highly effective. The author of the present study suggests some recommendations which could contribute to achieve such objectives:

1. With regard to the program: (a) Utilize those behavioral principles which are applicable to the program; (b) use a behavioral definition of both the reading and writing concept (Michael, Sundberg & Peterson 1977); Skinner (1957); Smith (1976); and Staats (1968) have provided adequate behavioral definitions of these
concepts); (c) the program should present the instructional information in an increasing order of difficulty; (d) it should allow individualization and self-pacing especially for those illiterates that need remedial help; (e) the program must be designed to help the students to emit correct responses; (f) it must consider the characteristics of the language spoken by the illiterates; (g) a manual or specific directions about the implementation of the program should be provided; (h) a sequence in which the textual units to be taught should be organized; and (i) the whole teaching process should be structured as a sequence of well-defined learning stages through which the students could proceed.

2. In relation to the student's participation in the program, the following activities are recommended: (a) The students should participate in active and relevant responses which allow them the mastery of the skills to be learned; (b) they should engage in activities which permit them to generalize the acquired skills; (c) the students' correct responses should be followed by some type of reinforcement; (d) the skills to be taught should be considered within the context of all other skills previously established; (e) students' vocabularies should be used for the reading and writing materials; (f) the pre-requisite behaviors for reading and writing must be identified and established; and (g) all the terminal behaviors to be taught should be specified in a set of behavioral objectives.

3. The program should recommend the teachers do the following activities: (a) To teach reading and writing skills simultaneously,
in order that the student may acquire a functional relationship between graphemes and phonemes; (b) to organize the students in such a way that teachers could implement correctly the teaching procedure; (c) to specify directions about what activities the students should perform in each stage of the program; (d) to provide feedback to the students' responses; and (e) to give extrinsic reinforcement to the students' correct responses while they learn to write and to read and generate their own automatic or extrinsic reinforcement from the repertoire acquired.

4. Some of the basic evaluations activities recommended are: (a) To implement a diagnostic evaluation to obtain information about the illiterates' specific behavioral deficits; (b) pretest and posttest evaluations should be conducted; (c) to carry on an evaluation of the students' learning in each step of the program; (d) to evaluate constantly the program in order to make the changes that are necessary for improving it; (e) teachers should be evaluated and trained to ensure that they have the abilities, knowledge and necessary competency to implement appropriately the teaching method; and (f) whenever possible, a follow-up should be implemented to evaluate whether or not the learned skills are maintained throughout the time.

Perhaps the joining of some isolated modest efforts like the one performed with the present study and the future research conducted in this area would help to build a solid first stage of the continuing life-long adult education.
Appendix A

A Pre-Requisite Exercise
Appendix B

Discrimination Exercises
Appendix C

Pre-Requisite Behaviors Test
Appendix D

Straight Lines Exercise
Appendix E

Curved Lines Exercise
Appendix F

Drawing Lines Similar to Letters Exercise
Appendix G

Drawing Letter Forms Exercise
Appendix H

Vowel Acquisition Exercise
Ojo
Appendix I

Direct or Single Syllables Acquisition Exercise
Appendix J

A Compound Syllable Acquisition Exercise
Appendix K

Sentences Acquisition Exercise
<table>
<thead>
<tr>
<th>Image</th>
<th>Translation</th>
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</thead>
</table>
| ![Image](image1.png) | vamos de paseo.  
VAMOS DE PASEO |
| ![Image](image2.png) | la llama es de la vela  
LA LLAMA, ES DE LA VELA |
| ![Image](image3.png) | Vilma vive en Jalapa  
VILMA VIVE EN JALAPA |
| ![Image](image4.png) | las aves vuelan alto  
LAS AVES VUELAN ALTO |
| ![Image](image5.png) | el volante da vueltas  
EL VOLANTE DA VUELTAS |
| ![Image](image6.png) | la llama es de la vela  
LA LLAMA ES DE LA VELA |
| ![Image](image7.png) | Vilma vive en Jalapa  
VILMA VIVE EN JALAPA |
| ![Image](image8.png) | las aves vuelan alto  
LAS AVES VUELAN ALTO |
| ![Image](image9.png) | el volante da vueltas  
EL VOLANTE DA VUELTAS |

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Appendix L

Lesson Reading and Writing Exercise
Agricultura

La importancia de la agricultura Veracruzana radica tanto en la gran variedad de cultivos que se practican como en el valor de su producción.

Los principales cultivos anuales o de ciclo corto, por el área que ocupan, son: maíz, caña de azúcar, frijol, arroz, papa, tabaco, chile y piña. En cuanto a los frutales destacan los siguientes: cafeto, naranjo, platanero, mango y papaya.

Veracruz es el primer productor nacional de caña de azúcar y el segundo de maíz, naranja y café.
Appendix M

Generalization Test
EL PEDIATRA:
EL MEJOR ALIADO DE LA SALUD DE SU NIÑO

Afortunadamente, las madres están mucho mejor informadas hoy en día sobre el cuidado de sus hijos, y, a pesar de que muchas ideas correctas han ganado ya la batalla, ciertas malas costumbres aún prevalecen en las familias modernas. Así nos lo han asegurado varios pediatras, a quienes hemos preguntado. A continuación, les damos los consejos que ellos consideran de primera importancia.
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Appendix M Page 116

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Appendix N

Document of the Veracruz State Government
ASUNTO: Se hace comunicación indicada.

Baja: TÉCNICA.
SERIE: QUINTA.
NÚMERO DE OFICIO: 11.551—
EXPEDIENTE NÚM. —

Al C.
Director del Reclusorio Regional.

Los internos que a continuación se señalan —

biendo el curso de orientación, para el caso de que
los mismos cumplan con los lineamientos que se les ha
senalado, serán beneficiados con 100 días de trabajo —
para los efectos de la Realización Parcial de Pena y a los
internos que participen en los cursos de Primaria Abierta,
se les anotarán estos en las actividades educativas.

Atentamente,

SUFRACIO ESPECTIVO, NO REALIZACIÓN.
Xalapa, Ver., a 29 de Septiembre de 1979.

EL JEFE DEL DEPARTAMENTO.

Lic. Antonio F. Rodríguez González.

cc. A la Profesora Elsa Aída Salazar de Olivares.
Dirección General de Gobernación.
PRESENCIA.

IMP.
BIBLIOGRAPHY


119


Experimental Analysis of Behavior, 7, 269-272.


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