HANDWRITING: A COMPARATIVE STUDY OF THE SYNTHETIC AND GLOBAL METHODS

A THESIS

PRESENTED TO

THE SCHOOL OF GRADUATE STUDIES

ADDIS ABABA UNIVERSITY

IN PARTIAL FULFILLMENT

OF THE REQUIREMENTS FOR THE DEGREE OF

MASTER OF ARTS IN TEFL

BY

HAILE TEMELSO

June, 1989

ADDIS ABABA UNIVERSITY

SCHOOL OF GRADUATE STUDIES

HANDWRITING: A COMPARATIVE STUDY OF THE SYNTHETIC AND GLOBAL METHODS

By

HAILE TEMELSO

INSTITUTE OF LANGUAGE STUDIES

Approved by:

Tilahun Hanta — Advisor

Examiner

Examiner

ACKNOWLEDGEMENTS

I wish to express my sincere appreciation to my advisor, Dr. Tilahun Gamta, for his substantial support in planning and undertaking this research. His keen interest in the problem treated in this study, his generosity and patience served as a sourve of constant enlightenment and encouragement.

I send my gratitude to Dr. Asmerom Kidane and Ato Kiflezghi Aradom for their valuable help. To them, I owe a great deal for their assistance in making decisions regarding the sample design and the statistical computations.

I am also indebted to the Swedish Agency for Research and co-operation with the Development Countries (SAREC) and Addis Ababa University for the financial support of this study.

Last, but not least, thanks are due to W/t Fekerte Tulu for her patience and careful typing of the manuscript.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABSTRACT

The main objective of this study was to find out whether or not the Global Method is more effective than the Synthetic Method in the teaching of handwriting.

To achieve this, an experiment, for which hundred subjects were selected, was conducted for six weeks. Out of the hundred subjects, ninety-five children in four groups attended the experiment. Two of the groups formed the Control groups and the other two, the Study groups.

A pretest was given to both the Control and Study groups to determine if they had a significant difference in writing performance. Statistical computations, however, showed that there was no significant difference between the two groups in writing cursively.

After six weeks, a post-test was administered to both the Control and Study groups. A t-test at 0.5 level of confidence was conducted to determine the significance difference between the means of the two groups and the results showed that the Study groups performed better than the Control groups. A conclusion was drawn that the Global Method is more effective than the Synthetic Method in the teaching of handwriting.

On the basis of the findings, it is recommended that children in the elementary schools be taught handwriting through the Global Method and that speed of writing be considered and increased without affecting handwriting legibility adversely affected.

CHAPTER ONE

INTRODUCTION

1.1 STAMENT OF THE PROBLEM

The main reason why children learn handwriting in the elementary school is to use it as a tool of communication in juniour and senior high schools, colleges and out-of-school life. But, it is generally observed that the handwriting produced by the majority of government school students at all levels is usually inadequate for the purpose of using it as a means of communication.

The four-year programme of teaching handwriting through the SYNTHETIC METHOD had demonstrated little discernible improvement in handwriting performance of children. Indeed, such a serious problem may be attributed to the **Synthetic** method which is widely used in the government elementary schools. The alternative method suggested by modern educators is the GLOBAL METHOD. They believe that it is more effective in the teaching of handwriting.

The objective of the present study is, therefore, to determine whether or not the Global Method is more effective than the Synthetic Method in the teaching of handwriting. To Carry out the study, the following NULL and ALTERNATE HYPOTHESES are established.

H_0 : There will not be a significant difference in handwriting peformance among children taught through the Synthetic Method and the **Global** Method as measured on a post-test administered immediately after the termination of the experiment.

H_1: There will be a significant difference in handwriting performance among children taught through the Synthetic Method and the Global Method as measured on a post-test administered immediately after the experimental period.

1.2 IMPORTANCE OF THE STUDY

The researcher thinks that the present study will come up with the following contributions.

1.2.1 The study:

1.2.1.1 gives pertinent information concerning the basic facts and principles of both the Synthetic and Global Methods with special reference to their variations in teaching procedures; and

1.2.1.2 provides an empirical evidence about handwriting performance of children at present.

1.2.2 It is also hoped that through the study:

1.2.2.1 a corpus of teaching materials that can be adapted to the present-day needs of children would be produced;

1.2.2.2 the right method through which handwriting performance of children can be improved would be possible.

1.2.3 Finally, the study would serve as a base-line for researchers interested in studying handwriting performance of children in the future.

1.3 LIMITATIONS OF THE STUDY

Although handwriting usually includes two types of writing, i.e., manuscript and cursive styles, in this study attention is mainly limited to cursive writing. However, reference is continually made to manuscript writing whenever the need is felt immediate and urgent. Again, the study is limited in the fact that it deals only with children in grade five in A Addis Ababa.

1.4 ABBREVIATIONS USED

A.E.= 'Abyot Ermija' Elementary School

A.M.Y.= 'Alfa Mesmat Yetesanachew' Junior & Elementary School

B.G.= 'Berhan Guzo' Junior & Elementary School

B.Z.= 'Berhan Zarie' Junior & Elementary School

C.G.= Control group

F.= Female

Fin.= 'Finfinie' Elementary School

F-cal.= F-calculated

F-tab.= F-tabulated

J_1= Judge 1

J_2= Judge 2

J_3= Judge 3

K.T.= 'Kokebe Tsebah' Junior & Elementary School

M.= Male

M28= 'Megabit 28' Junior & Elementary School

M.B.1= 'Mesrak Ber' Number 1 Junior & Elementary School

M.B.2= 'Mesrak Ber' Number 2 Junior & Elementary School

M.G.= 'Mesrak Goh' Junior & Elementary School

S.G.= Study group

S.N. 'Sibistie Negasi' Junior & Elementary School

T.B.= 'Tinsae Berhan' Junior & Elementary School

t-cal.= t-calculated

t-tab.= t-tabulated

T.Y.= 'Temenja Yaz' Elementary School

W.= 'Wendrad' Junior & Elementary School

Y.T.= 'Yeka Terara' Elementary School

Z-cal= Z-calculated

Z-tab= Z-tabulated

1.5 SYMBOLS USED

μ_1= Mean of population 1

μ_2= Mean of population 2

do= difference assumed to be zero

= Variance of population 1

= Variance of population 2

S_2^1= Variance of sample population 1

S_2^2= Variance of sample population 2

$\bar{X}$ = Mean

CV= Coefficient of variation

SD= Standard deviation

Sp= Standard error

N= Population size

n= Sample size

n_I= Number of sample population 1 (used for Control group)

n_2= Number of sample population 2 (used for Study group)

P= Teacher of group 1A

R= Teacher of group 1B

S= Teacher of group 2A

T= Teacher of group 2B

γ_{xy} Correlation coefficient

CHAPTER TWO

REVIEW OF RELATED LITERATURE

In this chapter the main ideas and works on handwriting are outlined.

2.1 WORKS ON HANDWRITING IN GENERAL

This section concentrates around five major ideas:

1) Identifying handwriting as the expression of personality,
2) The role of handwriting,
3) Speed in handwriting,
4) Measurement of quality in handwriting, &
5) Handwriting instruction.

2.1.1 IDENTIFYING HANDWRITING AS THE EXPRESSION OF PERSONALITY

Handwriting without mention of personality is incomplete and the relationship between the two is an idea which has received considerable attention in the field of graphology. Graphological studies show that the connection between handwriting and personality becomes more apparent as a child grows older and older. As regards this point, Myer writes:

> With advancing age and the development of the personality, a handwriting will show similar development and the pattern will become more distinctive and unique with years. Just as no two people will ever have the same finger-prints, so will no two people ever have the same handwriting. Personality and the individuality of the writer and handwriting are inseparable. (1958:9)

Such a theoretical discussion had been shared by Werner Wolff (1948: 20). He maintains that if handwriting identification succeeds in cases where the usual writing is purposely disguised, it follows that the writer in spite of his intention to transform his writing is not able to do so. According to Wolff, there must be unconscious trends in the personality of the writer which his conscious intention cannot suppress; thus, admitting the possibility of handwriting identification, we must also admit that handwriting expresses personal trends, or, in a wider sense personality.

Ferebee & Saunders (1967:209) report that handwriting analysts can often do a skillful job in telling about a person's personality through his handwriting. They further argue that handwriting remains creative, in spite of all our efforts to stereotype it. Ladousse (1983:57) states that larger letters may indicate such positive characteristics as seriousness, pride in one's work and generosity, or they may indicate negative characteristics as arrogance, conceit and boastfulness. Positive aspects of a small script are devotion, humility and tolerance. Alternatively it can mean shyness, lack of self-confidence, fear, or faint-heartedness.

Elsewhere, Ladousse reveals that writing that slants to the right shows an extroverted and outward personality which, in its positive aspects, is active friendly and sympathetic but might also be restless, hasty or even hysterical. He adds that an upright script indicates a self-sufficient and reserved nature; the head rules the heart, occasionally to such an extent that the writer may be accused of rigidity

and coldness. According to Ladousse, a left-sloping script with an angle of less than 85 degrees can be interpreted to mean self-control, but when the slope is less than 60 degrees, it can mean shyness, withdrawal or fear of the future (p.58).

Of special interest are also the views of Herrick (1955), Logan & Logan (1961), Myers (1963), Jarman (1979), Seefeldt (1980), and Panchal (1984) which state that handwriting is always a personal business and reflects that individuality and personal variation in letters is to be expected; it gives handwriting its flavour and is to be desired. Panchal elaborates:

> Handwriting is considered to be an essential feature of English teaching in schools. It is more or less an important aspect of the child's individual expression of his ability and distinctive personality. The child learns to write words, sentences and other exercises during his learning, which do reflect to a considerable extent, what type of boy or girl he or she is. Hence, children should be carefully taught the art of handwriting, bringing to their attention certain fundamental principles of writing. (1984: 75)

To think that personal variation in letter forms as a defense against handwriting instruction is half-backed conclusion. Instead, techniques which contribute to the development of the skill for easy communication of written thoughts and ideas to others should be sought, adopted and fostered. Myers (1963: 151-2) suggests that as teachers we need to know more about graphology so that we can detect undesirable traits and thus to weed them out of the lives of our children while youth is still plaint. According to Myers it is possible to

develop many desirable characteristics such as neatness, organization, consideration for others, and efficient work habits through handwriting instruction. She adds that we need to approach instruction in handwriting analytically and developmentally to help children to mature into well-rounded personalities, well-coordinated bodies and well-integrated individuals.

2.1.2 THE ROLE OF HANDWRITING

Handwriting viewed as a means of communication and self-expression and not as an end in itself is a modern thought that merits careful attention. Based on this fact, Ragan and Stendler think that:

> Handwriting in modern elementary school is not an end in itself but a tool of communication and self-expression. It meets the need that pupils have for recording ideas, writing messages, signing their names, writing letters and labeling objects. The School has the responsibility for helping children meet the ordinary demands of modern living by learning to write easily, legibly and with sufficient speed to suit their purposes. (1966:266)

Likewise, Trauger (1967:85) points out that clear handwriting is a courtesy to readers and a measure of enlightened self-interest for the writer. It is a courtesy because it helps readers pick up the communication rapidly and easily; it is an advantage for the writer because it predisposes readers in his favour. Trauger adds that because these are appreciated by children, and therefore can become incentives for pupils to improve their handwriting. Sorensen (1977:294) states that handwriting has a major role in our communicative world: we share ideas, record research findings, and label

materials with writing; it is through writing that we apply for employment, write a thank you note, or take an examination. Halpin and Halpin hint at this when they say:

> Today we are living in the machineage-age of the printing press, the typewriter, and the computer, to name but a few of them- but in our highly technical world, we still have a need for the highly personal means of communication called handwriting. Lack of facility in handwriting makes it more difficult to communicate effectively and achieve success both in and out of school. Thus, it is important for children to use this tool well at an early stage in their school careers. (1976:267)

Forester in his article, "Let's Be Realstic About Handwriting," advances that handwriting is no longer regarded as an art or end in itself, but rather as a tool of communication. He further asserts that as a tool it should aid communication, not hinder it (1974:741). Lastly, Afolayan (1980:35) comments that we need to think of writing both as the formation of letters and punctuation marks, and as the expression of ideas and meanings in writing.

2.1.3 SPEED IN HANDWRITING

Herrick (1955) notes that the quality of one's writing decreases-frequently very sharply as one increases the speed of his writing and he asserts that speed is a factor in writing. He adds that the problem is to help a child relate and control the speed of his writing to the quality level of good legibility and social standards essential to the writing task of the movement. There is considerable evidence that every child writes with a fairly wide range of speed in meeting his writing needs. The problem again is to learn to make

the necessary speed quality judgements. Herrick, therefore, proposes that it is likely that maximum and minimum speed levels have to be developed on an individudal basis and help should be given to children to aid them in determining the speed pattern with which they can maintain adequate communication (p.27). Equally, Shane et al. write that:

> Although speed norms in handwriting have been determined through research at each grade level, the most promising policy is a felexible one with respect to proper writing rates. Muscle coordination and other physical, psychological factors determine a child's best speed.(1962:184)

Enstrom in his article, "Research in Handwriting," discusses the effect of speed on the handwriting product and reports that spped is extremely vital to handwriting proficiency. He suggests that both speed and legibility must be considered and tested together; one without the other is meaningless. Moreover, Enstrom argues that some researchers do not even understand that both depend mainly upon the use of large muscles employed in the writing process. He further reveals that slowly made letter forms may test high on a handwriting scale used by inexperienced individuals. But, as soon as speed pressure is applied in the practical use situations, such as in keeping up with note-taking or with thinking, handwriting disintegrates. Enstrom concludes by remarking that any research which ignores speed is wholy falacious (1964:875). Bright hints at this when he remarks:

> Teachers are sometimes tempted to think that as long as a recognizable letter is produced, the method does not matter. But this is a short-sighted view. The learner

> wants to write quickly and he will only be able to do this if he makes the correct movements because the script has been designed with those movements in mind. Moreover, if he makes incorrect movements, he will eventually produce ambiguous letters when he writes quckly. (1976:7)

Jameson and Hicks (1960), Logan and Logan (1961), and Klausmeier and Dresden (1962) present that the goal of handwriting instruction in the elementary school is legibility and adequate speed. Thus, Logan and Logan elaborate:

> Today teachers are primarily concerned with helping children develop two aspects of skill in handwriting-legibility and fluency. How to teach children to write legibly and fluently in a minimum amount of time is the problem that faces the school. (1961:303)

Of great interest are also the views of Sr. Mary Lauriana (1964) and Sorensen (1977). Lauriana suggests that timed writing tests should be administered periodically to pupils in order to train them to write under pressure. In high schools and colleges, a student is expected to take notes rapidly and accurately. The elementary school teacher must, therefore, prepare him for this task. Sorensen believes that speed in writing is essentially important to capture one's thoughts, take notes and summarize without losing a train of thought (p.294).

Works done by Freeman[quoted in Anderson, 1965] and Rubin (1985) indicate the number of letters that adults and first-grades may fluently write per minute.

Freeman concluded that an adult may easily reach 130 letters per minute, and that speed of writing may be stepped up a good deal without sacrificing a reasonable degree of legibility (p.47). Rubin contends that if the average firstgrader can write only 16 to 17 letters per minute, this amounts to only 160 to 170 letters in ten minutes, or about 30 words. Certainly, in terms of motor development, many first-graders could not be expected to write steadily for a longer period than this. Moreover, she suggests that similar comparisions can be made for second- and third- graders (p.301).

Anderson observes that there are actually three measures of pressure that can have a bearing on the speed in handwriting. These are: the pressure of the fingers on the bareel of the pen, the pressure of the pen on the writing surface and the attendant pressure of the hand resting upon the writing surface (p.48). Harris and Rarick [quoted in Anderson, 1965] have been active in researching the point pressure upon the writing surface. Their findings would seem to indicate that force variation of the pressure of the pen on the writing surface was more closely related to legibility and speed in handwriting than was absolute point pressure. Another study investigated the relationship of handwriting pressure and legibility in children reinforced their earlier findings. They concluded that if speed is increased, variability in application of force is likewise increased, motor set is disturbed, and the handwriting legibility is adversely affected (1965:48).

2.1.4 MEASUREMENT OF QUALITY IN HANDWRITING

Anderson in his article, "Handwriting Research: Movement and Quality," gives a detailed discussion regarding the measurement

Freeman concluded that an adult may easily reach 130 letters per minute, and that speed of writing may be stepped up a good deal without sacrificing a reasonable degree of legibility (p.47). Rubin contends that if the average firstgrader can write only 16 to 17 letters per minute, this amounts to only 160 to 170 letters in ten minutes, or about 30 words. Certainly, in terms of motor development, many first-graders could not be expected to write steadily for a longer period than this. Moreover, she suggests that similar comparisons can be made for second- and third- graders (p.301).

Anderson observes that there are actually three measures of pressure that can have a bearing on the speed in handwriting. These are: the pressure of the fingers on the barrel of the pen, the pressure of the pen on the writing surface and the attendant pressure of the hand resting upon the writing surface (p.48). Harris and Rarick [quoted in Anderson, 1965] have been active in researching the point pressure upon the writing surface. Their findings would seem to indicate that force variation was more closely related to legibility and speed in handwriting than was absolute point pressure. Another study investigated the relationship of handwriting pressure and legibility in children reinforced their earlier findings. They concluded that if speed is increased, variability in application of force is likewise increased, motor set is disturbed, and the handwriting legibility is adversely affected (1965:48).

2.1.4 MEASUREMENT OF QUALITY IN HANDWRITING

Anderson in his article, "Handwriting Research: Movement and Quality," gives a detailed discussion regarding the measurement

of quality in handwriting. He writes that an estimation of handwriting quality requires both definition and a standard of that quality. Hence, earlier handwriting was valued for its beauty and esthetic qualities: But more recently quality has been denoted by its legibility and readability. Anderson reports that many instruments have been produced by researchers interested in the field of handwriting.

(1) The Thorndike handwriting scale was produced in 1910 and actually marked the beginning of the development of scales in America. The criterion used for judgement was GENERAL MERIT- this recognized the artistic quality of the writing in addition to clarity and uniformity of line;

(2) Ayres revised his first handwriting scale of 1912 in 1917, providing a convenient, useful reference based on READABILITY as the criterion rather than the "General Merit" concept. Ayres contended that since handwriting is produced for others to read and understand what is written, the quality criterion should be how quickly the specimen can be read; and

(3) In 1915 Freeman developed his first scale and recognized "GENERAL EXCELLENCE" as a sum of five specific factors: letter form, uniformity of slant, uniformity of alignment of letters, quality of line, and spacing between letters and words. A revision of this scale (1959) used :General Excellence: as the criterion and did not consider the evaluation of specific factors,

> i.e., that the specimens selected should show a balance among all the elements of form, spacing, alignment, letter formation and uniformity in size and slant. (1965: 49-50)

A study made by Myers (1963) indicates that several other good handwriting measuring scales have been scientifically sample along the scale until he finds the quality that each sample seems to match. Many scorers record this score on the sample; then to ensure as much objectivity as possible, the papers are reshuffled and the scoring is repeated. Myers adds that if possible, a scoring by 2 or 3 individuals is recommended to get the best results and an average of the scorings for each paper is then recorded as the quality score for the paper (p.138). In parallel, Askov et al. believe:

> Reliability can, of course, be increased by obtaining ratings from several judges, but such a procedure tends to be cumbersome in application. Pragmatically, an internalized scale developed through training an experience will probably be most useful in the classroom. (1970:105)

The merits of handwriting measurement as discussed by Tidyman and Butterfield, reveals that specific motivation for improvement is found in measuring achievement, locating specific deficiencies, and checking and recording progress. One device that has been used successfully is a class goal-filing chart. On a sheet of manila paper 20 to 24 inches square, samples of the children's writing are arranged in three

columns, forming a crude scale: unsatisfactory, satisfactory, and better than satisfactory. Pockets are placed below each sample. Children file their composition from time to time in what they consider the proper pocket. The teacher checks and, if he agrees, leaves the composition where he finds it. If the teacher feels that a child's judgement is in error, he takes the matter up with the child and they agree upon a proper disposition of the composition. The study further presents that another good device for motivation and measurement is the collecting of samples of children's handwriting at the beginning of the year and occasionally throughout the year. Samples field in individual folder show progress. (1959:301)

Klausmeier and Dresden (1962:274) recommend that handwriting should be used to help children appraise their progress. In view of this fact, Sr. Mary Lauriana points out:

> Since self- appraisal is basic to all learning, children should be directed frequently to compare their own handwriting exercises with model specimens. They should also determine with the teacher's assistance the steps to be taken for improving their quality and speed of handwriting. (1964:854)

From the study of Myers, it would seem that evaluation is a necessary part of any effort to improve or to reach a goal. She maintains that handwriting instruction needs the evaluation all along the line; by teachers to check on the effectiveness of their efforts; by children to check on the results of their practice; and by both teachers and pupils to determine the needed corrective measures (1963:140-1).

2.1.5 HANDWRITING INSTRUCTION

To meet the present day needs of children, the following concepts might well merit careful consideration in teaching handwriting.

Preparatory Activities

Works done by Roberts (1972), Mackay and Simo (1976), Seefeldt (1980) and Hubbard et al. (1983) report that there must be a preparatory period during which the primary child engages in activities which will prepare him for the task of learning to perform handwriting. These activities include: posting shapes into holes, clay modelling, painting, cutting shapes, building blocks with bricks, dot-to-dot pictures, drawing, finger-tracing and the like. These activities can promote the coordination of the eye, the hand and the brain.

Manuscript Writing

When the writing readiness of the learner is felt promising during the preparatory period, the stage of letter formation follows. Jarman (1979:31) contends that the simplest form which can be written without extra loops, flourishes and conceits should be chosen when letter formation begins. He adds that the script which conforms this requirement is, therefore, the Manuscript writing. In support of this view, Herrick (1955), Lado (1964), Huey (1965), and Ferebee and Saunders (1967) state that letter forms of the manuscript are simple and well suited to the fledgling coordination of the early age.

Studies made by Jameson & Hicks (1960), Shane et al.

(1962), Trauger (1963), Burns & Lowe (1966), Deighton (1971), Hanson (1976) and Trap-Porter et al. (1984) indicate that the chief arguments for its use are:

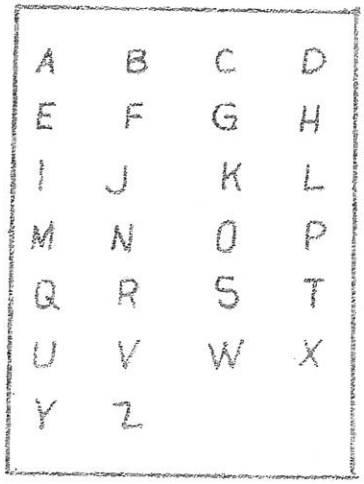
> First, that it is better adapted than cursive to the muscular development of children, requiring less fine coordination and less sustained effort;
>
> Second, that the child can begin meaningful writing sooner;
>
> Third, that it is similar to the form that teachers use in making charts and is comparable to the printed letter form.

In sum, the values attributed to the manuscript writing are outlined as follows:

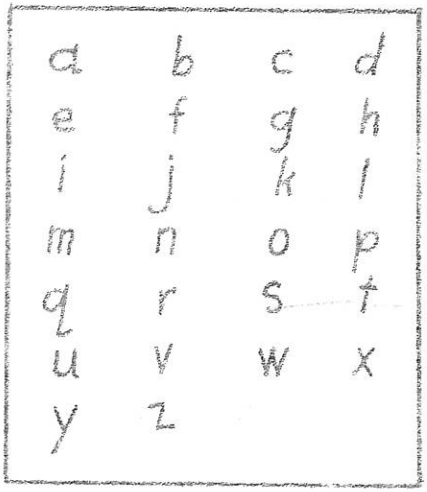
1. It is easy for children to learn because of the simple strokes.
2. Children can obtain satisfactory results early without drill on movement or form.
3. The letter forms are so simple that all of the children can see their difficulties and correct them.
4. The children learn one alphabet for both reading and writing.
5. This type of writing satisfies children's keen desire to write.
6. Unnecessary curves, loops, flourishes, and long joining strokes are omitted; therefore, the results are more legible than in cursive writing. This elimination of extra strokes also speeds up writing.

FIGURE I. MANUSCRIPT ALPHABET

Upper Case Manuscript Alphabet



Lower Case Manuscript Alphabet



Adapted from Emma Harrison Myers, in The Whys and Hows of Teaching Handwriting. Columbus, Ohio: Zaner-Bloser 1963:4

7. The pen may be lifted when going to the next stroke. This apparently lessens fatigue and the resulting strain on children's immature muscles. (Rubin 1985:295)

Transition to Cursive Writing

As Deighton discusses, the introduction of cursive should depend upon one thing: readiness. Most classes should be ready before the close of the second year (1971:302). Huey points out that usually a specified time for change-over to cursive, writing is designated - sometimes as early as the second primary year, often at the beginning of the third, and occasionally later (1965:269). Whereas Logan & Logan (1961) and Trap-Porter et al. (1984) believe that a transition to cursive writing is commonly made in the high second and low third, Trauger (1963) and Hewette & Forness (1977) maintain that the shift from manuscript to cursive writing is generally favoured in grade 3 as by the time most children have sufficient hand and wrist development to shape and maintain a flow of movement from letter to letter. E.A. Enstrom in his article, "Print-Handwriting Today," recommends:

> The more sensible approach is simply to add cursive as a separate tool in learning sessions and continue the free use of slanted print in daily expression until cursive is sufficiently well learned to permit the child a choice in writing style. (1964:849)

The argument of supporting the maintaining respect for manuscript writing during the transition period stems from three sources:

First, the maintaining of manuscript as the chief tool in writing during the introduction of cursive helps avoid interruption in reading progress or free expression (Enstrom 1960:27).

Second, children should be encouraged to go with manuscript whenever it serves a useful purpose, such as in writing lables, and signs, captions for pictures and in filling out forms (Gray 1956:222).

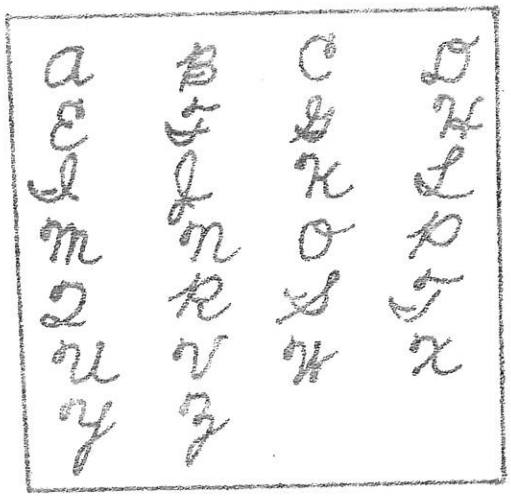
Third, for sometime after cursive is introduced, spelling words should be practised in both styles of writing (Huey 1965:271).

Cursive Writing

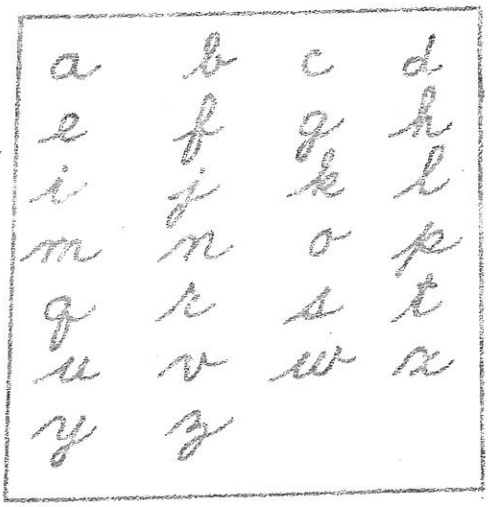
Studies made by Osley (1969), and Deighton (1971) show that cursive writing evolved because it was easier and faster to slide from letter to letter than to stop the forward motion, lift the pen, seek a new, correct beginning point and then move, often in a radically different direction. E.A. Esntrom in his article, "Those Questions on Handwriting," writes that the better and more thoroughly the cursive style is taught, the longer that it will remain a useful tool. What causes the problem today is not the tool, but the long neglect of sound teaching of cursive writing (1969:330). Elsewhere, Enstrom points out that there is one advantage of joined script which must not be overlooked. In joined script, words are attached into units. This is important since, in hand-produced print script spacing between letters and between words presents a serious problem in legibility (p.328).

FIGURE 2. CURSIVE ALPHABET

Upper Case Cursive Alphabet



Lower Case Cursive Alphabet



Adapted from Emma Harrison Myers, in The Whys and Hows of Teaching Handwriting. Columbus, Ohio: Laner-Bloser 1963:4.

Burns & Lowe suggest that primary emphasis should be placed on letter formation during work in cursive writing. They quote Newland who found that four types of errors are responsible for most illegibilities:

a) failure to close letters,

b) closing looped letters,

c) looping non-looped letters, and

d) straight up strokes rather than round strokes.

(1966:301)

Similarly, Myers (1963) and Lado (1964) advice that to develop a fluent, legible style of cursive writing, attention needs to be given to shape and form of the letters, beginnings and endings, slant, size, spacing, alignment and speed or fluency.

Capital Letters

According to Huey (1965) and Panchal (1984), capital letters need not be taught, except incidentally, until after the lower-case letters are in advanced stage. Moreover, Huey goes on saying that children should be permitted to use upper-case manuscript letters with cursive writing whenever capital letters are needed until they have had specific help with the cursive forms (p.279). Bright (1976:3), however, argues that it is important for the capital and small letters to be associated in the learner's mind, and we teach each immediately after the corresponding small letter. Bright adds that this is useful when the forms are different as (with b and B), when the distinctive feature is only size as (c and C and when the important feature is position in relation to the line as (with p and P).

2.2 [illegible] AND GLOBAL METHODS

Essentially, two major thoughts have arisen from the discussion on handwriting instruction. There is the traditional thought which favours the Synthetic Method for teaching handwriting. In reaction to this, the Global Method for teaching handwriting has occupied the attention of modern educators. This section, thus, attempts to discuss the contending views about the two methods with regard to the teaching of handwriting.

2.2.1 THE SYNTHETIC METHOD

To regard handwriting as an art or end in itself has led to the development of the Synthetic Method to the teaching of handwriting and instruction has been based on formal drills.

The Synthetic Method has started instruction by paying careful attention to form and quality. Superior quality in handwriting has occupied the heart of its programme. To achieve this goal, schools devoted much time and effort. In view of this, Gray states:

> ... synthetic methods of teaching handwriting focused attention exclusively upon the form and quality of writing. The style was dictated by purely external standards. In seeking to achieve superior quality, scant consideration was paid to the learner. Besides, only limited provision was made in functional and creative aspects of writing. (1956:191)

To ensure high quality, the child is forced to imitate and memorize the basic patterns of a letter formation from a

model set by the teacher. Formal handwriting drill is highly encouraged during the teaching process. Formal handwriting drill, according to Good (1973:297) is "practice by learners during handwriting instruction that involves copying and recopying set of exercises, especially such materials as rounding ovals, and push-and- pull exercises."

Handwriting instruction begins with the emphasis on part approach and gradually proceeds to the formation of whole words. In other words, the learner masters the component parts of larger units and is then dictated to synthesize them into more complex elements of language. The purpose, of course, is to foster the growth and development of partial experiences in the mind of the learner. In view of this fact, Gray points out:

> The issue most widely discussed concerned the validity of synthetic methods of teaching handwriting. In their defence, the following reasons were advanced: they provided for the orderly mastery of the necessary skills by proceeding systematically from simple to more complex elements; the various steps could be described clearly and followed easily by teachers. (1956:190)

Studies made by Tidyman and Butterfield (1959) report that the teaching of handwriting until quite recently, and to a considerable extent at present has been dominated by principles and procedures promoted by specialists whose interests seemed to be in handwriting for its own sake. The studies further indicate that the traditional practice of teaching handwriting has (1) set rigid patterns of letter

forms and slant, (2) emphasized formal drill exercises, (3) prescribed movement, and (4) required the use of certain materials. The purpose, apparently, was to make a fancy calligrapher of every child (p.288).

At present, handwriting instruction in elementary government schools in Ethiopia follows the principles and procedures promoted by the Synthetic Method. That is, the instruction directs attention to starting with simple forms and then proceeds to the more complex elements. The English Panel quotes F.G. French saying that:

> It is not easy for a child to learn writing because it requires very fine control of the small muscles of the fingers and the wrist. A child has difficulty in controlling even his larger muscles - watch him trying to throw a stone at an object; it is much harder for him to learn to perform correctly very small actions such as drawing the shape of a letter. Training in penmanship should therefore proceed by easy steps. (1982:79)

The "English For New Ethiopia" Teacher's Guide, Grade 5," also recommends that pupils are required to recognize the shape of each cursive script and practise each letter first in isolation (1983:88). Afeter a sufficient practice in writing letters has been done, the next step inevitably is to go to words.

The synthetic method, however, does not lack critics. It is attached by educators on several grounds.

(1) The chief fault of the synthetic method is that it ignores the principal factor- the learner. By imposing uniform pattern on all, individual differences are disregarded.

Moreover, the forms of letters when they are connected in writing are affected by what precedes them. Letters should, therefore, be taught in relation to each other.

(Dottrens [cited in Gray 1956: 190-1])

(2) According to Freeman[quoted in Gray], the chief weaknesses of the Synthetic Method are that it fails to harness the child's desire to write in the full sense of the word until he has gone through a long course of training, which to him has little significance; and the act of writing and the expression of meaning do not fuse as completely as thy should (1956:191).

(Tidyman & Butterfield 1959: 288)

(3) Hours of endless, meaningless drill can quickly dull the child's desire to write. At first he enjoys and welcomes the opportunity to reproduce the sample that the teacher sets before him, but he soon feels tired of attempting to refine his work so it looks exactly like the teacher's.

(Ferrebee & Saunders 1967:204)

2.2.2 THE GLOBAL METHOD

Broadly conceived, whole is more meaningful to the child than the parts. The part apprach to learning tends to ignore the need. Learners have to develop some kind of a frame reference that will help them to relate one aspect of what is to

be learned to its other aspects, as well as to their previous experiences (Kochhar 1981:33). J.P. Guilford and E.B. Newman quoted in Kochhar indicate that learning proceeds more rapidly and is retained better when the material to be learned has meaning, organization, and structure (p.33). Therefore the presentation of whole words is easier for the child.

In the light of this, evidence of the practical value of beginning with words in teaching handwriting is secured by many specialists and educators. According to Freeman cited in Gray , the greatest value of starting handwriting instruction with wholes lies in the fact that it alone has meaning and it is the meaning that leads to the fusion of separate movements (1956:193-4). Likewise, Huey (1965:259) shows that the perception of word wholes is both easier and more meaningful to the child during handwriting instruction than is the corresponding perception of the parts of words. In a similar but more elaborate, Logan and Logan further confirm that:

> Educators more recently believe that children should be taught to write by writing and that they should begin with whole meaningful words which they used in is best accomplished not by motor imitation, but by expressing ideas graphically. The visual images of whole words are more readily retained by the child when they express that which is meaningful to them.
>
> (1961: 302)

The evidence just cited had been shared by Tidyman and Butterfield (1959). They write that the word is the basis for writing not the letter. Moreover, they add that children write the whole word from memory; work is checked with the

teacher's copy for correctness; then practice follows; individual difficulties are noted, and corrective work is given (p.305). The importance of paying attention to the characteristics and needs of individuals is further supported by Anderson who thinks that:

> It would seem from the studies of Harris and Rarick that handwriting practices which are adjusted to individual differences in motor control and which allow each child to develop his own optimum rate of writing and level of writing pressure should be encouraged. Conversely, those practices which initiate handwriting instruction regardless of coordination ability or emphasize drill on uniformity of pressure should not be fostered (1965:49).

In support of the basic principle under discussion, a study made by Rose [quoted in Burns and Lowe] indicates that the functional approach, underlying the Global Method, to teaching beginning handwriting with words produces better results than work with individual letters (1966:67).

Its programme:

- defines competency in terms of standards acceptable in the social and business correspondence of adults;
- encourages individuality of style;
- emphasizes legibility, appearance and ease of writing;
- eliminates formal drill and limits practice to meeting immediate, recognised needs;
- relates handwriting to composition;
- favours a natural arm-hand-finger movement adapted to age and maturity; and

· permits the use of hnadwriting materials commonly used in home and business world.

Tidyman & Butterfield (1959:288)

The heart of the functional programme is purposeful experiences. This means, primarily, that children must have abundant opportunities for using handwriting in real situation such as in having the child write his own name and address, thank notes, notices, names of characters in stories, labellings, posters, slogans, captions (Tidyman & Butter field 1959: 291-2; Cohen 1972:190). Elsewhere, Tidyman & Butterfield present that the functional point of view operates in beginning as in later writing. They add that it is especially important that children acquire early understanding of handwriting as a means of communication; therefore, the child's first writing should have meaning and purpose by being related to immediate activities (p.303).

Finally, Rubin (1985) contends that handwriting will be more meaningful if the letters are taught in relation to what is being learned in class. She goes on saying that children should not be taught to write letters in rote fashion, according to the alphabet, but in relation to the spelling or phonics lesson in progress. Furthermore, Rubin elaborates that before teaching any letter, children should have auditory and visual discrimination exercises for the letter, and they should be able to state words that begin with that letter (p.300).

CHAPTER THREE

METHODOLOGY

3.1 THE SETTING

There are five zone schools' offices in Addis Ababa. The government elementary schools thus fall into these five zones. Table 1 presents that there are 49 government elementary schools where a total of 18178 grade five students are registered for the school year of 1988/89.

Table 1: Zone-wise Distribution of grade five students in Addis Ababa.

ZONE	NUMBER OF SCHOOLS	POPULATION			
		MALE	FEMALE	TOTAL	PERCENTAGE
1	7	1978	2263	4242	23.33
2	9	1440	1610	3050	16.78
3	15	2257	2293	4550	25.03
4	13	2098	2136	4234	23.29
5	5	997	1106	2103	11.57
TOTAL	49	8770	9408	18178	
PERCENTAGE		48.25	51.75		

Zone 3 was accorded priority for carrying out the present study. The reasons are two. Firstly, it comprises the highest percentage of the population (see table 1). Secondly, information obtained both from the Curriculum Centre and

Addis Ababa Schools' Office made it clear that children in Zone 3 have relatively the same standard in their educational abilities and socio-economic background which otherwise would reduce the credence of the study.

Table 2: School-wise Distribution of Population in Zone 3.

	POPULATION			
SCHOOL	MALE	FEMALE	TOTAL	PERCENTAGE
MG	263	222	485	10.66
BG	103	126	229	5.03
TB	101	103	204	4.48
YT	140	128	268	5.89
AMY	9	11	20	0.44
KT	264	283	547	12.02
BZ	157	143	300	6.59
MB-1	175	186	361	7.93
MB-2	173	150	323	7.10
Fin	104	132	236	5.19
AE	99	95	194	4.26
TY	90	117	207	4.55
M28	155	185	340	7.47
SN	181	174	355	7.80
W	243	238	481	10.57
TOTAL	2257	2293	4550	

Table 2 indicates that schools KT and MG comprise 12.02% and 10.02% and 10.66%, respectively. In other words, KT and

MG rank first and second, respectively when seen against the percentage of other schools. Moreover, information collected from Zone 3 Schools' Office reports that the two schools include children from several "Keftegnas." Based on these points, KT and MG were given priority over the other schools in Zone 3 for conducting the experiment.

3.2 SAMPLE DESIGN

Selection of Samples

It was decided to select a random sample from KT and MG for reasons stated above. A sampling frame of 1032 grade five students was obtained from the two schools. Each school was classified into sections (see table 3).

Table 3: Section-wise Distribution of the Population in the two Schools.

SCHOOL	SECTION	POPULATION
KT	1	79
	2	79
	3	74
	4	80
	5	81
	6	74
	7	80
	TOTAL	547
MG	1	62
	2	62
	3	62
	4	62
	5	64
	6	59
	7	61
	8	53
	TOTAL	485
GRAND TOTAL		1032

The sample included 9% of the population in KT and 10% of the population in MG. Table 4 shows that the sample units were proportionally distributed to the two schools.

Table 4. School-wise Distribution of Samples.

School	Section	N	n
KT	7	547	50
MG	8	485	50
	TOTAL	1032	100

N= population size
n= sample size

Within each school the sample units were proportionally distributed to each section. The results are given in Table 5.

Table 5: Section-wise Distribution of Sample in each School

School	Section	STRATIFIED SAMPLE
KT	1	7
	2	7
	3	7
	4	7
	5	8
	6	7
	7	7
	TOTAL	50
MG	1	7
	2	6
	3	6
	4	6
	5	7
	6	6
	7	6
	8	6
	TOTAL	50

Using the systematic sampling, subjects were chosen from each section in each school. The list was prepared in alphabetical order in each section. Starting at a number randomly, subsequent units were selected by taking every K^{th}

item from the list where 'K' refers to the sampling ratio, i.e., the ratio of population size to the sample size in each section; symbolically:

$$K = \frac{N}{}$$

Characteristics of Samples

Table 6: Distribution of Samples by Age.

	Y E A R S						
GROUP	9	10	11	12	13	14	MEAN
C.G.	8	15	10	14	2	1	10.80
S.G.	5	18	16	9	-	2	10.74

C.G= Control group
S.G= Study group

Table 7: Distribution of Samples by Sex

GROUP				PERCENTAGE
C.G.	S E X	MALE	24	48
		FEMALE	26	52
S.G.	S E X	MALE	23	46
		FEMALE	27	54

From the above tables the following summary can be made. Table 6 indicates that the mean ages of the Control and Study groups are 10.80 and 10.74, respectively. It, thus, seems that the difference in age between the two groups is not significant. Table 7, too, shows the distribution of sex in the Control and Study groups as follows: the respective distribution of males and females in the Control groups is

48% and 52% and the distribution of males and females in the Study groups is 46% and 54%, respectively. It seems that there is almost equal distribution of sex in the two groups. Age or sex cannot, therefore, be regarded as a variable that may be responsible for any differences in handwriting performance scrutinized between the Study and Control groups after a post-test has been administered.

Grouping of Samples

For purposes of the experiment, the sample units were randomly classified into four equal groups: 1A, 2A, 1B, and 2B each with 25 students. On lot basis, 1A and 2A of KT formed the Control groups and 1B and 2B of MG the Study groups.

Teachers

Table 8: Distribution of Teachers by Sex, Age, Qualification, Experience & Performance.

GROUP			NUMBER	AGE	QUALIFICATION	EXPERIENCE	PERFORMANCE
C.G	SEX	MALE	1	44	12+1	24	4.0
		FEMALE	1	32	11+1	15	4.5
S.G	SEX	MALE	1	41	12+1	21	4.4
		FEMALE	1	34	12+1	16	4.5

Table 8 presents that the differences of the teachers in age, qualification, teaching experience and teaching performance was not significant. Besides, the distribution of teachers by sex to the two groups was identical. The selection decision was, therefore, established on these criteria.

It was decided to give handwriting instruction to the Study groups (1B and 2B) through the Global Method and to the Control groups (1A and 2A) through the Synthetic Method. Teachers who were involved in teaching the Study groups were given a detailed explanation about the procedures and techniques of the Global Method. There was no problem with those who participated in teaching the Control groups because they were already familiar with teaching handwriting in the conventional method.

The experimental period was fixed to last for six weeks. All groups regularly met on the same days- Monday, Tuesday, Thursday and Friday for four 30- minute periods per week.

3.3 PREPARATION OF TEACHING MATERIALS

Teaching materials for handwriting instruction were prepared in both the Global and Synthetic Methods. The fundametnal principles for producing and applying the teaching materials in line of each method were meticulously observed.

3.3.1 THE GLOBAL METHOD

In preparing the teaching materials with respect to the principles of the Global Method, the view suggested by Huey (1965:272) "the teacher must plan how to foster the skill of forming letters precisely and fluently within the framework of meaning and purpose," merited most consideration. Most of the materials were adapted from work-books and texts. Some modifications were made with the materials in order to meet the needs of the children. The following sources were referred to as the basis for preparing the teaching materials:

English for New Ethiopia - Books for grades 3, 4 and 5 (1981, 1981 and 1983, respectively by English Panel; New Nelson Handwriting (1984) by Peter Smith and A. Inglis; Handwriting Skills: Copy Books 1 and 3 (1982) by Christopher Jarman; Gateway English for Bahrain: Language Book 1 (1984) by Alan C. McLean; The Development of Handwriting Skills: A Book of Resources for Teachers (1979) by Christopher Jarman; Oxford English Picture Dictionary (1977) by E.C. Parnwell; Oxford Junior Workbook 3 (unpublished) by Clifford Carver. The ideas suggested by Freeman, Dottrens, Burns and Lowe, Mckeown, Deighton, Huey, Herrick, Seefeldt;. Panchal, Rubin were used as the sources for modifying and applying the adapted ones. Moreover, commonly known slogans, greetings and posters were used to facilitate handwriting instruction for purposeful experiences.

3.3.2 THE SYNTHETIC METHOD

In preparing the teaching materials for handwriting instruction through the Synthetic Method, the principles argued by its advocates, particularly F.G. French were strictly noticed. The sources acknowledged above were also used as the basis for preparing the teaching materials. But, the difference lies in the fact that a letter through the Synthetic Method was taught in isolation; whereas through the Global Method, the same letter was taught using meaningful whole words.

3.4 CLASSROOM TEACHING

By grouping letters in the cursive alphabet into families (a) economy of teaching was achieved; (b) learners had sufficent

practice in the pattern of movement of letters within each family; and (c) the attention of the learners was continually drawn to the distinctive features of letters within each family (Huey 1965; Bright 1976; Panchal 1984). As suggested by Huey (1965: 284), the entire family was not practised at one time, but as each new letter was isolated for practice, its relationship to its family was pointed out as an aid to writing and remembering it. To ensure legibility in handwriting, the following set of principles were established.

1) Teachers should be very aware of the role played by overcurves and undercurves and should deliberately teach in such a manner that there will be no break-down at this point (Enstrom & Enstrom 1964:862).

2) Cross every t on the t; dot every i over i; flatten the top of r to distinguish it from s or undotted i (Trauger 1963:88).

3) Loop letters are carefully closed; oval shaped letters are left open but closed at the top; tall letters are really tall, and even and low letters are really low and even; words reston the line; the papers are neat (Ferebee & Saunders 1967: 215-6).

4) Pointed letters must be pointed; tail letters must hang down below the line; hump letters must never have points (Veatch 1978: 354).

5) Due attention should be given to spacing between letters and between words in each writing experience (Burns & Lowe 1966: 295).

6) The goal in handwriting instruction is for children to write legibly, at a fairly rapid speed, and in a pleasing style (Klausmeier & Dresden 1962:268).

Based on the assumption of Ferebee and Saunders (1967: 294), the visual image of the letter to be taught was present somewhere in the classroom. The style that is adopted throughout the government elementary schools was taught (McKeown 1974; Grant 1978).

3.4.1 THE GLOBAL METHOD

Handwriting lesson contained three essentials:

. Demonstration of how a model was produced;
. Opportunity to practise this production; and
. Supervision with individual diagnosis and correction of defects (Deighton 1971; Bright 1976; Hayes 1982)

As recommended by Hewett and Forness (1977), spontaneous expression and communication was felt more important than handwriting perfection (p.470). The act of writing began in a situation which had meaning and purpose for children. Items were selected and graded within the range of the children's physical and perceptual ability (Huey 1965:265). Among the items to be written were children's names, labelling for pictures, the days of the week and writing for captions (Gray 1956; Ragan and Stendler 1966; Seefeldt 1980). Children began by writing words with simple connections such as cat. There was gradual progression to writing short sentences (Shane et al. (1962: 375). Children were given words of approximately similar spelings and sounds such as car, cat, cow, and cup (Panchal 1984: 77-8).

The sensible procedure followed was to demonstrate by writing the words required. Oral instruction accompanied the demonstration by calling attention to forms of letters: starting point, direction of movement, spacing, etc., to the whole group. Children with special problems were helped without serious interruption to the group (Tidyman & Butterfield 1959; Deighton 1971). Teachers paced the lesson according to the capacity of the children (Huey 1965: 282) and emphasized individual improvement in handwriting rather than similar standards for all (Rubin 1985: 295). A continuous record of achievement, kept from week to week, was a definite motivating force [Freeman quoted in Myers 1963: 19] and keeping a file of samples of each child's writing also served as a powerful incentive for improving handwriting (Huey 1965: 293).

Feedback was an important component in learning to write, for it allowed children to detect errors and correct them. The more skilled ones were very quick to sense the errors and correct them (Rubin 1985: 293). Locating malformations and self-correction by giving children a means of comparing their procedure and the desired one was stressed. This comparison served to build accurate perceptions and was used as a basis for further practice.

Handwriting instruction was treated as an integrated part of a curriculum and this accounted for facilitating an increased benefit to pronunciation, reading and spelling (Petty 1964; Layton 1979; Seefeldt 1980). As suggested by Ferebee & Saunders (1967), McKeown (1974), and Gulliford (1985),

teachers encouraged and preserved a warm, relaxed, pleasant, permissive and friendly atmosphere where children built up confidence in themselves and the worthwhileness of effort. The room had many pictures with words written in cursive corresponding to letters that were being learned (Rubin 1985:295).

3.4.2 THE SYNTHETIC METHOD

Throughout the classroom teaching, the principles and techniques recommended in the "English for New Ethiopia: Teacher's Guide (Grade 5)," were respected and letters were presented first in isolation (1983:88). Children were shown where to begin each letter, which way to move and how to connect the strokes and letters (Lado 1964: 144) and they were taught to attain perfection in handwriting and form right habits by trying to imitate the model set for them by teachers (Gray 1956: 189). To make this effective formal drill exercises were emphasized. As suggested by F.G. French [quoted in English Panel 1982: 79], after intensive formal drill exercises on isolated letters were practised, children were moved to drilling in words and eventually to sentences containing letters that were being learned. Individualized instruction was discouraged and limited provision was made for growth in the functional and creative aspects of writing (Gray 1956: 190-1). Errors were kept minimized by taking them up with the entire class. On the whole, it was observed that children were presented with parts which to them appeared unrelated to anything in their experiences.

3.5 MEASUREMENT

Two tests were administered: pretest and post-test.

Pretest

To determine whether or not the Control & Study groups were equivalent for the purposes of the experiment all the students were given a test (35- minute period) prior to the beginning of classes. The test consisted of two parts: (1) labelling for parts of the human body and (2) copying a passage describing a picture. The style of script used was cursive writing.

Post-test

Immediately after the termination of the experiment, a test was given to measure the performance of the subjects. In designing the test, ideas acknoledged by Myers (1963) The Whys and Hows of Teaching Handwriting, Enstrom (1964) "Research in Handwriting," Anderson (1965)" Handwriting Research: Movement and Quality," Askov et al. (1970) "A Decade of Research in Handwriting: Progress and Prospect," Heaton (1975) Writing English Language Tests, Chater (1984) Marking and Assessment in English, were taken into consideration. The post-test was based on both the Global and the Synthetic Methods.

In preparing the Global test, the views supported by Myers (1963) "In problem solving we explore to see what has to be done and what there is to work with, or to see what is given and what is wanted or needed," and Rubin (1985) " "Learning to write legibly is a complex skill that requires specific motor muscle control and thinking ability," were noticed. The test had four parts. (1) labelling for parts of

the human body, (2) matching names with animals, (3) writing for captions, and (4) copying a passage about a clever student Each part of the test engaged children in problem solving.

In designing the Synthetic test, the view supported by Ferebee and Saunders "Handwriting is imitating; it is copying; it is conforming," (1967:208) was considered. The test had four parts: (1) a list of names of parts of the human body(2) a list of animal names,(3) a list of isolated sentences, and (4) a passage.

The test materials in both the Global and Synthetic tests were similar. The difference lies in the fact that materials in the Global test were constructed in such a manner that children were expected to relate them to meaningful and purpeseful situations. The same materials in the Synthetic test were used for purposes of mere imitating and copying.

t-test

The t-test was a statistic used to determine the significance of the MEANS DIFFERENCE between the Study and Control groups. The expected outcomes were, thus:

- If the Study and Control groups perform the same, i.e., if the statistically computed means of the two groups indicate no significant difference, the NULL HYPOTHESIS (H_o) will be accepted.
- If either the Study groups or the Control groups show better performance, i.e., if the statistically computed means of the two groups present significant difference, the ALTERNATE HYPOTHESIS (H_1) will be supported.

Rating

To determine the validity of the test, ideas recommended by Enstrom (1964) "Where speed and quality testing is a part of the study, pupils must know the sentence thoroughly and know how to spell every word;" Heaton (1975), "If a test item looks right to other testers, teachers, moderators, and testees, it can be described as having at least face validity; it is, therefore, often useful to show a test to colleagues and friends," and Chater (1984)" an examination that samples a range of work over a period of time is more valid than a one-off, end-of-course examination," were watched carefully.

Reliability in rating was sought through a number of precautions. As suggested by Myers (1963), Enstrom (1964) and Askov et al. (1970), reliability was increased by obtaining ratings from three judges and an average of the the ratings for each paper was then recorded as the final score of the paper. Moreover, the idea stated by Ayres [quoted in Anderson,1965] "Since handwriting is produced for others to read and understand what is written, the quality criterion should be how quickly the specimen can be read," was though about.

To minimize influences due to variation in a rater's efficiency from day to day, the raters sat for three hours in the morning of a day with 20-minute rest. J_1 judged a paper and passed it to J_2 who rated it and passed it to J_3. Since each judge was given a piece of paper for recording scores, no judge had an indication of a score assigned by a

previous judge. In addition, no rater knew whether he was rating papers of the Control groups or the Study groups. A score sheet was given to guide a rater. The sheet provided certain areas of consideration. (Braddock et al.,1963).

CHAPTER FOUR

DATA ANALYSIS AND DISCUSSIONS

This chapter considers two areas of concern: data analysis concerning the test results and errors in handwriting and discussions related to classroom observations.

4.1 DATA ANALYSIS

In this section an attempt is made to analyse the pre- and post-test results and errors in handwriting.

4.1.1 ANALYSIS OF TEST RESULTS

Pretest

At the beginning of the experiment, a pre- test was given to the Control and Study groups to establish that there was no significant difference between the two groups in writing performance. Ninety- five children of both groups took the pretest. The test papers were rated by three judges and the average of the three ratings for each paper was then recorded as the quality score for that paper. The paper were marked out of 100. The raw scores are shown in table 9. The marks were considered poor, fair, good, very good and excellent.

Fig 3: Category of marks of the pretest.

Poor	Fair	Good	Very good	Excellent
23-40	41-60	61-80	81-90	91-100

The sum of scores of poor, fair and good children in the Control groups are 468, 1039 and 616, respectively. Their respective means are 31.20, 49.48 and 68.44. The

Table 9: Pre- and Post-test Raw Scores of the Control and Study groups

RAW SCORES							
PRETEST				POST-TEST			
C. G.		S. G.		C. G.		S. G.	
1A	2A	1B	2B	1A	2A	1B	2B
23	25	27	23	41	41	43	51
27	25	28	23	50	42	48	53
28	27	33	25	50	47	62	58
33	27	37	27	54	50	63	59
35	28	37	33	55	50	67	60
35	37	38	37	55	52	68	62
38	40	38	38	56	53	68	65
42	40	40	38	58	57	68	67
42	42	40	38	58	62	68	68
43	43	42	40	60	63	69	69
45	43	42	42	62	63	72	70
45	48	42	43	62	67	72	70
47	50	42	45	65	68	73	70
50	52	45	47	67	68	73	73
52	55	45	52	70	71	77	74
53	57	52	55	70	72	77	74
55	58	52	55	70	75	77	76
57	63	53	57	73	77	77	78
60	68	55	58	75	77	78	79
62	68	57	58	77	77	78	82
68	70	60	60			80	82
71	73	60	60			80	83
73		65	68			81	86
		67	72			82	86
		73	72			87	90

sum of scores of all categories is 2123 and their mean is 47.18. Children considered poor, fair and good are 15 (33.33%), 21(46.67%) and 9 (20%), respectively.

The sum of scores of poor, fair and good children in the Study groups are 640, 1279 and 417, respectively. Their respective averages are 33.68, 51.16 and 69.50. The sum of scores of all categories is 2336 and their mean is 46.72. Children categorized as poor, fair and good are 19 (38%), 25 (50%) and 6 (12%), respectively.

On the whole, inspection of the pretest results shows that the distribution of children of both groups to the poor, fair and good categories is nearly the same and no child from either group falls into the very good or excellent category. Moreover, the inspection reveals that the means of both groups are below 50, i.3., both the Control and Study groups did not perform well in the pretest. This, in other words, means that there was little difference in performance between the two groups. For purposes of reference and better understanding, two specimens from each category of both groups are shown in fig. 6.

Post-test

Immediately after the termination of the experiment, a post-test was administered to both the Control and Study groups to determine whether the Global Method was more effective than the Synthetic Method in the teaching of handwriting. Ninety children sat for the post-test. The test papers were scaled by three judges and the average

of the three ratings for each paper was then recorded as the quality score for that paper. The papers were marked out of 100. The raw scores are shown in table 9. The marks were considered fair, good, very good and excellent.

Fig. 4: Category of marks of the post-test.

Fair	Good	Very good	Excellent
41-60	61-80	81-90	91-100

The sum of scores of fair and good children in the Control groups are 929 and 1531, respectively. Their respective averages are 51.61 and 69.59. The sum of scores of both categories is 2460 and their average is 61.50. Children regarded as fair and good are 18(45%) and 22(55%), respectively.

The sum of scores of fair, good and very good children in the Study groups are 372, 2442 and 759, respectively. Their respective averages are 53.14, 71.82 and 84.33. The sum of scores of all categories is 3573 and their mean is 71.46. Children considered fair, good and very good are 7 (14%), 34 (68%) and 9(18%), respectively.

As noted above there is no poor category in the post-test. As shown in fig. 6. students whose specimens are identified as 1a and 1b of Control groups and 2a and 2b of Study groups, for instance, showed improvement and are seen in fig. 7 considered fair in the post-test. Moreover the means for the Control and Study groups in the pretest were 47.18 and 46.72, respectively. But, in the post-test, their respective averages are raised to 61.50 and 71.46. This shows that both groups made an apparently good progress

in handwriting performance. The mean computed for the Study groups is relatively greater than the mean calculated for the Control groups. Hence, the Study groups improved better than the Control groups did. Furthermore, children in the Study groups are categorized as very good (18%), good (68%) and fair (14%), whereas children in the Control groups are regarded as very good (none), good (55%) and fair (45%). This, in other words, means that the Study groups performed better than the Control groups did. For purposes of reference and better understanding of children's performance in writing cursively in the post-test, two specimens from each category of both groups are shown in fig. 7.

As shown in fig. 6, even though children in the Study groups produced handwriting of higher quality in the post-test, there is no child who was categorized as excellent because he or she did not score 91 or above. But, had a child been able to write the specimen set by the teacher nearly the same or exactly, he or she would have been considered excellent.

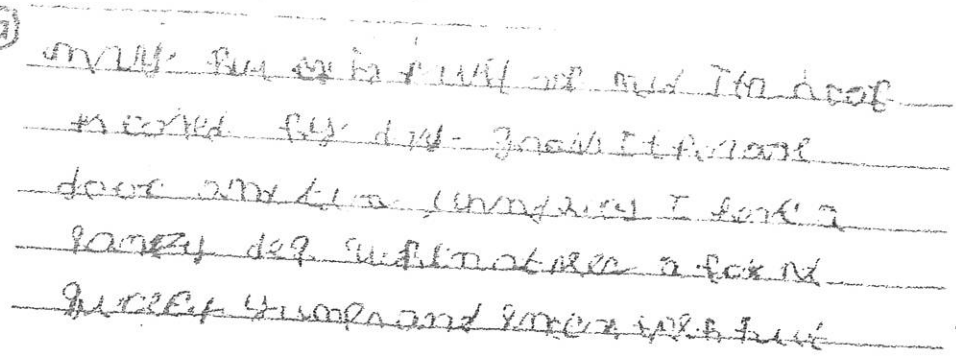
Fig 5: Specimen set by the teacher in the post-test

Azieb is very clever student. At home, she studies and does her homework. She also helps her mother. She wakes up a quarter to six. She makes tea. At seven o'clock, she goes to school. In class, she asks and she gives answers. Azieb gets prize every year.

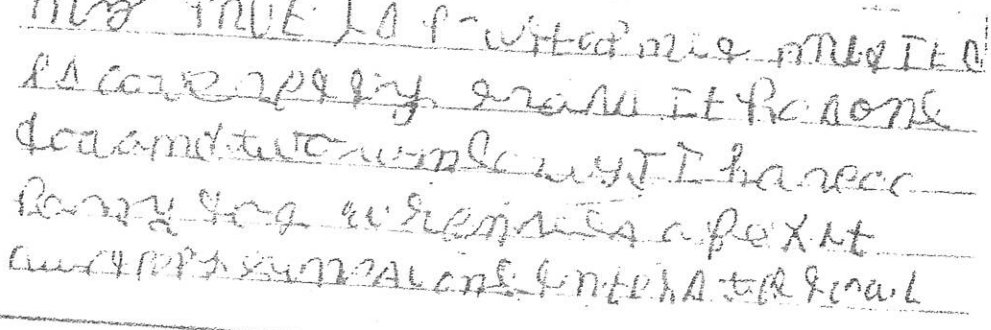
Fig.6 : SPECIMENS IN CURSIVE WRITING OF THE CONTROL AND STUDY GROUPS. (PRETEST)

POOR (23-40)

(1a) C.G

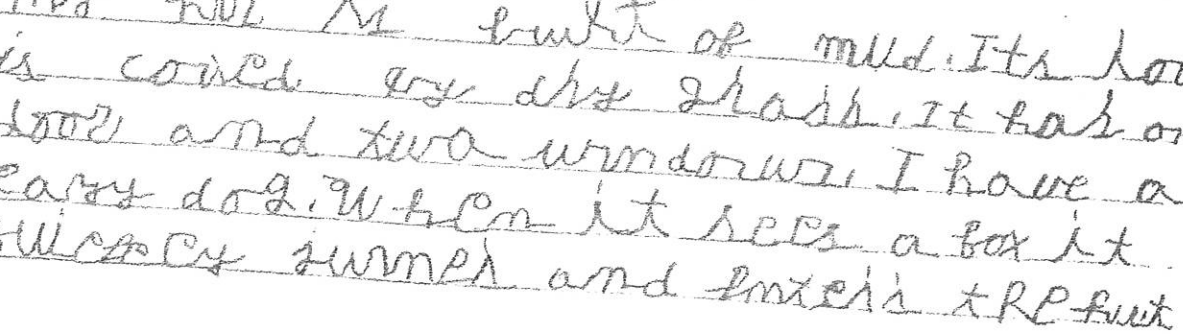


(1b)

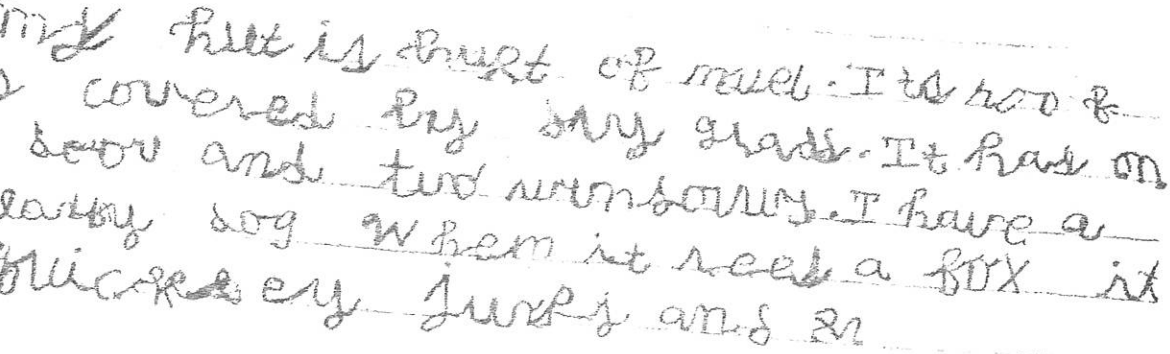


FAIR (41-60)

(1c) C.G.



(1d)



GOOD (61-80)

C.G.

(1e) my hut is built of mud. Its roof is covered by dry grass. It has one door and two window. I have a easy dog. When it sees a fox it quickely jumps and enter the

(1f) my hut is ruilt of mud. Its roof is coveled by dry grass. It has one door and twa windows. I have a lazy dog. When it sees a fax it quicky jumps and enters the hut.

POOR (23-40)

S.G.

(2a) ~~my~~ mayehut isevilt of mud. Its e acoverenerydantul gnassIthasom decvamdtwaumdowz Ienae a ec my tdogwhenctaeeaucckit qwceendtumpsamdennathehut

(2b) my hut is ruilt of mud Ita roof is covered ries dry grass It has one doorand twowindows I have a layz dog when it sees a fox it quicccy jumpsandentertheehut.

FAIR (41-60)

S.G.

(2c)

my hut is built of mud. Its roof is covered by dry grass. It has one door and two windows. I have a hairy dog when it sees a fox it quickly jumps and bites the fox.

(2d)

my hut is built of mud. Its roof is covered with dry grass. It has one door and two windows. I have a hairy dog. when it sees a fox it quickly jumps and bites the fox.

GOOD (61-80)

S.G.

(2e)

My hut is built of mud. Its roof is covered by dry grass. I have a hairy dog. When it sees a fox it quickly jumps and bites the fox. It has one door and two windows. I have a

(2f)

My hut is built of mud. Its roof is covered by dry grass. It has one door and two windows. I have a hairy dog when it sees a fox it quickly jumps and bites the fox

. Fig. 7 : SPECIMENS IN CURSIVE WRITING OF THE CONTROL AND STUDY GROUPS. (POST-TEST)

(1a) FAIR (41-60) C.G.

azizi is very clever student. home. She studies and does her home-work. She also helps her mother. She wakes up a quarter to six. She makes tea. at seven o'clock, She goes to school, in class, She asks and she gives answers. azizi gets prize ever

---

GOOD (61-80) C.G.

1c azee is very clever student. (home. she she shes and does her (ne-work. she studies helps her (er she wake she also hel goe goes (schoae and she gres onsures Azi (every year.

azieb is verry clever student. at home, she studies and does her home-wokes up a quarter to six. she makes tea at seven a clock, she goes to school. in class, she asks and she gives answers. azieb gets prize everry

---

FAIR (41-60) S.G.

(2a) azieb is verry clever student at home, she and does her home-work. she also helkes h k. she wakes up a quarter to six. she makes. seven o'clock, she goes to school. in class she asks she gives answers azieb gets prize ev ery year.

(2b)

azieb is very clever student. at home, she studies and does her home-w she also helps her mother. she work quarter to six. she makes tea. at seven o' cl goes to school. in class, she asks and she answers. azieb gets prize every year.

GOOD (61-80)

S.G.

(2c) Azieb is very clever student. at home, she es and does her home work. she aeso helps other. she wakes up a quarter to six. she kes tea. at seven o'clock. she goes to cl m class. she asks and she gives ans azieb gets prize every year.

(2d) azieb is very clever student. at home, studies and does hes home-work. she als her mother. she wakes up a quarter to makes tea. at seven o'clock, she goes to cl m class. she asks and she gives ansrs azieb gets prize every year.

VERY GOOD (81-90)

S.G.

(2e) azieb is very clever student at she studies and does her home work also helps her mother. she wakes quarter to six she makes tea at s clock she goes to school cl m class asks and she gives answers azieb g prize every year.

(f) Azieb is very clever student. At home. she and does her home work. she also helps her m she wakes up a quarter to six. she mai At seven o clock. she goes to school. cl m cla asks and she gives answers. Azieb gets prize.

4.1.2 ANALYSIS OF ERRORS IN HANDWRITING

The data obtained from the 90 handwriting samples written by children in grade five are examined to determine wheather there is significant difference between the Control and Study groups in making errors during the copying task of specimens given in the post-test.

Table 17 (see appendix) show that children made most frequent error in forming the letter i. The error occurred due to the ommission of the dot over it. As a result i was confused with a carelessly made lower case c (*c*). A second most frequent error appeared in the letter r. Because children failed to flatten properly the rightside shoulder of the letter, several malformations occurred and the letter resembled poorly made small n (*n*), capital M (*M*), lower case u(*u*) and undotted i(*ı*).

Errors in s, t, o, a, l and f were also very frequent. The undercurve in s was by mistake overcurved. In consequence, the sharp-top distinctive feature of s became oval and it was thus mistaken for corruptly made small a(*a*). Other deficiencies were *s*, *s*, and *s*. The letter t was another source of error making. Omission of the plus stroke on it made it look like undotted i (*ı*) or l whose loop is closed (*l*).

Letters o and a were susceptible to error making. Errors in these letters happened because children omitted the little flick to the base in a and it was confused with small o without the little flick on the top (o). Others

placed the flick in o to the bottom instead on to the top and o was mistaken for a. Moreover, a and o were left open on the top and resembled badly made small u (ω). The letter a left open on the top looked like c and undotted i joined (ω).

Incorrectly made l resembled e or vice-versa. The defect occurred largely due to incorrect relationship in size between the two letters. Children descended the base of b below the line and it looked hanging down. Children on the other hand made the descender in f stand on the line. Consequently, b and f were mistaken for each other. Letters m and v were least susceptible to error making for the Control groups. The incidence of this error did not happen to the Study groups. m was confused with n. This error occurred due to incorrect perception of the combination of strokes in m and n. The hump that starts v was undercurved and v resembled small u (ω).

Descenders were frequent source of illegibility. In many instances, the descenders stood on the base line they ought to cross. Another cause of illegibility was improper spacing. Writing of some children was cramped between letters on one hand and between words on the other. Neatness was still another concern for legibility. Untidy erasures and blotches thus caused readability difficult. Added to this, children made errors in looping, e closed in its loop looked like undotted i or small c (ε). l closed in its loop was confused with t without the plus on it. g closed

in its lower loop was mistaken for q with its lower loop closed. Although it counted for a small proportion of errors, alignment was also a concern for readability. Some children did not carefully rest letters or words on the line. Consequently, the quality of readability was lessened.

To sum up the explanation, quality of writing was highly related to freedom from error making. The Study groups whose writing was relatively of higher quality made only 99 errors, while the Control groups whose letter formation was not well controlled made 296 errors of all types which is three times that of the Study groups. In general, the Control groups were more prone to error than were the Study groups.

4.2 DISCUSSIONS

As pointed out previously, the Control and Study groups had similar performance in writing before the beginning of the experiment. Moreover, statistical computations indicate that there was no significant difference between the two groups in performance in the pretest. The results obtained from the post-test, however, show clearly that there is a significant difference between the Control and Study groups. This means that the Study groups performed better than the Control groups in writing cursively. Why did the Study groups perform better than the Control groups? To find a genuine answer, it is felt necessary to discuss the observations noted down during the experimental period.

Though teachers of the Study groups seemed to have a problem to implement the principles and procedures of the Global Method for the first two weeks, beginning from the third week a change was taking place in favour of the Global Method. Teachers seemed to have gained experience and thus they emphasized individual improvement rather than conformity. They set up a variety of purposes which helped children practise handwriting meaningfully. Handwriting was used as a tool of communication and not as an isolated, meaningless drill period. Due attention was given to the level of attainment of individual child. Moreover, teachers encouraged and preserved a pleasant atmosphere in the room where teacher- student relationship was friendly established. As a result, children developed a positive attitude to the writing task.

Self-evaluation was regarded as an aid to perceptual development, as a basis for acquisition of the necessary motor skills and as a source of motivation for further practice and progress. Teachers collected errors made by children and a DIAGNOSTIC CHART was set up. Using this chart as a framework of reference, children were able to diagnose and remedy their handwriting difficulties. The chart was workable because it contained identified faults with their corresponding remedies. Besides, a CLASS GOAL-FILING CHART was provided. Given this self-help chart, every child was exploring a smaple with which his own work could be matched. Below each sample was a pocket in which a

child filed his written works. Because the charts enabled children to check themselves on specific weaknesses, they were imbued with enthusiasm and self-assurance of success.

On the whole, feedback was used as a technique in learning to handwrite because it permitted children to detect defects and remedy them instantly. With the increase of a supporting atmosphere, the Study groups were observed developing a steady growth in interest,motivation, confidence and involvement. Thereupon, they made a continuous progress in handwriting.

The learner was the principal factor for the Global Method and it was adapted to the latent capacity of the learner. For purposes of using handwriting as a means of communication, there was an intimate relationship between the act of writing and meaning. Briefly, the objective of teaching handwriting was to enable every child to write legibly and fluently in a minimum amount of time. To this effect, teachers made an effort to consider speed of writing and step it up a good deal without sacrificing a reasonable degree of legibility. Children were encouraged to produce handwriting of good quality at an acceptable speed. Care was always taken to keep speed consistent with legibility.

The situation with the Control groups was completely different. After the third week, the interest of children was declining because handwriting periods became routine pattern. Imitation and repetition was unduly pressed. Handwriting was used as an isolated and meaningless drill

period. In other words, the act of writing and meaning remained separate in the child's experience. Children were observed copying handwriting specimens repeatedly without apparent purpose for writing, of course. These endless and meaningless drill exercises dulled children's desire to handwrite. In consequence, their performance was not as good as that of the Study groups. Moreover, individual difference was disregarded. Errors in forming letters were, indeed, very frequent, but self-evaluation was not encouraged. Instead, teachers were giving corrections to the entire group.

Classroom atmosphere was not as warm as that of the Study groups. Consequently, teacher-student relationships was almost divorced. In such an environment, children's interest, motivation, confidence and involvement was moderate. Furthermore, the number of participants in the Control groups was decreasing from week to week, whereas in the study groupsit was relatively stable.

In sum, the Study groups had a handwriting programme geared to the individual characteristics and needs. Children were thus zealously involved in the act of writing. The control groups, however, had a handwriting programme adjusted to merely copying of handwriting specimens which caused children's interest to handwrite diminish with fatigue. Because of the different experimental methods used in the instruction, the two groups performed differently in the post-test, i.e., the Study groups who were taught through the Global Method showed better results than the Control groups

who received instruction through the Synthetic Method, for in the words of Trauger:

> Exercises are most successful when associated with a project in which children want to write well, and when the teacher's advice is specific. Traditional exercises usually deteriorate into purposeless copying and produce little improvement. (1963:91-2)

4.3 SPEED AND PERFORMANCE

The post-test was decided to be 45 minutes long. Using a stop-watch, the time a child completed the test was recorded. Table 19 (see appendix) presents the raw data for speed. The respective means computed for the Control and Study groups are 11.8 and 14.22 letters per minute. This shows that the Study groups wrote faster than the Control groups. Moreover, no child in the Control groups wrote more than 15 letters per minute; whereas in the Study groups 3, 2 and 14 children wrote 16, 17 and 19 letters per minute, respectively.

CHAPTER FIVE

FINDINGS

Statistical findings of the experiment are outlined in this section.

5.1 FINDINGS RELATED TO THE TEST RESULTS

To decide whether the Control and Study groups had a significant difference in writing performance in the pretest, the value of t is computed at .05 level of confidence.

Table 10: Statistical Results between the Control and Study groups for the pretest.

	1A				2A			
	$\bar{X}_1-\bar{X}_2$	Sp	t-cal	t-tab	$\bar{X}_1-\bar{X}_2$	Sp	t-cal	t-tab
1B	0.33	13.03	0.09	2.01	0.43	13.79	0.12	2.02
2B	0.49	14.36	0.12	2.01	0.59	15.08	0.14	2.02

Table 10 consists of the significance difference of the pretest results at .05 level of confidence. 1A of the Control groups was paired with 1B of the Study groups; 2A of the Control groups with 1B of the Study groups; and 2A of the Control groups with 2B of the Study groups. Table 10 thus indicates that t-caluclated in all cases is less than t-tabulated. This, in other words, means that there was no significant difference between the Control and Study groups in writing performance at the beginning of the experiment.

Table 11: Statistical Results between the Control and Study groups for the post-test

	1A				2A			
	$\bar{X}_1 - \bar{X}_2$	Sp	t-cal	t-tab	$\bar{X}_1 - \bar{X}_2$	Sp	t-cal	t-tab
1B	10.09	9.93	3.39	2.02	9.99	11.11	3.00	2.02
2B	9.97	10.20	3.26	2.02	9.87	11.35	2.90	2.02

Table 11 presents the significance difference of the post-test results. 1A of the Control groups was paired with 1B of the Study groups; 1A of the Control groups with 2B of the Study groups; 2A of the Control groups with 1B of the Study groups; and 2A of the Control groups with 2B of the Study groups, Inspection of table 11 therefore shows that the value of t-calculated for each pairing is greater than the value of table t. This indicates that there is a significant difference between the Control groups and the Study groups. It is evident from this study that the Study groups performed better than the Control groups in writing cursively in the post-test. The significant difference is the result due to the use of different experimetnal methods of instruction: the Global Method Versus the Synthetic Method.

5.2 FINDINGS RELATED TO ERRORS IN HANDWRITING

Table 17 (see appendix) ranks letters in order of difficulty as observed by frequency of errors for the Control groups. The letters are i, r, s, t, o, a, l, f, b, m, v and e.

The sum of errors of the Control groups is 206 (89 for males and 117 for females) and the sum of errors of the Study groups is 74 (32 for males and 42 for females). This shows that the number of errors made by the Control groups exceeds the number of errors made by the Study groups by 132.

To determine the significant difference of variation between sexes in making errors and between error types made by children, F-test is conducted.

Table 12: Analysis of Variance between Sexes in Error making and between Error types.

SOURCE OF VARIATION	C.G		S.G	
	F-cal	F-tabl	F-cal	F-tab
VARIATION BETWEEN SEXES	0.18	4.89	0.14	4.82
VARIATION BETWEEN ERRORS	0.13	2.82	0.30	2.82

Now referring to table 13, we find that F- calculated in all situations is less than F- tabulated for 1 and 11 degrees of freedom at .05 level of confidence. Inspection of table 13 reveals that there is no significant difference of variation between sexes in error making, or between error types made by children in both groups.

Table 13: Differences between the Control and Study groups in making Errors in Letter formation.

ERRORS MADE BY	Z-cal	Z-tab
C.G. AND S.G.	3.36	1.96
BOYS & GIRLS(C.G.&.S.G)	0.39	1.96
BOYS & GIRLS (C.G.)	0.47	1.96
BOYS & GIRLS (S.G.)	0.15	1.96

The Control groups were compared with the Study groups; boys of the Control groups combined with boys of the Study groups were paired with girls of the Control groups combined with girls of the Study groups; boys of the Control groups with girls of their own groups; and boys of the Study groups with girls of their own groups.

To see a significant differene between the paired groups in making errors in letter formation, Z-test at .05 level of confidence is worked out. Examination of table 14 shows that Z-observed for the Control and Study groups is greater than the critical value of Z. This means that there is an apparently significant difference between the Control and Study groups in making errors. This indicates that the Control groups were more prone to making errors than were the Study groups.

For the rest, Z-calculated is less than Z-tabulated. This shows that there is no significant difference between boys and girls in error making. Hence, sex cannot be considered a variable for the significant difference observed between the Control and Study groups.

Table 18 (see appendix) ranks the components of handwriting in order of difficulty as shown by frequency of errors for the Control groups. These are descenders, spacing, neatness, looped letters and alignment. Whereas the sum of errors for the Control groups is 90 (33 for males and 57 for females), that of the Study groups is 25 (10 for males and 15 for females). The number of errors made by the Control

groups is 3.6 times greater than the number of errors made by the Study groups.

Table 14: Difference between the Control and Study groups in making Errors in Descenders, Spacing, Neatness, Looped letters and Alignment.

ERROS MADE BY	Z-cal	Z-tab
CONTROL & STUDY GROUPS	3.92	1.96

Table 16 reveals that there is a significant difference between the Control and Study groups for Z-calculated is greater than Z-tabulated at .05 level of confidence. Again, this means that the Control groups made more errors than the Study groups did.

5.3 FINDINGS RELATED TO PERFORMANCE AND SPEED

In this section the degree of relationship between handwriting performance and speed is examined.

Table 15: Correlation Analysis for performance and Speed of the Control and Study groups.

	CONTROL GROUPS				STUDY GROUPS			
	$\bar{X}$	SD	CV	rxy	$\bar{X}$	SD	CV	y
PERFORMANCE	87.25	9.85	0.11	-0.37	80.00	11.87	0.15	-0.26
SPEED	52.50	31.30	0.60		80.00	32.63	0.40	

As shown in table 17, -0.37 and -0.26 are the values of r_{xy} (correlation coefficient) computed for the relationship between performance and speed of the Control and Study groups, respectively. The negative values of r_{xy} show

negative correlation between performance and speed of both groups. Assuming that -1 and 1 are the absolute limits of normal correlation, the correlation coefficient worked out for the relationship between performance and speed of the Control groups is nearer to -1 than that of the Study groups. This means that the degree of relationship between performmance and speed of the Control groups is negatively stronger than that of the Study groups.

Assuming that 25% is the normal boundary of variation, i.3., less than 25% and greater than 25% show little variation and wider variation, respectively, the values of variation computed for children's performance and speed indicate that there is little variation among children of both groups in performance as well as in speed. Moreover, from the means shown in table 17, it is noticed that speed in the Control groups lags far behind performance, whereas in the Study groups speed and performance are closely related.

Table 16: Correlation Analysis for performance and Speed of Boys and Girls.

		B O Y S				G I R L S			
GROUP		$\bar{X}$	SD	CV	rxy	$\bar{X}$	SD	CV	rxy
C.G.	PERFOR-MANCE	83.42	8.75	0.10	-0.35	90.71	9.55	0.10	-0.29
	SPEED	58.16	27.43	0.47		48.71	14.95	0.31	
S.G.	PERFOR-MANCE	77.17	9.31	0.12	-0.06	82.41	13.22	0.16	-0.04
	SPEED	86.74	32.26	0.37		75.74	32.08	0.42	

Table 18 shows that the value of correlation coefficient calculated for the degree of relationship between performance and speed of boys or girls is negative. The correlation between performance and speed of boys in each group is nearer to -1. This means that the amount of relationship between performance and speed of boys is negatively stronger than that of girls in their respective groups.

CHAPTER SIX

CONCLUSIONS AND RECOMMENDATIONS

6.1 CONCLUSIONS

The main conclusions that may be drawn from the study are that:

6.1.1 the Global Method is more effective than the Synthetic Method in the teaching of handwriting;

6.1.2 there is no significant difference of variation between boys and girls of both the Control and Study groups in making errors;

6.1.3 there is no significant difference between error types made by children of both groups;

6.1.4 children in the Study groups write significantly more rapidly than children in the Control groups;

6.1.5 girls write faster than boys in both groups;

6.1.6 speed in the Control groups lags for behind performance, whereas in the Study groups speed and performance develop vis-a-vis; and that

6.1.7 there is little variation among children of both groups in performance as well as in speed.

6.2 RECOMMENDATIONS

Based on the findings, it is recommended that:

6.2.1 the teaching of handwriting through the Synthetic Method be substituted by the Global Method; and that

6.2.2 speed of writing be considered and stepped up always to a good deal without sacrificing a reasonable degree of legibility.

BIBLIOGRAPHY

Afolyan, Adebisi, Teaching Primary English. Longman, 1980.

Anderson, Dan W. "Handwriting Research: Movement and Qaulity," Elementary English, XXXXI (January, 1965): 45-52.

Askov, Eunice et al. "A Decade of Research in Handwriting: Progress and Prospect," The Journal of Educational Research, 64 (November, 1970): 101-109.

Braddock, Richard et al. Research in Written Composition. Champaign, Illinois: National Council of Teachers of English, 1963.

Bright, John. Handwriting: Teacher's Book. London: Cambridge University Press, 1976.

Burns, Paul C. & Lowe, Albert L. The Language Arts in Childhood Education. Chicago: Rand Nally and Company, 1966.

Carver, Clifford. Oxford Junior Workbook 3. (unpublished).

Chater, Pauline. Marking and Assessment in English. London: Methuen, 1984.

Cohen, Dorothy H. The Learning Child. New York: Pantheon Books, 1972.

Deighton, Lee C. (ed.) The Encyclopedia of Education. Vol. 4, The Macmillan Company & The Free Press, 1971.

English Panel- English Curriculum: Grades 3-8. (Revised) Addis Ababa: EMPDA, 1982.

English Panel- English For New Ethiopia: Teacher's Guide, Grade 5. Addis Ababa: EMPDA, 1983.

English Panel- English For New Ethiopia: Pupils Book, Grade 5. (Revised) Addis Ababa: EMPDA, 1985.

English Panel-English For New Ethiopia: Pupil's Book, Grade 4. (Revised) Addis Ababa: EMPDA, 1983.

English Panel- English For New Ethiopia: Pupil's Book, Grade 3, Addis Ababa: EMPDA, 1981.

Enstrom, E.A. "After Manuscript Writing - When shall we begin Cursive ?" The Elementary School Journal, 61 (October, 1960): 25-27.

Enstrom, E.A. "Print Handwriting Today," Elementary English, XXXXI (December, 1964): 846-850.

Enstrom, E.A. "Research in Handwriting," Elementary English, XXXXI (December, 1964): 873-876.

Enstrom E.A. "Those Questions on Handwriting," The Elementary School Journal, 69 (March, 1969): 327-332.

Enstrom, E.A. & Enstrom, Doris C."Teaching for Greater Legibility," Elementary English, XXXXI (December, 1964): 869-872.

Ferebee, Burrows & Saunders, Jackson. "Handwriting," in James A.Smith et al. Creative Teaching of the Language Arts in the Elementary School. Boston: Allyn & Bacon, Inc., 1967.

Foerster, Leona B. "Let's Be Realistic About Handwriting," Elementary English, 51 (May, 197): 741-742.

Good, Carter V. (ed.) Dictionary of Education. 3rd ed. New York: McGraw-Hill Book Company, 1973.

Grant, Margaret. School Methods with Younger Children: A Handbook for Teachers in Africa. 4th ed. London: Evans Brothers Ltd., 1978.

Gray, Williams S. The Teaching of Reading and Writing: An International Survey. Unesco, 1956.

Gulliford, Ron. Teaching Children with Learning Difficulties. Nfer-Nelson, 1985.

Halpin, Glennelle & Halpin, Gerald. "Special Paper for Beginning Handwriting: An Unjustified Practice?" The Journal of Educational Research, 69 (March, 1976): 267.

Hanson, Irene W. "Teaching Remdial Handwriting," Language Arts, 53 (April,1976): 428-429.

Hayes, David. "Handwriting Practice: The Effects of Perceptual Prompts," The Journal of Educational Research, 75 (January/February,1982): 169-171.

Heaton, J.B. Writing English Language Tests. Longman, 1975.

Herrick, Virgil E. "Children's Experiences in Handwriting," in Virgil E. Herrick & Leland B. Jacobs (eds.) Children and the Language Arts. Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1955.

Hewett, Frank M. & Forness, Steven R. Education of Exceptional Learners. 2nd ed. Boston: Allyn and Bacon, Inc., 1977

Hubbard, Peter et al. A Training Course For TEFL. Oxford: Oxford University Press, 1983.

Huey, J. Francis. Teaching Primary Children. New York: Holt, Rinehart and Winston, Inc., 1965.

Jameson, Marshall C. & Hicks, Wm. Vernon. Elementary Curriculum: From Theory to Practice. New York: American Book Company, 1960.

Jarman, Christopher. The Development of Handwriting Skills: A Book of Resources for Teachers. Basil Blackwell, 1979.

Jarman, Christopher. Handwriting Skills: Copybook 1. Basil Blackwell, 1982.

Jarman, Christopher. Handwriting Skills: Copybook 3. Basil Blackwell, 1982.

Klausmeier, Herbert J. & Dresden, Katharine. Teaching in the Elementary School. 2nd ed. New York: Harper & Brothers, 1962.

Kochhar, S.K. Methods and Techniques of Teaching. New Delhi: Sterling Publishers Pvt. Ltd., 1984.

Lado, Robert. Language Teaching: A Scientific Approach. New York. McGraw- Hill, Inc., 1964.

Ladousse, Gillian Porter. Speaking Personality: Quizes and Questionnaires for Fluency Practice. London: Cambridge University Press, 1983.

Logan, Lillian M. & Logan, Virgil G. Teaching the Elementary School Child. Boston: Houghton Mifflin Company,1961.

Lauriana, Mary. "Ten Commandments of Good Handwriting," Elementary English, XXXXI (December, 1964): 854-858.

Layton, James R. The Psychology of Learning to Read. New York: Academic Press, Inc., 1979.

Mackay, David & Simo, Joseph. Help Your Child to Read and Write and More. Penguin Book Ltd., 1976.

Mckeown, Pamela. Reading: A Basic Guide for Parents and Teachers. London & Boston: Routledge & Kegan Paul Ltd., 1974.

McLean, Alan C. Gateway English for Bahrain: Language Book 1. Longman, 1984.

Myers, Emma Harrison. The Whys and Hows of Teaching Handwriting. Columbus, Ohio: Zaner-Bloser, 1963.

Myer, Oscar N. The Language of Handwriting. London: Peter Owen Ltd., 1958.

Osley, A.S. Mercador. New York: Watson-Guptil Publications, 1969.

Panchal, M.R. Teaching of English. 3rd ed. New Delhi: Vani Educational Books, 1984.

Parnwell, E.C. Oxford English Picture Dictionnary. Oxford University Press, 1977.

Petty, Walter T. "Handwriting and Spelling: Their Current Status in the Language Arts Curriculum," Elementary English, XXXXI (December, 1964): 839-844.

Regan, William B. & Stendler, Celia B. Modern Elementary Curriculum. 3rd ed. New York: Holt, Rinehart and Winston. 1966.

Roberts, Geoffrey R. English in Primary Schools. London and Boston: Routledge & Kegan Paul Ltd., 1972.

Rubin, Dorothy, Teaching Elementary Language Arts. 3rd ed. New York: Holt, Rinehart & Winston, 1985.

Seefeldt, Carol. Teaching Young Children. Englewood Cliffs, New Jersey: Prentice- Hall, Inc., 1980.

Shane, Harold G. et al. Improving Language Arts Instruction in the Elementary School. Columbus, Ohio: Charles E. Merril Books, Inc., 1962.

Smith, Peter & Inglis, A. New Neso Handwriting. Thomas Nelson & Sons Ltd., 1984.

Sorensen, Mailou R. "Write on! Creative Handwriting in the Classroom." Language Arts, 54 (March,1977): 294-296.

Tidyman, William F. & Butterfield, Marguerite. Teaching the Language Arts. New York : McGraw Hill Book Company, Inc., 1959.

Trap-Porter, Jannifer et al. "D'Nealian & Zaner-Bloser Manuscript Alphabets & Initial Transition to Cursive handwriting," The Journal of Educational Research, 77(July/August, 1984): 343.

Trauger, William K. Language Arts in Elementary Schools. New York: McGraw-Hill Book Company, Inc. 1963.

Veatch, Jeannette. Reading in the Elementary School. New York: John Wiley & Sons, 1978.

Wolff, Werner. Diagrams of the Unconscious. New York: Grune & Stratton, 1948.

APPENDIX A

PRETEST
(C.G. AND S.G.)

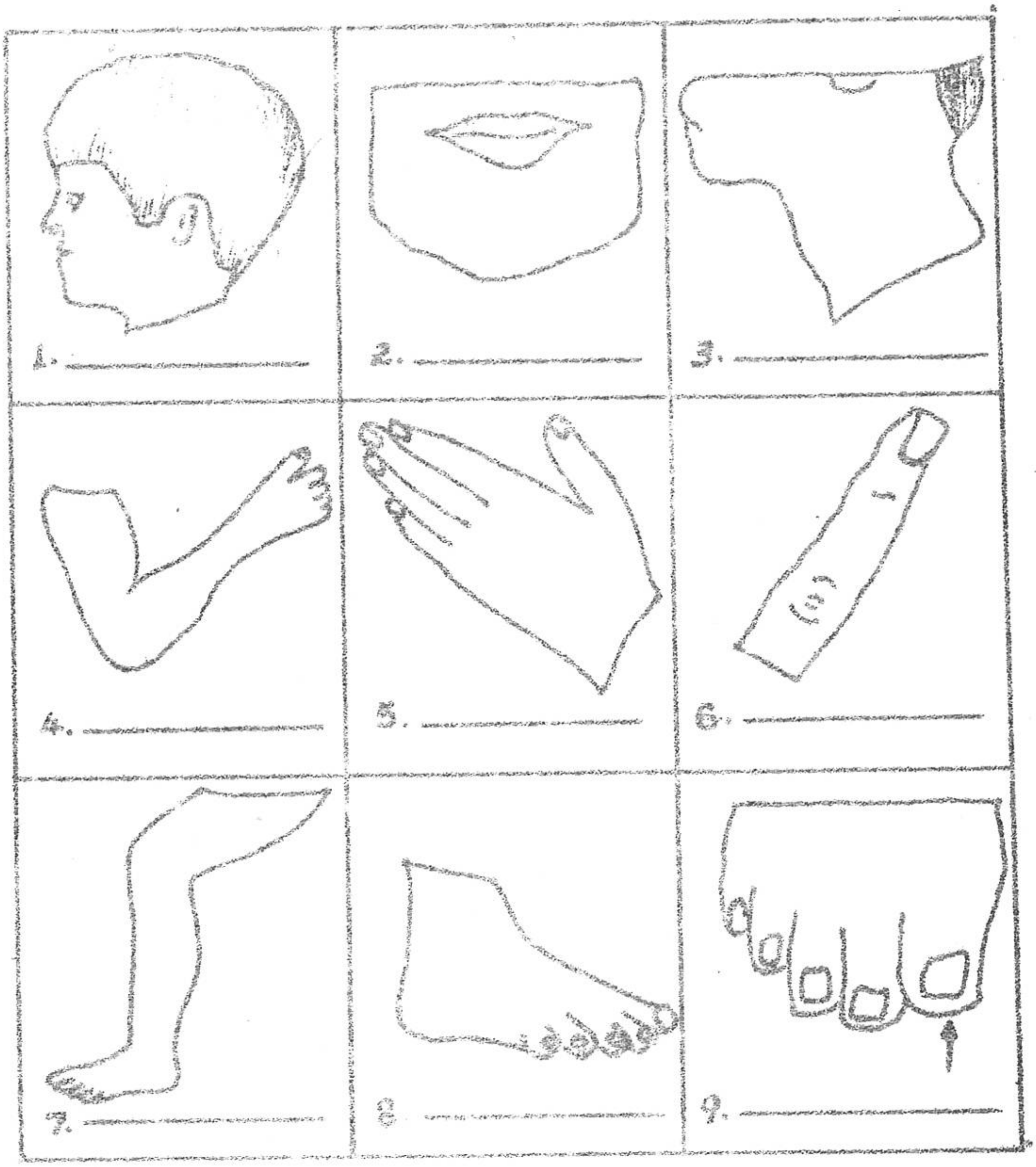


Fig. 8

PART ONE (ክፍል አንድ)

Match the names of the parts of the body with the pictures. (ቀጥሎ የተሰጡትን የአካላት ክፍሎች ስም ከስዕሎቹ ጋር አዛምድ።)

- head
- mouth
- neck
- arm
- hand
- finger
- leg
- foot
- toe

Adapted from Alan C. McLean, in *Gateway English for Bahrain*. Longman 1984:20.

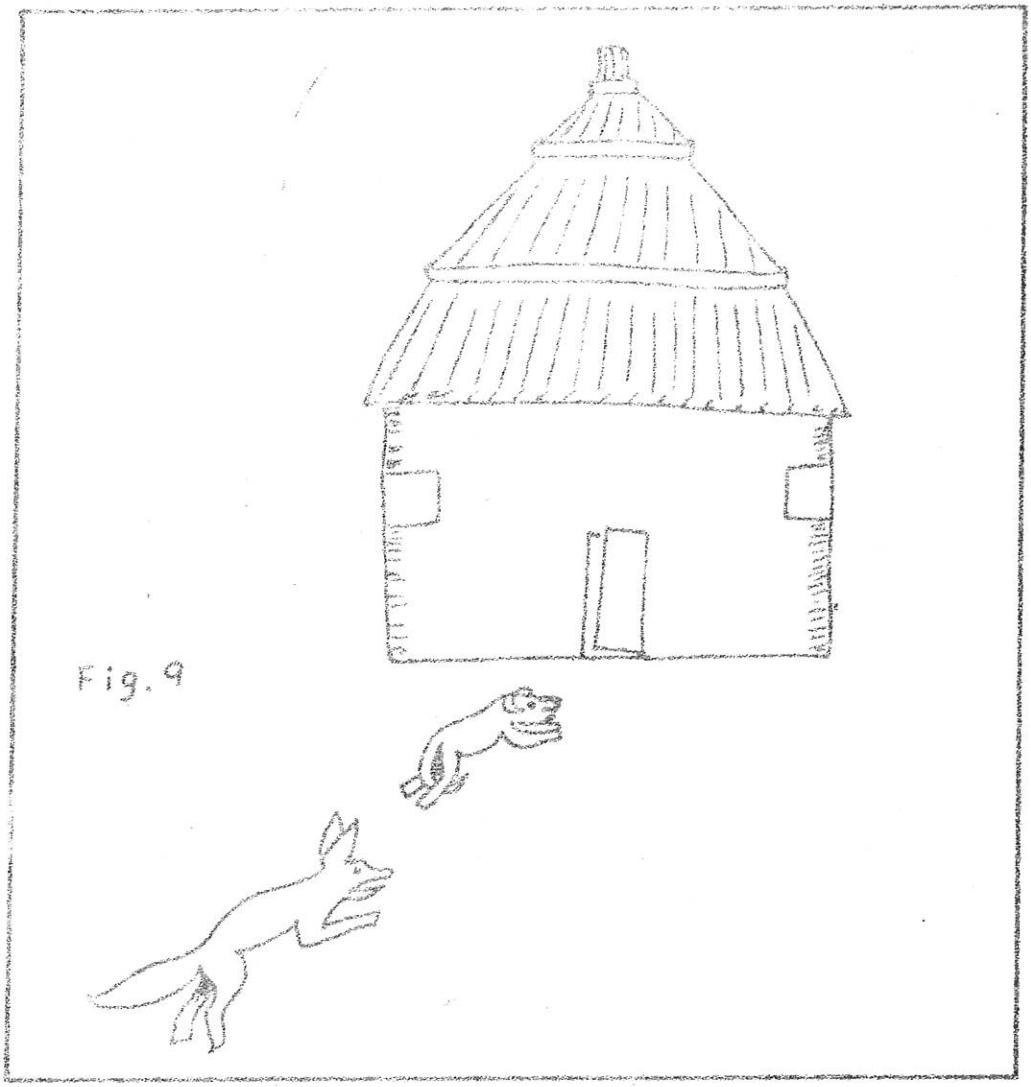


Fig. 9

PART TWO (ክፍል ሁለት)

Copy the following into your paper.
(የሚከተለውን ጽሑፍ በፈተና ወረቀት ላይ ጻፍ::)

My hut is built of mud. Its roof is covered by dry grass. It has one door and two windows. I have a lazy dog. When it sees a fox, it quickly jumps and enters the hut.

APPENDIX B

MATERIAL ON CURSIVE WRITING

Letter-Families

For purposes of economy and convenience, letters in the cursive alphabet are grouped by families according to common writing elements. The classification of lower-case cursive letters made by Huey (1965:278-9) is thus observed.

Assumptions

After reviewing the English Curriculum (Grades 3-8), the following assumptions are established in preparing the materials. In general, children in grade five are expected:

1. to have a fair store of English vocabulary,
2. to have mastered the manuscript forms, and
3. to have developed enough coordination to make cursive writing.

APPENDIX B.1

THE GLOBAL METHOD

LESSON ONE (Week-1)

1. Aim

To teach children how to write letters beginning with a low overswing:

a d c o g q

2. Procedure

a) The teacher presents a picture to the class. The name of the picture is written twice: one in manuscript and the other in cursive forms. The name begins with the letter to be taught.

EXAMPLE

cat  *cat*

Cat *Cat*

b) The teacher reads the word twice while the class listens.

c) Children repeat

- whole class
- group, and
- individuals

REMEMBER: The teacher checks if the letter is correctly pronounced.

d) Oral Work:

Teacher: Call words that contain the letters.

REMEMBER: The position of the letter can be initial, medial or final.

Children: car, cow, cup. etc.

e) Description

The teacher writes such words on the board and describes the movements of the letter:

- starting point
- direction, and
- ending point

Children write the words for two minutes.

f) Comparison

The teacher writes the letter in isolation on one side of the board and the other letters in the group on the other side of the board and the following are discussed:

- similarities
- differences

3. Practice

Children: are copying the letter.

Teacher: gives individual guidance.

4. Evaluation

Children:

- Compare their written works with the model.
- Locate malformations.
- Make self-corrections.

Teacher:

- Supervises and helps

REMEMBER: Children are helped

- to perceive that these letters are basically oval in form.
- to close all but c on the top.

5. Homework

Teacher: Write five words that contain the letter. The word can be the name of:

1. a person
2. a place
3. an animal
4) the day of the week
5) a month, etc.

6. Activity (Fourth period)

Teacher: Write two c's and close them.

Add a flick to the bottom of one c.

Add a flick to the top of the second c.

Question: What are the letters formed ?

Children: a and o

Teacher: Add an ascender to the closed c.

Question: What is the letter formed ?

children: d

Teacher: Add a descender to the closed c.

Question: What is the letter formed ?

Children: g or q without loops.

Teacher: How do you loop the two letters?

Children: g to the left and q to the right.

LESSON TWO (Week-2)

1. Aim:

To teach children how to write letters beginning with a hump:

m m n h k b

2. Procedure

a) The teacher shows the class a picture. The name of the picture is written twice: one in manuscript and the other in cursive forms. The name begins with the letter to be taught.

EXAMPLE

monkey  *monkey*

Monkey *Monkey*

b) The teacher reads the whole word twice while the class listens.

c) Children repeat

- whole class,
- group, and
- individuals.

REMEBER: The teacher checks if the letter is correctly pronounced.

d) Oral Work:

Teacher: Call words that contain the letter.

REMEMBER: The position of the letter can be initial, medial or final.

Children: moon, man, mud, etc.

e) Description

The teacher writes such words on the board and describes the movements of the letter:

- starting point,
- direction, and
- ending point.

Children write the words for two minutes.

f) Comparison

The teacher writes the letter in isolation on one side of the board and the other letters in the family on the other side of the board and the following are discussed:

- similarites
- differences.

3. Practice

Children: are copying the letter.

Teacher: gives individual help.

4. Evaluation

Children:

- Compare their written works with the model.
- Locate malformations
- Make self- corrections

Teacher:

- Supervises and helps.

REMEMBER: Children are helped

-to perceive that letters in this family are basically round in shape.

5. Homework

Teacher: Write five words that contain the letter taught. The word can be the name of:

1. a numeral
2. furniture
3) cereal crop
4) a river
5) a town

6. Activity (Fourth period)

Teacher:

Add the following to form words.	Children:
1) o+x	ox
2) d+o	do
3) z+o+o	zoo
4) c+a+n	can
5 m+y	my

LESSON THREE (Week-3)

1. Aim

To teach children how to write letters beginning with a low underswing:

2. Procedure

a) The teacher demonstrates a picture to the class.

The name of the picture is written in two forms: manuscript and cursive. The name begins with the letter to be taught.

EXAMPLE

pig

pig

Pig

Pig

b) The teacher reads the word twice while the class listens.

c) Children repeat

- whole class,
- group, and
- individuals.

REMEBER: The teacher checks if the letter is correctly pronounced.

d) Oral Work:

Teacher: Call words that contain the letter.

REMEMBER: The position of the letter can be initial, medial or final.

Children: pen, put, push, etc.

e) Description

The teacher writes such words on the board and describes the movements of the letter:

- starting point,
- direction, and
- ending point

Children write the words for two minutes.

f) Comparison

The teacher writes the letter in isolation on one side of the board and the other letters in the group on the other side of the board and the following are discussed:

- similarities
- differences.

3) Practice

Children: are copying the letter.

Teacher: gives individual help.

4) Evaluation

Children:

- Compare their written works with the model.
- Locate malformations.
- Make self-corrections.

Teacher:

- Supervises and helps.

REMEMBER: Children **are** helps.

-to perceive that these letters are basically sharp-top letters.

5. Homework

Teacher: Match each name with the liquid in the bottle.

1. milk
2. kerosene
3. ink
4. blood
5. alcohol

6. Activity (Fourth period)

Group -1: What is i without the dot?

Group -2: It is bad c.

Group -3: What is e without the loop?

Group -4: It is c.

REMEMBER: Groups repeat by changing a role.

LESSON FOUR (Week-4)

1. Aim

To teach letters beginning with a high underswing, usually for a loop:

l f h k b t

2. Procedure

a) The teacher presents the class a picture. Its name is written in two forms: manuscript and cursive.

EXAMPLE

bird  *bird*

Bird *Bird*

b) The teacher reads the word twice while the class listens.

c) Children repeat

- whole class,
- group,and
- individuals.

REMEBER: The teacher checks if the letter is correctl pronounced.

d) Oral Work:

Teacher: Call words that contain the letter.

REMEMBER: The position of the letter can be initial, medial or final.

Children: book, table, ball, etc.

e) Description

The teacher writes such words on the board and describes the movements of the letter:

- starting point
- direction, and
- ending point.

Children write the words for two minutes.

f) Comparison

The teacher writes the letter in isolation on one side of the board and the other letters in the group on the other side of the board and the following are discussed:

- similarites
- differences.

3. Practice

Children: are copying the letter.

Teacher: gives individual help.

4. Evaluation

Children:

- Compare their own works with the model
- Locate malformations.
- Make self-corrections.

Teacher:

- Supervises and helps.

REMEMBER: Children are helped

-to know that these letters are basically tail letters.

5. Homework

Teacher: Copy the following dialogue into your exercisebook.

Hana: Good morning.

Adem: Good morning.

Hana: Do you have a dictionary?

Adem: Yes, we have.

Hana: How much is it?

Adem: Ten Birr, please.

Hana: May I see it ?

Adem: Of course, here you are.

6. Activity (Fourth period)

Group -1 : What is a open at the top ?

Group -2 : It is u or c+i without the dot.

Group -3: What is o open at the top?

Group -4: It is u.

REMEMBER: Groups repeat by changing a role.

LESSON FIVE (Week-5)

1. Aim

To teach children the tail letters:

g g y z

2. Procedure

Teacher: Where are the tails of the letters?

Children: Below the base line.

Teacher: How do we loop these letters?

Children: Except q, to the left.

3. Practice

Children: are copying the letters

Teacher: gives individual guidance

4. Evaluation

Children:

- Compare their written works with the model.
- Locate malformations.
- make self-corrections.

Teacher: Supervises and helps

5. Further Practice

Teacher: Name the parts of a plant in the diagram.

Children: root, stem, leaf, flower

Teacher: Match the names of the crops with the pictures.

Children: barley, wheat, maize, lentil, etc.

Teacher: Match the names of colours with the pictures:

Children: red, black, green, blue, orange, yellow brown.

LESSON SIX (Week-6)

1. Aim

To match sentences with pictures.

2. Procedure

Children are presented with a list of pictures and sentences.

3. Practice

Children are doing the exercises such as:

- The quick brown fox jumps over the lazy dog.
- Kebede is thinner than Debebe.
- The ox is eating grass.
- Almaz has a blue sweater.
- These are three camels, and the like.

4. Evaluation

Children:

- Using the diagnostic chart, children explore deficiencies and make self-corrections.
- Using the class goal-filing chart, children find samples that match with their own works.

REMEMBER

Increasing attention is given profitably to the intimate relationship between legibility and speed in every lesson.

APPENDIX.B.2

THE SYNTHETIC METHOD

LESSON ONE (Week-1)

1. Aim

To teach children how to write letters beginning with a low overswing:

a d c o g g

2. Procedure

a) Presentation

The letter is presented with its correct shape written in two forms: [illegible] and cursive.

EXAMPLE

cat	*cat*
Cat	*Cat*

b) Description

The teacher describes the movements:

- starting point,
- direction, and
- ending point.

c) Comparison

Similarities and differences of the letter in relation to the other letters in the group are discussed.

3. Practice

Teacher: Write the letter repeatedly in one page.

Children: Practise the letter to produce it exactly.

4. Evaluation

Teacher: Locates errors.

Provides corrections.

Emphasizes the correct shape of the letter.

5. Further Practice

Teacher: Write the following words ten times each.

cock	chalk	kick	coca
camel	cow	cut	black
car	cattle	catch	cup

LESSON TWO (Week-2)

1. Aim

To teach letters beginning with a hump:

n m r x y z

2. Procedure

a) Presentation

The letter is presented with its correct form written both in manuscript and cursive.

EXAMPLE

monkey	*monkey*
Monkey	*Monkey*

b) Description

The teacher describes the movements:

- starting point,
- direction, and
- ending point.

c) Comparison

Similarities and differences of the letter in relation to the other letters in the family are pinpointed.

3. Practice

Teacher: Write the letter repeatedly in one page.

Children: Practise the letter to produce it correctly.

4. Evaluation

Teacher: Pinpoints malformations.

Gives corrections.

Stresses the correct form of the letter.

4. Evaluation

Teacher: Pinpoints malformations.

Gives corrections.

Stresses the correct form of the letter.

5. Further Practice

Teacher: Write the following words ten times each.

miss	men	arm	mill
jump	women	much	mouse
milk	camel	money	mouth

LESSON THREE (Week-3)

1. Aim

To teach letters beginning with a low underswing:

p i e r s f u w

2. Procedure

a) Presentation

The letter is presented with its correct form writeen in both manuscript and cursive.

EXAMPLE

pig	*pig*
Pig	*Pig*

b) Description

The teacher describes the movements:

- starting point,
- direction, and
- ending point.

c) Comparison

Similarities and differences of the letter in relation to the other letters in the group are identified.

3. Practice

Teacher: Write the letter repeatedly in one page.

Children: Practise the letter to form it exactly.

4. Evaluation

Teacher: Finds deficiencies.

Provides corrections.

Emphasizes the correct form of the letter.

5. Further Practice

Teacher: Write the following words ten times each.

put	open	pail	up
play	paper	potato	pillow
paint	pen	pencil	piece

LESSON FOUR (Week-4)

1. Aim

To teach letters with a high underswing:

l f h k b t

2. Procedure

a) Presentation

The letter is presented with its correct form written in both manuscript and cursive.

EXAMPLE

bird	*bird*
Bird	*Bird*

b) Description

The teacher describes the movements:

- starting point,
- direction, and
- ending point.

c) Comparison

Similarities and differences of the letter in relation to the other letters in the family are noted.

3. Practice

Teacher: Write the letter repeatedly in one page.

Children: Practise the letter to shape it correctly.

4. Evaluation

Teacher: Locates deficiencies.

Provides corrections.

Emphasizes the correct form of the letter.

5. Further Practice

Teacher: Write the following words ten times each.

bad	baby	comb	by
big	bull	brush	climb
better	book	buy	build

LESSON FIVE (Week -5)

1. Aim

To teach the tail letters. *g g y g*

2. Procedure

a) Presentation

The teacher describes:

- how the descenders are formed, and
- how the lower loops are closed.

3. Practice

Teacher: Write the letters correctly.

Children: Practise the letters to form them exactly.

4. Evaluation

Teacher: Pinpoints errors.

Gives corrections.

Emphasizes form.

5. Further Practice

Teacher: Write the following words ten times each.

five	red	carrot	square
eight	brown	banana	circle
nine	yellow	orange	rectangle

LESSON SIX (Week-6)

1 1. Aim

To help children to handwrite sentences.

2. Procedure

a) Presentation

List of isolated sentences are presented.

3. Practice

Teacher: Write the following sentences two times each.

1. The quick brown fox jumps over the lazy dog.
2. We have a thin donkey.
3. Almaz is ugly woman.
4. The eggs are inside the basket.
5. Girma is taller than Kebede.

APPENDIX C POST-TEST

APPENDIX C.1 POST-TEST (CONTROL GROUP)

DIRECTION:

Four parts are given below. Copy each part into your paper. (ከዚህ በታች ኣራት ክፍሎች ተሰጥቷል። እያንዳንዱን ክፍል በተሰጠህ ወረቀት ላይ ጻፍ።)

PART ONE (ክፍል አንድ)

1. hair
2. ear
3. nose
4. eye
5. mouth
6. arm
7. hand
8. finger
9. leg
10. toe

PART TWO (ክፍል ሁለት)

1. elephant
2. horse
3. frog
4. butterfly
5. bird

PART THREE (ክፍል ሶስት)

1. A cow has four legs.
2. The cat is on the box.
3. It is a quarter past five.
4. Here are six oranges.
5. Sara is taller than Almaz.

PART FOUR (ክፍል ኣራት)

Azieb is very clever student. At home, she studies and does her homework. She also helps her mother. She wakes up a quarter to six. She makes tea. At seven o'clock, she goes to school. In class she asks questions and she gives answers. Azieb gets prize every year.

APPENDIX C.2 POST-TEST

(STUDY GROUP)

PART ONE (ክፍል አንድ)

Name the parts of the body in the picture. (ከሥሉ ላይ የተመለከቱትን የሰውነት ክፍሎች ስማቸውን ጻፉ ::)

leg ear nose arm mouth
hand toe finger eye hair

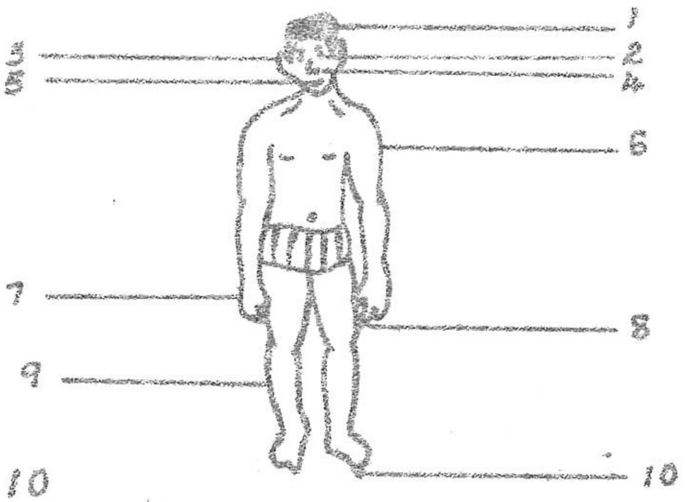


Fig.10

PART TWO (ክፍል ሁለት)

Match the names of the animals with the pictures. (የተሰጡትን የእንስሳት ስሞች ከሥዕሎች ጋር አዛምዱ ::)

bird horse frog
elephant butterfly

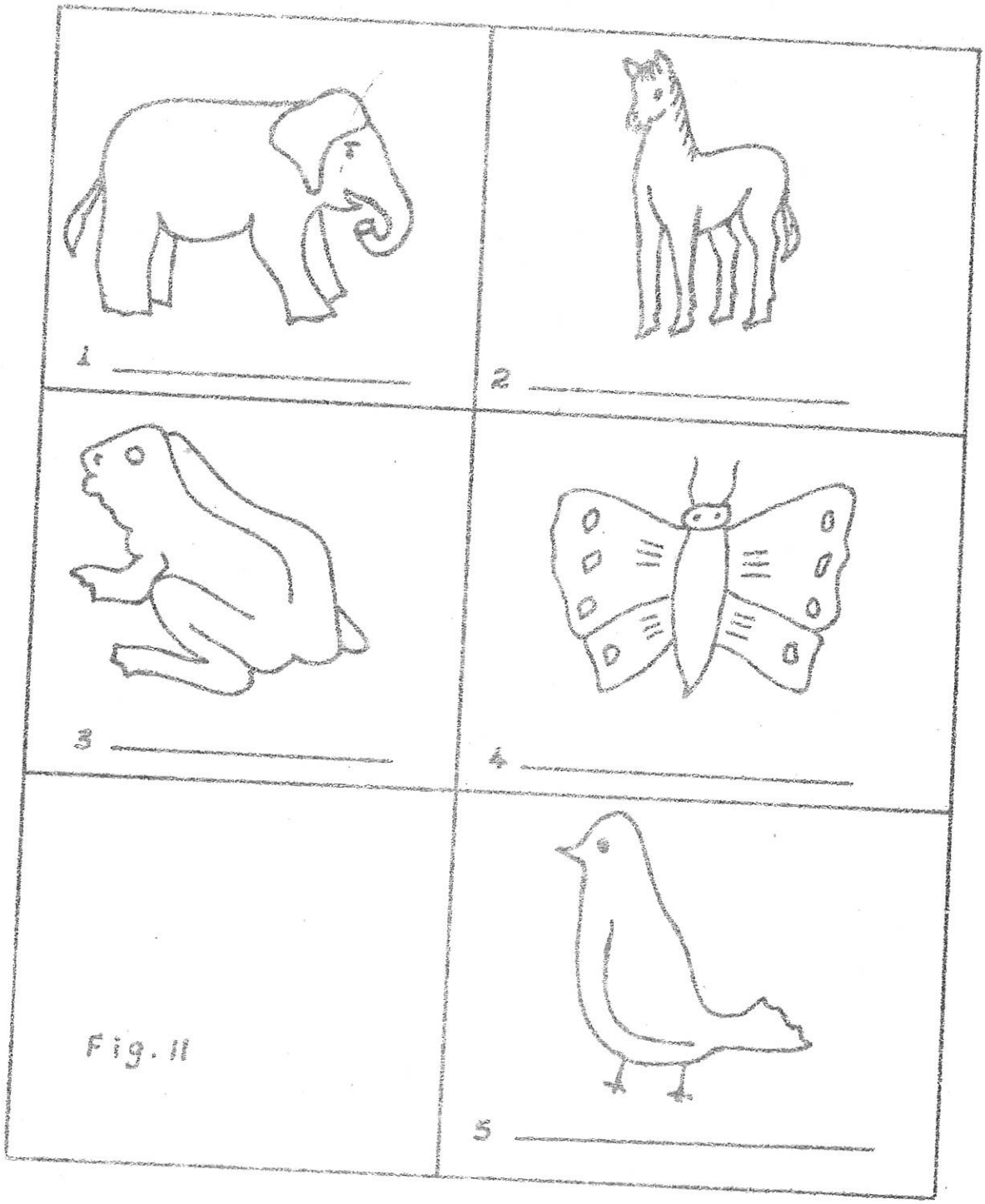


Fig. II

PART THREE (ክፍል ሶስት)

PART FOUR / (ክፍል ኣራት)

Copy the following into your paper.
(የሚከተለውን ጽሑፍ በተጠሚህ ወረቀት ላይ ገልብጥ::)

Azieb is very clever student. At home, she studies and does her homework. She also helps her mother. She wakes up a quarter to six. She makes tea. At seven o'clock, she goes to school. In class she asks questions and she gives answers. Azieb gets prize every year.

Appendix D Frequency of Errors

Table 17

Frequency of Errors for the Control and Study groups in letter formation

GROUP			FREQUENCY OF ERRORS												TOTAL
			i	*r*	*s*	*t*	*o*	*a*	*l*	*f*	*b*	*m*	*n*	*e*	
C. G.	SEX	M	13	9	9	10	8	7	8	8	5	4	4	4	89
		F	14	16	15	12	13	12	8	6	7	6	5	3	117
	TOTAL		27	25	24	22	21	19	16	14	12	10	9	7	206
S. G.	SEX	M	6	4	3	4	3	2	3	5	0	0	0	2	32
		F	8	5	4	6	3	3	3	5	3	0	0	2	42
	TOTAL		14	9	7	10	6	5	6	10	3	0	0	4	74

ppendix E Speed and Performance

able 19: Number of letters written per minute by children of both groups

CONTROL GROUPS								STUDY GROUPS							
1A				2A				1B				2B			
TIME TAKEN	SPEED	PERFORMANCE	SEX	TIME TAKEN	SPEED	PERFORMANCE	SEX	TIME TAKEN	SPEED	PERFORMANCE	SEX	TIME TAKEN	SPEED	PERFORMANCE	SEX
31	12	41	F	36	10	41	F	39	10	43	M	30	12	51	F
27	14	50	F	33	11	41	F	20	19	48	M	22	17	53	M
29	13	50	F	39	10	47	F	37	10	62	M	35	11	58	M
29	13	54	M	32	12	50	F	38	10	63	M	20	19	59	F
37	10	55	F	33	11	50	M	27	14	67	F	20	19	60	F
28	13	55	M	37	10	52	F	31	12	68	M	25	15	62	F
36	10	56	M	36	10	53	M	30	12	68	M	35	11	65	M
29	13	58	M	41	9	57	M	22	17	68	M	23	16	67	M
29	13	58	F	36	10	62	F	20	19	68	M	35	11	69	M
29	13	60	F	31	12	63	M	25	15	69	M	30	12	69	F
28	13	62	F	28	13	63	F	28	13	72	F	40	9	70	F
27	14	62	M	34	11	67	M	32	12	72	M	30	12	70	M
39	10	65	F	34	11	68	F	20	19	73	M	40	9	70	M
37	10	67	F	33	11	68	M	20	19	73	M	20	19	73	M
35	11	70	M	30	12	71	F	27	14	77	F	30	12	74	M
27	14	70	F	29	13	72	F	32	12	77	M	30	12	74	F
30	12	70	M	34	11	75	F	20	19	77	M	24	16	76	M
35	11	73	M	27	14	77	F	20	19	77	F	30	12	78	F
26	14	75	M	32	12	77	M	27	14	78	F	20	19	79	F
35	11	77	M	25	15	77	M	34	11	78	M	30	12	82	M
								35	11	80	F	20	19	82	F
								29	13	80	M	20	19	83	F
								20	19	81	M	35	11	86	F
								23	16	82	F	40	9	89	F
								26	14	87	F	20	19	90	F