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Signature Ellen Nottingham

Date August 13, 1971

MEETING THE WRITING NEEDS OF THE LEFT-HANDED STUDENT

by

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ABSTRACT

This study was conducted to determine what is being done to aid the left-handed student in meeting his writing needs. One class of sixty-two first grade students in the Fort Benton Elementary School was chosen as a study group. There were six left-handed students in the group. Writing samples were collected twice each year until the group had progressed through the fourth grade. An attempt was made to determine when and why so many of these students developed the "hooked-wrist" approach to writing and the writing slant that they used.

Questionnaires included information gained from thirty-nine teachers, kindergarten through grade six, in three elementary school systems in Montana. The information sought was: (a) percentage of left-handed students, (b) sex of these students, (c) their approximate academic ability, (d) methods of presenting penmanship to the class, (e) room environment, (f) attitudes of the teachers toward changing the writing habits of the left-handed student, and (g) adequacy of teacher training programs.

Four of the six left-handed students of the study group wrote with the "hooked-wrist" approach. The hand position habits were formed by the time the students entered the second grade. All of the students used the forward slant or no slant writing. None of the left-handed students wrote with the backslope.

Eighty-nine of 819 students were left-handed. Of the female portion of the population, 10.9 percent were left-handed and 11.2 of the male population. The academic ability of the students were rated by their teachers as follows: 30 percent above average ability, 40 percent average ability, and 30 percent below average.

Most of the teachers did not attempt changing handedness in writing. Initial manuscript writing was, in most cases, introduced to the left-handed first grade and kindergarten students at the chalkboard. Initial cursive writing was introduced at the chalkboard by 40 percent of the teachers and at the student's desks by 40 percent. Others used a combination of desk and chalkboard. More than half of the left-handed students received no specific writing instructions. Backslope handwriting was used by only about 4 percent of writers of manuscript and about 30 percent of writers of cursive.

More than half of the teachers reporting did not have recent and adequate instructional materials for teaching the left-handed student to write. Eighty-five percent of teachers reported that teacher training programs did not prepare them for teaching writing to left-handed students.

Chapter 1

INTRODUCTION

Is the left-handed student being discriminated against in writing instruction? Are his instructional needs being fulfilled? The left-handed student is faced with unusual difficulty in learning to write, not because of his inability to do so, but because he is of a minority group who lives in a right-handed world. Basic instructional procedures are oriented toward the right-handed because of an age old stigma that the right hand is the correct hand to use when writing. This stigma is one of the reasons why the left-handed student has met with such difficulty in getting any recognition or help for his needs. Another reason is because of apathy among many teachers and administrators. They often fail to recognize or admit that such a problem exists and that they have an obligation to these students (Norris, 21:225). The use of instructional procedures and writing materials adapted for the right-handed student would create a handicap for the left-handed pupil which, perhaps, would greatly affect his writing.

Statement of the Problem

The purpose of this study was to determine what is being done to aid the left-handed student in meeting his writing needs. The investigator ascertained the percentage of students who are left-handed, their sex distribution, and academic rating. Teaching approaches were

explored with emphasis on the primary level of instruction where the habits of writing are formed. The study was extended to include whether or not the same perfection of writing is expected from the left-handed student as from the right-handed one. Finally, to find out if teachers have adequate teaching materials available for teaching the left-handed student and if they were satisfied that their training preparation was adequate for them to do a good job in this area. The adequacy of training preparation was questioned in several of the studies reviewed (Groff, 14:95; Enstrom, 7:45).

General Questions Asked

Answers to the following questions were sought:

1. Is the left-handed student encouraged to write with his left hand?

2. Do teachers still insist that the left-handed student use his right hand when writing?

3. Is the left-handed student accepted as being left-handed and no effort made to change his handedness?

4. Do left-handed penmen begin their initial manuscript and cursive writing at the chalkboard.

5. Are left-handed children grouped in the front, right corner of the classroom facing the chalkboard?

6. Are left to right sequence exercises given to the left-handed student as a preliminary writing exercise to forming letters?

7. Do teachers feel competent in guiding the left-handed student toward efficiency in penmanship?

Need of Purpose of the Study

This study was important because recent research showed that over 10 percent of all school population was left-handed and that a typical classroom was likely to include some of these students (Enstrom, 7:45). These are exceptional students who are entitled to special instruction to meet their individual needs. This instruction should include special procedures most beneficial to left-handed students and specially adapted materials and tools. This means of communication needs to be developed so that it will be of greatest possible benefit to them. The responsibility for this potential development lies with those responsible for training the teachers and with the teachers themselves in following through with proper instruction. Teachers must be made aware that with proper instruction left-handed students can more easily master the art of penmanship.

General Procedure

Research relating to the writing needs and problems of the left-handed student were reviewed.

Samples of penmanship were taken periodically from a random first grade class in the Fort Benton Elementary School. Each year thereafter samples were taken from those same students until the class

had progressed through the fourth grade. These rooms were observed to find cut room conditions and procedures that may or may not have been suitable for teaching writing to the left-handed student. The purpose of these observations was to find out if there was a particular time or condition under which the student starts writing with the "hook-wristed" hand position. The writer had observed that the majority of left-handed students who come into her classroom each year used that writing approach. Teachers of these classes were interviewed with special emphasis in the area of beginning manuscript and the changeover to cursive writing.

A questionnaire was sent to each teacher, kindergarten through sixth grade, in elementary classrooms in three school systems in Montana. Information was requested concerning: (a) percentage of left-handed students, (b) sex of these students, (c) their academic ability, (d) methods of presenting penmanship to these students, (e) room environment, (f) attitudes of teachers toward changing the writing habits of the left-handed student, and (g) adequacy of teacher training programs in regard to teaching the left-handed student to write.

The penmanship samples were compared, each student with his own previous samples in an attempt to find out when the back-slant in writing began, if it did. Findings from teacher interviews and room observations (from Fort Benton Elementary School) were reported as found. Results of the questionnaires were tabulated and reported by

tables. Findings were summarized and will be reported in a later chapter.

Limitations or Delimitations

The observation and follow up portion of this study was limited to one class of left-handed students from the Fort Benton Elementary School that was observed from the first through the fourth grade. The teachers who were observed and interviewed were the teachers of these particular students.

Questionnaires were sent to three small school systems in comparatively rural areas with a population of predominately white students with an average and above average background economically and socially to broaden the scope of the study.

Definition of Terms

Hook position. The "hook position" or "hook-wristed approach" is used as reference to a position of writing where paper placement is the same as recommended for the right-handed writer but when used by the left-handed student forces him to approach the writing with his wrist in a curved position from the top of the paper.

Smudge position. The "smudge position" is a writing approach where the student writes a letter, then must move his hand over the first letter written in order to write the second letter or element, thereby making a smudge on the paper.

Chapter 2

REVIEW OF RELATED RESEARCH

Introduction

The review of related research was organized to briefly mention theories for the causes of left-handedness. Implications of the meaning of the word "left" and the stigma resulting from the many interpretations of the meaning of "left" have effected hardships on the left-handed student and were explained in the review of literature (Norris, 21:228).

Research concerning the problems of the left-handed students was reviewed. Finally, recommendations by the researchers for methods of helping to solve the problem were included in the review.

Theories for the causes of left-handedness. The causes of left- or right-handedness are not known for sure. There are many theories: heredity, acquired habit by training, purely learned, imitation, ocular dominance, and others. Frances McMullen (20:72) specialist in Paychological Testing said:

> Children are not born handed. They grow that way. As nerve fibres develop and motor apparatus matures, the two hands come by degrees to work together with the eyes and brain. Later, one hand takes over leadership . . . .

Early interpretations and stigma of the left-handed. The word "left" originally meant sinister, ill-omened, or unfortunate. Sometimes

even today the left-handed person is referred to as being "sinistrorsally" inclined. The modern French term for "left" means the same as clumsy. The right-handed person has always been the symbol of strength, sincerity, and bravery; the left-handed, the sign of weakness, maliciousness, and inferiority. From these meanings have derived such interpretations as "a left-handed compliment", meaning no compliment at all; or a "left-handed oath", one which need not be kept (Norris, 21:224).

Problems of left-handed students in penmanship. Early interpretations of the left-handed student have carried down through many generations and are with us today. This stigma is one of the reasons that the left-handed student has met with such difficulty in getting recognition or help for his needs. An example of modern prejudice was reported by Norris (21:226) in one of classrooms that she observed in her study of the left-handed students. A new primary teacher who was trying to discover the potential of her children asked them which one knew how many monkeys were in a certain picture in the text. Many children raised their hands with great enthusiasm. A child was called upon to write the correct numeral on the blackboard. This child proudly went to the front of the room and wrote a back-sloped, but very correct and easily read, "8". The teacher's only response was that he had written the numeral with the wrong hand.

A second reason why the left-handed student was having such a struggle to come into his own rights was because of apathy among many

teachers and administrators. They failed to recognize or to admit that such a problem existed or that they had an obligation to these students. This example was also cited in the study by Norris (21:229). The students were busy writing an examination on desks with right-handed arm rests in a room lighting arrangement to benefit the right-handed student. He noticed a left-handed student who twisted awkwardly over her paper, stopping to rest often. When the teacher was asked how many left-handers there were in her room she answered that there were none. There turned out to be five left-handed students in the room. In the same school he questioned a principal as to how many left-handed students there were in his school and was told that there were very few. A survey indicated that 10 percent of the students in that particular school were left-handed.

Left-handers are a minority group. Research studies show that thirty years ago there were from 2 to 6 percent of the people who were sinistrorical. Current studies estimate from 7 to 15 percent of the people write with their left hands (Enstrom, 5:234). The number of left-handed students is increasing, probably because the child with sinistral tendencies is not as frequently corrected as he once was. Parents and educators are beginning to realize that the left-handed student is perfectly normal and are putting less pressure on children to change hands. Years ago many students were forced to write with the right hand. In one study (Enstrom, 5:235) involving ten thousand

teachers who answered questionnaires in regard to their left-handed students, it was revealed that 11.1 percent of the students were left-handed. Of these, 12.5 percent were boys and 9.7 percent were girls. It was noted that this finding was generally higher than that usually estimated by educators in literature. From this study, Enstrom concluded that practically all teachers in all grades that he observed permitted left-handed writing and for this reason the percent for each grade was now found to be higher and generally constant.

The problem that the left-handed student is facing is brought about by the system of writing used by all English speaking people. The movements of this system are predominantly counter-clockwise rotary movements that capitalized on the directional movements that are easiest and most natural for the right-handed student. The body tends to move from the center out. For the left-handed student, this meant going contrary to the way that the symbols of writing are formed. Consequently, when he used this method of writing, he progressed toward the body, pushing when he wrote rather than pulling. He is constantly covering his completed work with the elements of the characters that he is forming. His hand acts in the way of his seeing, interfering with his seeing and feeling teamwork. The result is bound to be inconsistency in writing. If the writer uses the hook-wristed approach, his problem is even greater because he pushes his pen or pencil in a reverse direction, holding the pen in such a way that it tends to dig

into the paper (Borders, 2:54).

About 1 percent of left-handed writers are mirror writers, that is, their writing is backwards to the standard method of right-handed writing and can be read by looking into the mirror. There is nothing wrong with this way of writing as it is the natural way for the left-handed student to write. Its only drawback is that it is not a very satisfactory method of communication (Norris, 21:229).

The left-handed student is deprived of the visual clue of looking at the whole word. He gets his cues from kinesthetic and muscle cues. The left-handed mirror writer's tendency for reversals is because his writing is not controlled by vision. Only when the student's writing is controlled by muscle and vision fusion do students tend to change from reversals and to write with more speed and accuracy. The student's short-termed memory obscures each letter as he writes it and handicaps the learning of spelling and of writing (Ure, 21:229).

Shortcomings of the left-handed student may be the lack of seeing. His writing is made more visible by hooking the arm and wrist above the line and writing downwards. The word is then revealed. In this position, the normal push-pull movements of hand to body is reversed, tending to cause reversals and inversions of letters and word parts. A second choice open to the left-handed writer is to turn the paper sideways and to write from above downwards toward the body, top to bottom instead of left to right. In this way, the visibility of

the word is increased but the rotation tends to cause confusions and reversals in writing. The left-handed student adopts "compensatory postures in an attempt to facilitate feedback" by turning the page at a 90 degree angle and writing from top to bottom (Ure, 27:227).

An experimental pencil, designed to provide visual feedback and to allow the left-handed student to write in a normal position was used in a study (Ure, 27:228). The shaft was a penholder with the point of an inexpensive compass wedged into it instead of a pen point. A pencil stub was placed in the compass with the point extending in the opposite direction ordinarily used. The angle at the entry of the pencil was 45^{o}, enabling the student to see and develop the shape of the whole word as he wrote it. This pencil lowered the hand to a normal position where it did not shadow the writing. This study showed marginal improvement in most cases, but the fact that it established itself stably on one test trial seems that benefits might be expected in an early use of such a pencil (Ure, 27:229).

McMullan (20:71) reported several views regarding the changeover from the left to the right hand for writing. One, the changeover from the left to the right hand may be accomplished in the early years for some of the left-handed children who do not have strong sinistral tendencies. A second, the changeover may cause confusion in the brain and the nearby language center may be affected. Third, the trouble caused in some children by the changeover may be emotional. McMullan

explained the problem this way, "Try carrying your own preferred hand in a sling for a few days. The frustration and helpless rage you experience will make you understand the problems of the changed-over child." If the child is a determined left-hander, let him stay that way. The child is not so bad off if he is definitely and consistently left-handed, especially if he is a well-adjusted, normal child. The problem child is the one who has not decided which hand to use or one who has been a changeover and the transfer has been incomplete. He often turns out to be inept with both hands (McMullan, 20:72).

The idea of not tampering with handedness can be overdone because left-handedness may be fastened on a child unnecessarily, and at its best left-handedness is inconvenient. Some children can be changed successfully. It is necessary, however, to take into consideration the whole personality of the child and his previous history. Retraining must proceed with consistency and skill; but, if it is successful, it may solve a problem (McMullan, 20:72).

If the left-handed child can be encouraged to use the right hand without emotional problems, then it is all right to do so, but one must remember that some children are confirmed left-handers. There are tests to show the degree of left-handedness and thus give a guide as to how far to go with any changes. However, this trait is a very complex one, bound up with all the reactions of the whole child, including the eyes and the feet. Therefore, such a testing must be done

by a specialist (Norris, 21:226).

If the child is equally proficient with the right or left hand, it may be best to train him right-handed. But, if he is strongly left-handed, let him stay that way (Slote, 24:47). Slote listed common tests which may help in making a decision.

1. With which hand does he instinctively throw a ball, open a book, button his coat, etc.?

2. With which hand does he hold scissors? (This is considered one of the most conclusive tests. While cutting with the left hand is good proof of left-handedness, cutting with the right hand is not conclusive evidence of right-handedness.)

3. Does he do mirror writing? If this persists, is it a sign of left-handedness?

4. Is there a family history of left-handedness?

She concludes that in doubtful cases that the child is sinistral, a specialist should be consulted.

Williams (26:45) of the Boulder Valley Schools at Boulder, Colorado, wrote that once the children have reached school age they should not be encouraged to change from left-hand usage to the right hand.

McMullen (20:71) noted that most children's inclinations lie somewhere between the extremes of left and right and at first are easy to deflect. There is evidence to prove that most babies under six

months slightly prefer the left hand. Between the sixth and eleventh month this dwindles to a little less than 50 percent, and the greatest number of children establish their preference between three and seven years of age. She told us that an indication of the strength of the baby's preference is how insistent he is and also how he manages the two hands together.

Parents often try to influence the use of the right hand because of the convenience for children. With use, the right hand becomes stronger and soon becomes the preferred hand. This change may work very well if the methods used to promote the change are passive and casual. Attitudes toward the use of the left hand can cause much damage, the same as if children are ridiculed for any reason. The problems are often caused by the manner of the change rather than from the changes themselves (Marksheffel, 19:72).

Kern (17:12) provided this guide for those who decided on hand changing:

1. Consistency. Remember to show the child how to work with the right hand. He is not apt to remember himself. Confusion will result if you leave him stranded between two hands.

2. Give up entirely at the first signs of resistance. It may become clear to you the very first day. If either you or your child takes the "test of strength" position (and this feeling wells up in the best of us) it is time to quit.

McMullen (20:72) recommends the first grade as a good time to change handedness if the teacher has the time and interest and if the parents are willing to do their share. When a child is cooperative and the first trials succeed, the outlook is favorable, particularly if he is a bright and steady student and the teaching is good. She thinks that the very best time to counteract leftness is from three to five years of age. This is the time that handedness has just begun to form and the least effort goes the farthest. Left-handedness tends to assert itself a little later than right-handedness. Even when fairly apparent, it seems to be less stable in the beginning. In this early period, the child engages only in simple motor activities and his controls are still crude. Tact and gentleness must be used if the change is to be made with no difficulties.

Enstrom (5:235) concluded from his study that the problem of the left-handed student is such that it warrants inclusion in teacher preparation courses and deserves in-service study by all teachers in all grades. Unfortunately, few teachers have had special education in helping the left-handed children. He believes that teachers and administrators concerned with exceptional children should be especially well-equipped to help these individuals correctly. Special training should be given, particularly to primary teachers since the initial training of the left-handed child is of such great importance. This problem then, according to him, becomes the responsibility of first the

educators training the teachers, and secondly of teachers instructing primary grades. Again in 1963, Enstrom (6:522) emphasized that all teachers should know that this is not strictly a pupil problem but is a teaching responsibility. Teachers who understand the solutions that he recommended seldom have failures.

Most of the investigators agreed that before teaching handwriting some adjustment in the classroom must be made to provide for the needs of the left-handed student. In the early grades, group the left-handed students so that they would be less inclined to copy the methods suitable to right-handed students. A left-handed student needs a left-handed desk. If only right-handed desks are available, one extra desk to the left of each student can be placed so that he will have a convenient place on which to work. Work written in a right-armed chair by a left-handed student cannot be expected to be his best possible work. When working around a table, make sure that the left-handed student sits where he will not bump elbows with other students (Williams, 26:45).

A very important part of preparing the left-handed student for writing and for increasing his ego is to make him aware that he belongs to a very important group of people--the left handers. He is not alone with his problem and despite this handicap, many left handers have become great men, among them Michelangelo, Raphael, Leonardo di Vinci, two presidents of the United States, President Garfield and President

Truman, and many famous athletes (Norris, 21:229).

Many poor habits of writing may be done away with if the beginning teaching is done at the blackboard. Pulling the writing from a starting point to the left of the writer's body may be instituted with nothing that must first be overcome or unlearned. Additional writing opportunities need to be continued at the chalkboard for those children who tend to use the "smudge position". The smudge position denotes a position of writing where the writer writes a letter and then must drag his hand over the first letter written in order to write the second letter of element of a letter, thereby making a smudge on the paper. William's study (26:46) shows that 50 percent of the students observed drag their hands through what they had written.

> The value of using the chalkboard in the initial stages of learning to write is obvious. It is easier for the student to make each detail in the larger figures and for him to form internal images in legible shapes--first at the chalkboard and then on paper (Goforth, 13:46).

Borders (2:53) does not think that the left-handed students drape themselves on their desks or hook their arms over the top of the paper and write upside down just to annoy their teachers, rather it is a natural reaction to a right-handed system of teaching writing. Development of this left-handed hook is not convenient nor is it necessary. This position develops in an attempt to follow the directions of the teacher who is teaching the right-handed students to write. She reported that because they are permitted to go on in their own way with-

out any special instruction suited to their own needs they are unable to make the necessary adjustments.

Some investigators report that a correct way for left-handed students to write is by the use of the backhand slope. Since a correct position for the left-hander is a reversal of the position used by the right-hander, the slope may also be affected. Slote (24:47) recommended that it was a good idea to supply left-handed children with their own backhand slanted model alphabet so that they would not feel that they had to copy the models used by right-handed students. Norris (20:228) said that there is nothing sacred about the slant of writing so long as it was readable. Williams (27:46) concluded that a preferred slope may vary from 45 degrees left of the vertical to 45 degrees right of the vertical line. Goforth and Hunnicutt (13:46) writes that any slant in writing of 20^{o} backwards to 40^{o} forward makes little difference in the legibility of the writing and that the left-handed student need not force himself to use a forward slant.

Enstrom (6:522) did not agree with the above investigators in regard to the backhand slope. He said that left-handed children should be started with vertical manuscript as are right-handers. He said that contrary to some unsupported opinions, the pupils should never be permitted to write or print backhand, and that all printing done beyond the first grade should have a definite forward slant. Success, when cursive writing begins, would be much more likely if the above

precaution was taken. Other suggested helps that he listed were that left-handed printers or writers should never be hidden in the rear of the room but placed in a forward corner where they could be watched, helped, and encouraged. The position of the pencil should be directed so that the blunt end would be over the shoulder and the wrist would be fairly flat on the desk surface, held close to the desk surface but never to drag. The elbows should be held close to the body.

The placement of paper creates a serious problem for left-handed students if their vision was blocked by their writing hands. When they turn their hands in an effort to see what they are writing, they develop the "hook". Unless these students are guided at the right moment, they will probably become "hookers" with the ink-smearing problem. It is the responsibility of the teachers to know and to make use of the research that was available (Enstrom, 6:522).

Related research. A comprehensive study concerning the problems of the left-handed writer was made to find the extent of the use of the left-hand in writing, and to determine the effect of the various hand, wrist, arm, and paper adjustments on the efficiency of writing (Enstrom, 5:234). Enstrom checked 92,000 pupils in a four-state area (New York, Pennsylvania, New Jersey, and Maryland) to determine the percentage of left-handed writers and the percentage of these that were boys and the percentage that were girls. Data was determined by short questionnaires sent out in conjunction with the handwriting program

used in their schools. Only carefully filled out questionnaires were used and the reliability was checked by combining fifty classrooms of pupils in each grade into blocks of three hundred rooms. These blocks were totaled and the procedure continued until a stabilized finding was obtained. At this particular time, practically all of the teachers in this area permitted left-hand writing; therefore, the percentage in each grade was found to be high and fairly constant.

The second part of the study was based on analyses of 1,103 left-handed writers of grades five through eight. Enstrom observed classrooms and recorded his observations with the camera and sketch pad. He classified the techniques actually used by the left-handed writers in the classrooms in two general classifications: the students writing from below the line and those using the "hooked-wrist" approach. Those two groups were classified. The most important phase of this part of the study was finding the relative efficiency of these variations. Finally, he determined the techniques which produced the most successful results and condemned those most damaging to the left-handed writers. He concluded from this study that rate and success in handwriting were more closely related to the technique used than to hand preference (Enstrom, 7:45).

Enstrom (7:44) noted that five different positions of writing were recommended and one approach, the "hooked-wrist" was condemned in his study of literature concerning the left-handed writer. However,

nowhere in the literature did he find any research backing for either recommending or condemning the various approaches. The five positions that were recommended were all with the paper slanted opposite to that used by the right-handed writer with the differences in the angle of the slant. For his study, Enstrom classified two types of writers: those who kept their writing below the writing line (a relatively smear-free technique) and those who approached writing from the left side of the paper (the "hooked-wrist" writers). He rated his groups for relative efficiency, quality of writing, rate or speed or writing, ability to produce smear-free papers and possible health hazards. Sixty-nine percent of the first group wrote rapidly with a natural and forward slant. Twenty-two percent of those who used the "hooked-wrist" approach produced a writing that was high in quality and rate with letters easily read and easily written. However, this group carried the probability of ink-smearing. Other "hooked-wristed" writers tested low or hazardous in all areas tested.

He concluded from his study that the "hooked-wrist" position could be recommended only when radical changes seemed inadvisable because of habit formation, daily writing pressures or pupils lack of desire to change. He concluded that very few "hooked-wristed" writers could be changed beyond the fourth grade. When the advanced grade student is willing to change his writing position, then it is the teacher's duty to help him find the most desirable position and "teach him the

right way of doing it wrong." He recommended the following:

1. Place the paper exactly as a right-handed writer would place it.

2. Keep the writing-wrist on the edge as far as possible.

3. Use maximum flexing of the hand at the wrist during the writing process.

4. Ignore all other hand-positions or instructions. (Instructions for slant letter forms, spacing are the same for all.)

5. Use pen-shaped ball point pen of good quality.

Enstrom (10:760) noted that reversal problems, particularly prevalent among the left-handed writers, can be prevented. They happened because of:

1. Lack of instruction in preschool or kindergarten where children were ready for learning but were untutored.

2. Lack of exacting instruction by kindergarten or first-grade teachers. Careless beginnings cause many errors that become permanent and plague the individual for life.

3. Many teachers do not understand the importance of eliminating errors by emphasizing the correct beginning point, correct direction of motion, and correct sequence of multi-part letters.

4. Retroactive inhibition caused by teaching two different but similar learnings close together without sufficient practice to establish each as a habit . . .

5. When pupils are permitted to frequently write without a copy, left-handedness may be the cause of not more-than-normal reversals but of general mirror writing. To ensure success here, teachers should understand how to solve all phases of problems involved in writing with the left hand.

Preventing problems is always the best cure, therefore, reflects the best teaching. Instead of using our energies to battle wrong habits, teachers should devote more time and thought to correct introductions even though it may be very formal teaching. Careful sequential teaching will prevent many of these problems (Enstrom, 10: 763).

The obvious difference between left and right handedness is the hand that they wrote with. Horton (16:427) indicated that available evidence showed that the left-handed student can learn to write as easily, as rapidly, as comfortably, and as legibly as the right-handed student, but he cannot do it without special attention to his particular needs. He listed five essentials necessary for an appropriate method of instruction for the left-handed student: (1) correct position of the paper, (2) correct grip of the pen, (3) correct relation between the hand and the base line, (4) appropriate slant, and (5) usable writing implements.

A continuous film loop has been developed at the University of Hawaii to teach handwriting (Strahan, 25:70). An 8 mm projector is

housed in a special rear-screened projection box. Elementary level students are able to learn techniques in holding a pen or pencil correctly and proper formation of letters and words. The student can get as much or as little practice as needed. A whole set of film cartridges are available for presenting the most basic letter construction as well as more complicated words and letter groupings. The child's progress is a sticker placed in a cumulative record following successful completion of particular assignments. Individualized presentation of penmanship to the left-hander may help to solve some of his problems.

Illustration No. 1, page 26, shows left to right sequence exercises and paper placement that Enstrom (9:43) advocates for the left-handed student to learn the special techniques of writing. Figure 1 illustrates a "rightward sliding" exercise which should be repeated many times as the student says aloud "touch, slide, left". It is important that he keeps moving in the correct direction so the teacher should watch carefully at the beginning practice sessions.

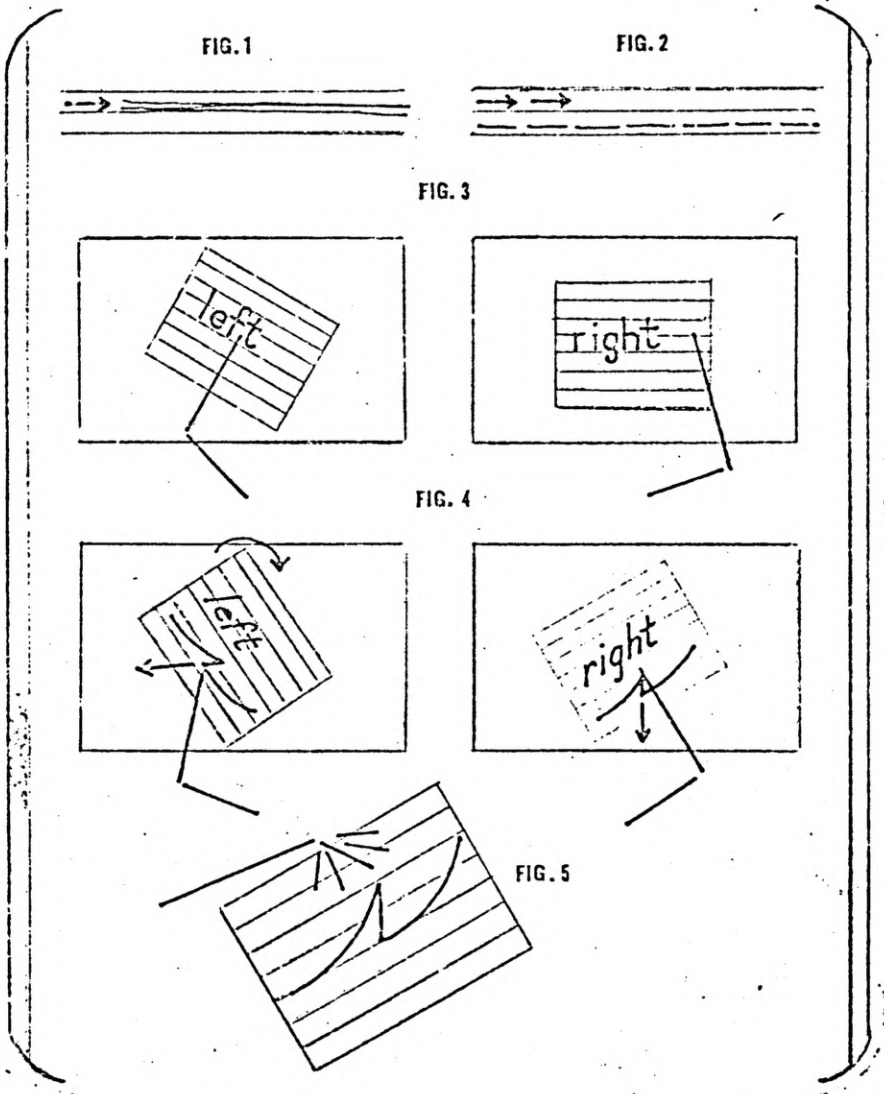
Figure 2 illustrates a second important movement that must be practiced until it is an established habit. While the student practices this exercise, he should repeat "touch, slide".

The left-handed student should keep the paper turned as shown in Figure 3 when first learning to print.

Figure 4 represents paper placement when writing lessons have advanced to slant print and slant cursive writing.

If the student writes with the "hooked-wrist" approach, he should be taught to write as illustrated in Figure 5. Place the paper exactly as the right-handed student does. His wrist should be kept somewhat on the edge of the paper and should be flexed while he is writing. This approach is tolerated by experts and is the best of nine ways of writing with a hooked wrist (Enstrom, 9:44).

Illustration



Chapter 3

RESEARCH DESIGN

Introduction

The purpose of this study was to ascertain the percentage of left-handed students, their sex distribution, academic rating, and what is being done to aid this student in meeting his writing needs. Environmental factors, methods, and materials were of concern here. The investigation was extended to include the attitudes of the teachers toward changing the writing habits of the left-handed student and toward the adequacy of teacher training programs related to teaching the left-handed student to write.

Population Description and Sampling Procedure

The first part of the study involved the first grade students in the Fort Benton Elementary School, consisting of three classrooms (sixty-two students the first year of the study).

Questionnaires were sent to three elementary school systems in comparatively rural areas of Montana (Fort Benton, Hamilton, and Geraldine). The population is a group of predominately white students with an average or above average economic and social background. Eight hundred and nineteen students and thirty-nine teachers of kindergarten through sixth grade were involved in this portion of the study.

Investigation Procedures

One group of first grade students was chosen as an experimental group for observation to determine how the writing needs for the left-handed student were being met in the Fort Benton Elementary School at Fort Benton, Montana. This group consisted of sixty-two students, six of whom were left-handed writers. The samples of writing collected from these left-handed students were compared to determine the writing slant and legibility.

Teachers of these classes were interviewed during the first nine-week period of each year. The interviews emphasized the beginning of manuscript and the changeover to cursive writing procedures. These questions were pursued:

1. Are left-handed students encouraged to write with their right hand or are they accepted as left-handed students and no attempt made to change handedness?

2. Do left-handed students begin initial manuscript writing at the chalkboard, at their desks, or a combination of chalkboard and desks?

3. When is cursive writing initiated? Is the initial teaching of cursive writing done at the chalkboard or at their desks?

4. Are left-handed students seated in a particular area in the classroom? Are they grouped with other left-handed students for penmanship class?

5. Are recent, adequate teaching materials available for these students?

6. What instructions are given the left-handed student regarding paper placement?

7. How many of these left-handed students use a "hooked-wrist" approach to writing?

A second part of the study was based on information acquired from questionnaires sent to three school systems involving 819 students and thirty-nine teachers of these students. The questionnaire requested the following information and was to be filled out by the classroom teacher.

1. What grade level is this classroom?

2. How many students are there in your classroom?

3. How many of these students are left-handed?

4. What is the approximate academic rating of these students? (average, above average, below average)

5. Check the statement below that is the most accurate description of your situation.

   a. I encourage left-handed students to write with their right hands?

   b. I insist that left-handed children write with their right hands.

   c. I sometimes encourage left-handed students to write

with their right hands.

d. I accept children that write with their left hands and never try to change their handedness.

e. Other (explain)

6. Do your left-handed students begin initial manuscript at the chalkboard? At their desks?

7. Do your left-handed students begin initial cursive writing at the chalkboard? At their desks?

8. Where are left-handed students seated during the penmanship period? Check one of the following.

a. In the left, front corner of the room facing the chalkboard or overhead projector screen.

b. In the right, front corner of the room facing the chalkboard or overhead projector screen.

c. Randomly seated among the right-handed students.

d. Other (explain)

9. When the left-handed students are writing, the blunt end of the pencil points over the left shoulder? Away from the writer? Other?

10. Are left-to-right sequence exercises given to left-handed students before they try to form letters?

11. How many of your left-handed students write with the backhand slant? The forward slant? With no slant?

12. Do you expect the same perfection from left-handed writers

that you do from the right-handed writers?

13. Do you think that you had adequate training preparation for teaching penmanship to left-handed students?

14. Are the teaching materials that you are using adequate for teaching the left-handed student to write?

Forty-five questionnaires were distributed to three elementary school systems. Questions were answered by the classroom teachers and thirty-nine teachers returned their questionnaires. Results of these were tabulated and findings reported. One question concerning paper placement was not tabulated because of inaccuracies in validity of question as stated.

Chapter 4

FINDINGS REPORTED

Introduction

This study was conducted to determine what is being done to aid the left-handed student in meeting his writing needs. One class of sixty-two first grade students in the Fort Benton Elementary School was chosen as the study group. There were six left-handed students in the group. Writing samples were collected twice each year until the group had progressed through the fourth grade. An attempt was made to determine when and why so many of these students developed the "hooked-wrist" approach to writing and the writing slant that they used.

Questionnaires included information gained from thirty-nine teachers, kindergarten through grade six, in three elementary school systems in Montana. The information sought was: (a) percentage of left-handed students, (b) sex of these students, (c) their approximate academic ability, (d) methods of presenting penmanship to the class, (e) room environment, (f) attitudes of the teachers toward changing the writing habits of the left-handed student, and (g) adequacy of teacher training programs.

Teacher Observation and Interview

Three first grade classrooms were observed during penmanship instruction the first nine-week period of the school term. Flat-topped

desks were used in all of the rooms. Large primary pencils and wide-lined first grade paper were provided for the students' use.

First grade teachers were interviewed at this time and in every case revealed that students were accepted as left-handed writers and only in special cases where the handedness was not definite was there any attempt made to encourage the student to change his writing hand. None of the teachers interviewed insisted on any left-handed student writing with his right hand. Left-to-right sequence exercises were given as preparation to initial manuscript. Manuscript writing was initiated by writing both at the chalkboard and at the desk. Students were not grouped in any of the rooms but remained in their regular places for the writing lesson.

Teachers of the second grade students were interviewed the following year. All of the above left-handed students were in this class again. Teachers of the second grade made no attempt to change handedness or hand position. Two of these teachers mentioned that the patterns of writing have been set by the time the student is in the second grade. Students were randomly seated among the right-handed students in all classrooms. Texts used for instruction were outdated with little help for the left-handed writer. Teachers in the second grade instructed students in paper placement for manuscript, a 90° angle from the front of the desk.

Three of the six left-handed students began cursive writing the

last semester of the second grade. Initial cursive writing was introduced to them at their desks. One teacher had her left-handed students write at the chalkboard during initial presentation and then to practice further writing at their desks. The other two introduced initial cursive writing at the children's desks.

Cursive writing was introduced to the remaining three left-handed students at the beginning of the third grade. Room environment parallelled that in the second grade. Materials had been updated in the whole school system and uniform teaching materials were adopted. More up-to-date and definite instructions were included in these new teaching materials for the left-handed student. Less time for instruction of writing was allotted at this level and systematic instruction is often cut for lack of time. Individual directions and help were given as needed for the left-handed student in every case.

Interviews with fourth grade teachers of these left-handed students revealed that one hour or less of each week was allotted for systematic instruction of penmanship. Here, again, as in the third grade, penmanship was often the class that was omitted in case of shortage of time. Uniform and recent texts were used for instruction in all rooms. Practice paper had a narrower line, but it was still divided to help students get more uniformity in lower case letters. Grouping of left-handed students was done in one room only. Desks were suitable for writing with either hand. No pressure was applied in any of the rooms

for changing hand positions or paper placement. Suggestions for changing paper placement was made in one of the rooms but paper was always returned to the position that student was used to.

Analysis of Penmanship Samples

Samples of writing were collected from one class of left-handed students the first and third nine-week period for grades one through four. These were sorted into two groups that, in the opinion of the writer, had: (1) very legible writing with well-formed letters, and (2) writing that was illegible because of poorly formed letters, poor spacing, and errors in writing generally.

From the samples of writing taken from these six left-handed students, three were easily read with few mechanical errors. These three students were above average in academic ability. One of these students was using the "hooked-wrist" approach in the first grade. The other two wrote with the blunt end of their pencils pointed over the left shoulder and their writing hand beneath the line of writing. Cursive writing was initiated during the last nine weeks of the second grade. The students wrote at their desks not at the blackboard. The student using the "hooked-wrist" approach used the paper placement recommended for a right-handed student. His letters were perfectly formed, neat, and easy to read but he wrote slowly and with effort. The two using the other approach were not quite as precise in letter formation but wrote more quickly and easily with well-formed and

legible letters. None of these students wrote with back-sloped letters.

The other three left-handed students were below average academically. Manuscript letters were poorly formed and uniformity of size was lacking. They had trouble staying within the lines, forming and spacing letters and words. Two of these students showed reversals even as late as the third grade. In the second year, capital and small letters were inter-mixed. All three of these three students used a definite "hooked-wrist" approach and writing was very slow and labored. There was no back-sloping or backhand writing in any of the samples of writing collected.

Questionnaires

Questionnaires were received from thirty-nine classrooms with a total population of 816 students, 54 percent male and 46 percent female. Eighty-nine students, or 10.9 percent, were left-handed students. Of the female portion of the population, 10.1 percent were left-handed students, 11.2 percent of the total male population were left-handed. Teachers reported the approximate academic standing of their left-handed students by checking for each, either "above average", "average", or "below average". Table 1, page 37, shows the academic ability of the left-handed students as rated by their teachers. It indicates that 28 percent of the left-handed students were rated by their teachers to be above average academically, 33 percent below

average, and 40 percent average.

Table 1

Population Distribution of Left-Handed Students and Approximate Academic Ratings

Grade	No. of Class-rooms	Total population		Total left-handed population		Academic rating of left-handed students		
		Male	Female	Male	Female	Above average	Average	Below average
K	1	11	10	2	1	2	1	0
1	8	90	70	4	8	3	3	6
2	6	68	62	11	5	5	6	5
3	7	75	65	9	5	3	10	1
4	6	73	59	8	7	4	3	8
5	5	61	54	5	3	1	9	1
6	5	53	56	6	12	7	4	7
Special education	1	6	3	1	0	0	0	1
TOTAL	39	437	379	48	41	25	36	29
Total percentage		54%	46%	11.2	10.1	28%	40%	33%

Thirty-seven teachers accept children that write with their left hands and never try to change their handedness. Comments by teachers

to this part of the questionnaire were:

1. Kindergarten teacher: "If handedness is not definitely established, I use tests to see which hand they use most. Example: handing things to them, which hand do they reach out for the object?"

2. First-grade teacher: "I do not think that it is necessary for all of us to write right-handed."

3. Second-grade teacher: "The first grade teacher decides this."

4. Sixth-grade teacher: "By sixth grade, I feel it is too late to change handedness."

One teacher reported that she encourages left-handed students to write with their right hand and another sometimes encourages them to do so.

Initial manuscript writing is formally taught at the child's entrance in school. For this reason, only first grade, kindergarten, and special education questionnaires were considered for determining whether these students write at the chalkboard, their desks, or a combination of chalkboard and writing at their desks. Table 2, page 39, refers to initial presentation of manuscript to left-handed students.

Ninety percent of the teachers polled initiate manuscript at the chalkboard. Ten percent used a combination desk and chalkboard for initial presentation.

Table 2

Introducing Initial Manuscript to Left-Handed Students

Initial manuscript	Chalkboard	Desks	Other
Kindergarten	1	0	0
First grade	7	0	0*
Special education	1	0	
Total	9	0	

* At both the desk and the chalkboard

Initial cursive writing usually begins during the second and third grades. Table 3 indicates initial presentation of cursive writing to left-handed students in second and third grades and special education.

Table 3

Introducing Initial Cursive Writing to Left-Handed Students

Initial cursive	Chalkboard	Desks	Other
Second grade	4	1	1*
Third grade	0	4	1** 2***
Special education	1	0	0
Total	5	5	4

* At both desks and chalkboard **At the desk and writing in the air
*** Questionnaires were not answered in this area

Thirty-six percent of the teachers begin initial cursive writing at the chalkboard, 36 percent at the desks, 7 percent used a combination of the desk and the chalkboard, and 7 percent practiced writing new words at the desk and forming the individual letters in the air.

Three of the most often used hand positions are shown in Table 4. Most of the left-handed students in this study point the blunt end of the pencil over their left shoulders.

Table 4

How Left-Handed Students Hold Their Pencils When Writing

Position	Number of students	Percentage
Over the left shoulder	61	75%
Away from the writer	14	17%
Right angle to the body	6	8%

Are separate and different writing instructions given to the left-handed and the right-handed students? Forty-six percent of the teachers polled indicated that they give writing instructions to both the left-handed and the right-handed students simultaneously (both receive the same instructions). Another 10 percent give writing instructions for the right-handed students and the left-handed students must decide for themselves the best way to write. Forty-one percent of the

teachers give different and separate writing instructions for the left-handed students. Five percent reported that individual help was given to the left-handed students.

How many left-handed students use the backsloped or backhanded slant when writing, either manuscript or cursive? Table 5, page 42, indicates the writing slant of left-handed students. Ninety percent of left-handed students use no slant at all when writing manuscript. Three and five-tenths percent of these students use backsloping and 7.5 percent a forward slant.

Grades three through six use cursive writing predominately. Forty-four percent of these students use no slant when writing, 32 percent use the forward slant, and only 24 percent use the backslope.

The seating arrangement of the left-handed students in the classroom could have some effect on the writing habits of these students. Table 6, page 43, indicates the seating arrangement for the left-handed students during penmanship instruction.

Ninety-five percent of the teachers in this survey seat left-handed students randomly among the right-handed students during the penmanship instruction period. Only two teachers seated left-handed students in the left-front corner of the classroom and no teacher grouped left-handed students in the right front corner of the classroom facing the chalkboard or overhead projector.

Table 5

Writing Slant of Left-Handed Students

	Back slant	Forward slant	No slant
Manuscript			
Kindergarten	0	0	1
First grade	1	0	11
Second grade	0	3	13
	1	3	25
Cursive Writing			
Third grade	1	8	5
Fourth grade	3	4	8
Fifth grade	6	2	3
Sixth grade	3	5	10
Special education	1	0	0
	14	19	26

Manuscript - Left-handed students	90%	No slant
	3.5%	Back slant
	7.5%	Forward slant
Cursive Writing - left-handed students	44%	No slant
	32%	Back slant
	24%	Forward slant

Findings from one question concerning paper placement was not reported here because, in the writer's opinion, accurate, pertinent information was not gained from replies to the questionnaire.

Table 6

Seating Arrangement for Left-Handed Students During Penmanship Instruction

Seating arrangement	Number of teachers using the method	Percentage
Left-handed students are seated:		
In the left front corner of the room facing the chalkboard or overhead projector screen	2	5
In the right front corner of the room facing the chalkboard or overhead projector screen	0	0
Randomly among the right-handed students	37	95

Table 7 shows teacher's expectation of writing perfection of the left-handed students. (See page 44)

Ninety-two percent of the teachers expect or usually expect that left-handed students should write as well as right-handed students. Only 8 percent of the teachers do not expect this perfection from their left-handed students.

Table 7

Teacher's Expectation of Writing Perfection of the Left-Handed Students

	Yes	Usually	No
Do teachers expect the same perfection from left-handed writers that they expect from right-handed writers?	20	16	3
Percentage	51%	41%	8%

Table 8 indicates instructional materials available for teaching penmanship to the left-handed students.

Table 8

Instructional Materials Available for Teaching Penmanship to the Left-Handed Students

	Yes	No
Recent and adequate instructional materials are available for left-handed students	18	20

Over half of the teachers reported that they did not have recent or adequate teaching materials for use in instructing the left-handed student in penmanship.

Table 9 reports teacher-training programs for left-handed student's penmanship as reported by teachers.

Table 9

Teacher-Training Programs for Left-Handed Student's Penmanship as Reported by Teachers

	Yes	No
Do you believe that you had adequate training for teaching penmanship to the left-handed student?	6	33
Percentage	15%	85%

Eighty-five percent of the teachers questioned do not think that the teacher-training programs are preparing them to help the left-handed student meet his writing needs.

Chapter 5

SUMMARY, CONCLUSIONS, AND RECOMMENDATIONS

Summary

This study was conducted to determine what is being done to help the left-handed student meet his writing needs. The left-handed students of the Fort Benton Elementary School were chosen as a study group. Samples of penmanship were collected twice a year for four consecutive years from this group in an effort to determine: (1) the particular time or conditions under which the left-handed student started writing with the "hooked-wrist" hand position, and (2) the most common writing slant that these left-handed students use.

Teachers of this class were interviewed each year until the class had progressed through grade four. The purpose of the interview was to determine: (1) methods of initial presentation of both cursive and manuscript writing, (2) room environment of the left-handed students during penmanship instruction, (3) approximate academic rating of the left-handed students, (4) the number of left-handed students using the "hooked-wrist" approach to writing, and (5) materials available for instruction for the left-handed student.

The study was further extended to include three elementary school systems in rural Montana. Information was accumulated through questionnaires regarding 819 students, eighty-nine of whom were left-

handed students. Data collected concerned: (a) percentage of left-handed students, (b) sex of these students, (c) their approximate academic ability, (d) methods of presenting penmanship to the class, (e) room environment, (f) attitudes of the teachers toward changing the writing habits of the left-handed student, and (g) adequacy of teacher training programs.

Upon completion of the study and on the basis of the findings reported, it would seem apparent that the left-handed students, not because of willful neglect on the part of most teachers, but because of lack of knowledge of many teachers to meet the left-handed students needs and lack of up-to-date materials for instruction. A second consideration could be the apathy on the part of many teachers, particularly in upper elementary, toward the necessity of systematic instruction in penmanship.

Conclusions

As a result of this study, the following conclusions can be made from the data collected:

1. In an average classroom, a teacher will be likely to have two or three left-handed students. About 40 percent of these left-handed students may have an average academic ability, about 30 percent may have above average academic ability, and about 30 percent below average ability. Most of the teachers expect that these left-handed students should write as well as the right-handed students. Only 8

percent of the teachers in the study did not expect this perfection from their left-handed students.

2. Ninety-five percent of the left-handed students in this study were seated randomly among other students in the classroom during penmanship instruction. Five percent of teachers polled seat their left-handed students in the left-front corner of the classroom facing the chalkboard or overhead projector. Grouping left-handed students in the right front corner of the classroom, as recommended in the literature, facing the chalkboard or overhead projector was not done by any of the teachers.

3. Most teachers accepted left-handed students and did not attempt to change their handedness when writing. An exception to this was a kindergarten teacher who tests if handedness has not been definitely established. If it is not definite, the student is encouraged to use his right hand when writing.

4. Initial manuscript writing was, in most cases, introduced to left-handed first grade and kindergarten students at the chalkboard. Thirty-six percent of the teachers reporting presented initial cursive writing to left-handed students at the chalkboard, and an equal number used student's desks for the initial cursive writing instruction. The remaining teachers used both the desk and the chalkboard or the desk supplemented by forming individual letters in the air.

5. More than half of the left-handed students received no

writing instructions that were directed specifically to the left-handed student's problems. Writing instructions were given for the right-handed students and the left-handed students were left to decide their own best way of writing.

6. Most of the left-handed students have no slant to their manuscript writing. Only 3.5 percent of these students write with a backslope. In cursive writing, 32 percent use the backslant, 44 percent write with no slant, and 24 percent write with the forward slant.

7. Recent and adequate teaching materials used to instruct the left-handed student in penmanship were not available to more than half of the teachers reporting.

8. Teacher training programs seem to leave teachers unprepared to help the left-handed student meet his writing needs. This was reported by 85 percent of the teachers.

Recommendations

This study is limited by the size and local area of the population but some insights into possible weaknesses in teaching practices and school curriculums have been gained. The following recommendations are made from the conclusions of this study:

1. It is the teacher's responsibility to know the best and easiest writing methods for the left-handed student to use successfully and to provide direction for him.

2. The administration and the teachers need to be aware of new teaching materials that provide directions and helps for the left-handed students and to make use of them.

3. In-service programs should be provided to bring teachers up-to-date in this neglected area of instruction.

4. It is recommended that a study be made of the effect of seating in the classroom on the ability of the left-handed student to write. Literature cites special advantages in seating left-handed students in the right front corner of the room facing the chalkboard or overhead projector during penmanship instruction. None of the teachers in the study used this seating arrangement of seating for left-handed students.

5. It is recommended that a study be made of presenting both manuscript and cursive writing to the left-handed students at the chalkboard and continuing to write there until the hand-position-habit is fixed. Literatures cite this as a preventative measure against the "hooked-wrist" writing approach.

6. It is recommended that a study be made of the use of filmloops to provide individualized teaching of writing to left-handed students. The student would sit in front of a small screen and watch the demonstration of writing from the same angle that he would be using to write. This should help the student to use the correct hand position and to form the elements of writing correctly. The filmloop is

continuous and practice could continue until it had been mastered. This may be of particular benefit to the left-handed student whose teacher is right-handed and who gives instruction for the right-handed student only.

Discussion

Penmanship is no longer stressed as an artful communication, rather one of necessity with the most basic requirements that it be legible and be written with smooth and easy movements. Apathy toward writing was shown in this study by: (1) lack of systematic writing instruction in intermediate grades, (2) lack of recent and adequate teaching materials, and (3) by the number of teachers who felt inadequate in teaching left-handed students to write because of lack of teacher training.

APPENDIX

MEETING THE WRITING NEEDS OF THE LEFT-HANDED STUDENTS

(A questionnaire for elementary teachers)

DIRECTIONS: Do not write your name on this questionnaire. Answer the questions accurately and return to your principal's office as soon as possible.

Grade level of teaching (Circle one) K 1 2 3 4 5 6

1. How many students are there in your classroom? _____

   Boys _____

   Girls _____

2. How many of these students write left-handed? _____

   Boys _____

   Girls _____

3. Check the approximate academic rating of these left-handed students.

   Average _____

   Above Average _____

   Below Average _____

4. Check the statement below that is the most accurate description of your situation.

   a. I encourage left-handed students to write with their right hands. _____

   b. I insist that left-handed children write with their right hands. _____

   c. I sometimes encourage left-handed students to write with their right hands. _____

   d. I accept children that write with their left hands and never try to change their handedness. _____

e. Other (explain) _____

_____

_____ _____

5. Do your left-handed students begin initial manuscript writing

at the chalkboard? _____

at their desks? _____

6. Do your left-handed students begin initial cursive writing

at the chalkboard? _____

at their desks? _____

7. During the penmanship period, left-handed students are seated:

a. In the left front corner of the room facing the chalkboard or overhead projector screen _____

b. In the right front corner of the room facing the chalkboard or overhead projector screen _____

c. Randomly seated among the right-handed students _____

d. Other (explain) _____ _____

8. When the students are writing, the blunt end of the pencil points (designate number of left-handed students in blank)

over the left shoulder _____

away from the writer _____

other (explain) _____

---

9. Are writing instructions given (check one):

a. To both the left-handed and the right-handed students simultaneously? (Both receive the same instructions) _____

b. Different and separate instructions for the left-handed group and the right-handed group? _____

c. For the right-handed students and the left-handed students are left to decide for himself the best way for him to write? _____

10. Are left-to-right sequence exercises given to the left-handed students before they try to form letters? Yes _____

No _____

11. Write the number of students who use each of the following methods of paper placement under the figure that most closely represents the method used. If none of the below are accurate, please put a representation of this or other methods used in the blank space No. 4.

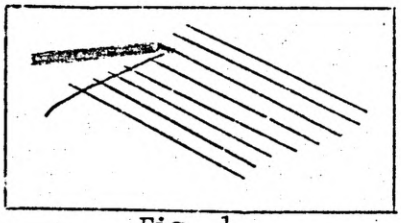


Fig. 1

Fig. 1 _____

Fig. 2 _____

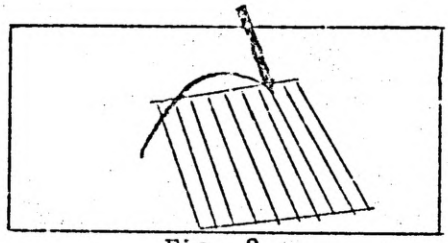


Fig. 2

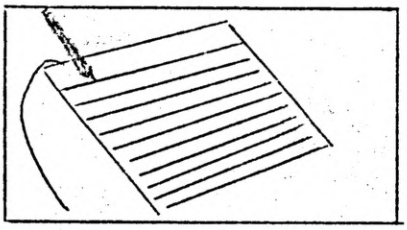


Fig. 3

Fig. 3 _____

Fig. 4 _____

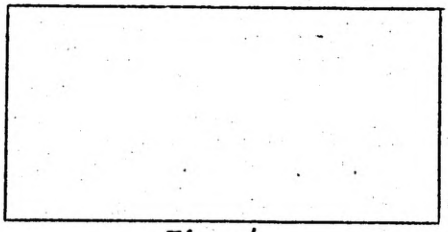


Fig. 4

12. How many of your left-handed students;

a. write with the backhand slant? _____

b. write with the forward slant? _____

c. write with no slant? _____

13. Do you expect the same perfection from left-handed writers that you do from the right-handed writers?

Yes _____ No _____ Usually _____

14. Do you believe that you had adequate training preparation for teaching penmanship to left-handed students?

No _____ Yes _____

15. Are the materials (texts) that you are using adequate for teaching the left-handed student to write?

No _____ Yes _____

Thank you for your time.

Ellen M. Nottingham

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